INVITATION FOR BID

FOR THE FOLLOWING PROJECT:

Terminal 4 Apron Expansion

BROWARD COUNTY

through its

BOARD OF COUNTY COMMISSIONERS

of

BROWARD COUNTY, FLORIDA

BID/CONTRACT NO.: Z1145017C1
ATTENTION

Dear Vendor:

Thank you for your interest in doing business with Broward County. We look forward to a very successful procurement process.

Please take notice of the response submittal requirements outlined in this solicitation. Read and follow the instructions very carefully, as any misinterpretation or failure to comply with instructions could lead to your submittal being rejected. Any change(s) to this solicitation will be conveyed through the written addenda process. Notifications of addenda are sent electronically to vendors registered under the applicable commodity codes at the time the original solicitation was created. In addition, all addenda are posted on the Purchasing Division’s website, www.broward.org/purchasing which can be accessed by selecting Current Solicitations. Please read carefully and follow all instructions provided on the addendum, as well as the instructions provided in the original solicitation. It is the responsibility of all potential vendors to monitor the Purchasing Division’s website for any changing information prior to submitting their reply.

It is the intent of the Purchasing Division to provide quality services. If you have any questions, please visit our website to view the information provided on “How to Do Business with Broward County – A Vendor’s Guide,” or feel free to contact the agent of concern. Again, thank you for your continued interest in doing business with Broward County.

Sincerely,

Brenda J. Billingsley
Broward County Purchasing Division
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SECTION 1: SCOPE OF WORK

The Work set forth within these bid documents includes the furnishing of all labor, materials, equipment, services and incidentals for the construction of:

Expansion and reconfiguration of the existing Terminal 4 aircraft apron to accommodate the new T4 concourse. The project is comprised of site preparation, grading, building and pavement demolition, construction of concrete and asphalt pavement, base course, pavement markings, airfield lighting, electrical and communication ductbanks, storm drainage, underground water and sanitary sewer services, landscaping, fencing and retaining walls at the Fort Lauderdale-Hollywood International Airport.
SECTION 2: INSTRUCTIONS TO BIDDERS

The following instructions are given for the purpose of guiding Bidders in properly preparing their bids. Such instructions have equal force and weight with other portions of the Contract Documents and strict compliance is required with all the provisions contained in the instructions.

1. Examination of Contract Documents and Site: It is the responsibility of each Bidder before submitting a Bid, to:

   1.1. Examine the Contract Documents thoroughly;

   1.2. Visit the site or structure to become familiar with conditions that may affect costs, progress, performance or furnishing of the Work;

   1.3. Take into account federal, state and local laws, regulations, ordinances, and the Broward County Procurement Code that may affect costs, progress, performance, furnishing of the Work, or award;

   1.4. Study and carefully correlate Bidder's observations with the Contract Documents; and

   1.5. Carefully review the Contract Documents and notify the COUNTY of all conflicts, errors or discrepancies in the Contract Documents of which Bidder knows or reasonably should have known.

   The submission of a Bid shall constitute an incontrovertible representation by Bidder that Bidder has complied with the above requirements and that without exception, the Bid is premised upon performing and furnishing the Work required by the Contract Documents and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

2. Pre-Bid Interpretations: Only questions answered by written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. All questions about the meaning or intent of the Contract Documents are to be directed to COUNTY in writing. Bidder shall submit all questions by e-mail to: Richard Waskiewicz, Expansion Project Administrator, Aviation Department, rwaskiewicz@broward.org and Sarah Townsend, Purchasing Agent III, Purchasing Division, satownsend@broward.org.

   Interpretations or clarifications considered necessary by the COUNTY in response to such questions will be issued by COUNTY by means of addenda. Written questions should be received no less than fourteen (14) calendar days prior to the date of the bid opening. There shall be no obligation on the part of COUNTY to respond to questions received less than fourteen (14) calendar days prior to bid opening.

3. Addenda and Modifications: Bidders are responsible for checking the COUNTY’s website (www.broward.org/purchasing) for additional information and addenda. COUNTY shall make reasonable efforts to issue addenda within seven (7) calendar days prior to bid opening date, or less as stated in addenda. All addenda and other modifications made prior to the time and date of bid opening shall be issued as separate documents identified as changes to the Contract Documents. Bidders shall be responsible for obtaining, reviewing and executing each addendum. Bidders shall be responsible for notifying COUNTY of any issues in each addendum within seven (7) business days of issuance and prior to submittal of bid response.
4. **Submission of Sealed Bids:** All bids must be received at the Purchasing Division of Broward County, Governmental Center, Room 212, 115 South Andrews Avenue, Fort Lauderdale, Florida 33301, before the time and date specified for bid opening. The Bid Tender Form must be executed and submitted with all bid sheets in a sealed envelope. It is the bidder's sole and strict responsibility for obtaining and submitting a response on or before the due date and time. Broward County is not responsible for bidder's delays and untimely submittal caused by using the United States Postal Service or any other type of delivery method (i.e. courier, shipping, or transportation services). Submittals or responses delivered or received at any other location than the location specified herein and/or received late shall be deemed non-responsive.

The original Bid Tender Form must be signed, preferably in blue ink, and should include one photocopy of executed bid document in one envelope. The face of the envelope should contain the address, the date and time of bid opening, and bid number. Bids not submitted on bid sheets may be rejected. All bids are subject to the conditions specified herein. Those bids which do not comply with these conditions are subject to rejection.

**Bid No. Z1145017C1**, will be received by the Board of County Commissioners, Purchasing Division of Broward County, Governmental Center, Room 212, 115 South Andrews Avenue, Fort Lauderdale, Florida 33301 until **2:00 p.m. on Wednesday, July 31, 2013**, at which time bids will be publicly opened and read thereafter.

5. **Pre-bid Conference and Site Visit:** There will be a Pre-bid Conference on **Monday, July 8, 2013 at 10:00 am**, at Secret Woods Nature Center, Julia Hall, 2701 W. State Road 84, Dania Beach, FL 33312. Attendance at the Pre-bid Conference is highly encouraged and recommended as a source of information but is not mandatory.

A Pre-bid Job Site Visit will immediately follow the Pre-bid conference; attendance at the Site Visit is highly encouraged but is not mandatory.

6. **Cone of Silence Ordinance:** In accordance with Section 1-266, of the Broward County Code of Ordinance, as amended, provides that after the advertisement of the bid solicitation, potential vendors and their representatives are substantially restricted from communicating regarding the Bid with the County Administrator, Deputy County Administrator, Assistant County Administrator, Assistants to the County Administrator, their respective support staff, or any or any staff person that is to evaluate or recommend selection in this bid process. The Cone of Silence Ordinance further provides that after the bid opening for this solicitation, potential vendors and their representatives are substantially restricted from communicating regarding this Bid with the County Commissioners and their staff.

   6.1. For Invitations for Bids the Cone of Silence shall be in effect for staff involved in the award decision process at the time of the solicitation advertisement. The Cone of Silence shall be in effect for the Board of County Commissioners upon bid opening for the solicitation.

   6.2. The Cone of Silence terminates when the County Commission or other awarding authority takes action which ends the solicitation.

   6.3. Any violations of this ordinance by any member(s) of the responding firm or joint venture may be reported to the COUNTY’s Office of Professional Standards. If there is a determination of violation, a fine shall be imposed against the vendor.
as provided in the County Code of Ordinances. Additionally, a determination of violation shall render any award to a vendor who is found to have violated the Ordinance voidable, at the sole discretion of the Board of County Commissioners.

7. **Printed Form of Bid:** All bids must be made upon the blank Bid Tender Form included herein and must give the price in strict accordance with the instructions thereon. The bid must be signed and acknowledged by the Bidder in accordance with the directions on the bid form.

8. **Postponement of Date for Opening of Bids:** COUNTY reserves the right to postpone the date for receipt and opening of bids and will make a reasonable effort to give at least seven (7) calendar days written notice of any such postponement to each prospective Bidder.

9. **Acceptance or Rejection of Bids:** COUNTY reserves the right to reject any or all bids prior to award. Reasonable efforts will be made to either award the Contract or reject all bids within one hundred and twenty (120) calendar days after bid opening date. A Bidder may not withdraw its bid unilaterally nor change the Contract Price before the expiration of one hundred and twenty (120) calendar days from the bid opening date. A Bidder may withdraw its bid after the expiration of one hundred and twenty (120) calendar days from the bid opening date by delivering written notice of withdrawal to the Purchasing Division prior to award of the Contract by the Board of County Commissioners or Director of Purchasing.

10. **Waiver of Technicalities or Irregularities:** The Board of County Commissioners reserves the right to waive technicalities or irregularities in bids at its discretion or to reject any or all bids.

11. **Determination of Award:** Except where COUNTY exercises the right reserved herein to reject any or all bids and subject to the restrictions stated hereinabove, the Contract shall be awarded by COUNTY to the responsible Bidder who has submitted either the lowest responsive bid, or the lowest responsive bid on the base bid including such alternates/optional items as COUNTY determines to be in its own best interests. These Contract Documents may include additional terms and conditions required by federal or state grantor agencies. In the event of any discrepancy between the grantor agency's regulations and COUNTY's regulations, the more stringent regulations concerning the determination for award shall apply.

12. **Evaluation:** An interim performance evaluation of the successful CONTRACTOR may be submitted by the Contract Administrator during construction of the Project. A final performance evaluation shall be submitted when the Request for Final Payment to the construction contractor is forwarded for approval. In either situation, the completed evaluation(s) shall be forwarded to the COUNTY Director of Purchasing who shall provide a copy to the successful CONTRACTOR. Said evaluation(s) may be used by the COUNTY as a factor in considering the responsibility of the successful CONTRACTOR for future bids with the COUNTY.

13. **Contract Price:** The Contract Price is to include the furnishing of all labor, materials, equipment including tools, services, permit fees, applicable taxes, overhead and profit for the completion of the Work except as may be otherwise expressly provided in the Contract Documents. The cost of any item(s) of Work not covered by a specific Contract unit price or lump sum price shall be included in the Contract unit price or lump sum price to which the item(s) is most applicable.

14. **Qualifications of Bidders:** Bids shall be considered only from firms normally engaged in performing the type of work specified within the Contract Documents. Bidder must have
adequate organization, facilities, equipment, and personnel to ensure prompt and efficient service to COUNTY. Refer to Instructions to Bidders Supplement for additional requirements of Bidder’s qualifications.

In determining a Bidder’s responsibility and ability to perform the Contract, COUNTY has the right to investigate and request information concerning the financial condition, experience record, personnel, equipment, facilities, principal business location and organization of the Bidder, the Bidder's record with environmental regulations, and the claims/litigation history of the Bidder.

15. **Environmental Regulations:** Pursuant to the Broward County Procurement Code, COUNTY reserves the right to consider a Bidder's history of citations and violations of environmental regulations in investigating a Bidder's responsibility, and further reserves the right to declare a Bidder not responsible if the history of violations warrant such determination in the opinion of COUNTY. Bidder shall submit with its Bid, a complete history of all citations and/or violations, notices and dispositions thereof. The non-submission of any such documentation shall be deemed to be an affirmation by the Bidder that there are no citations or violations. Bidder shall notify COUNTY immediately of notice of any citation or violation which Bidder may receive after the Bid opening date and during the time of performance of any contract awarded to it.

16. **Dun & Bradstreet Report Requirement:** The COUNTY may review the bidder’s rating and payment performance to assist in determining a bidder’s responsibility when being evaluated for a contract award.

17. **Commonly Asked Questions (CAQs):** General questions submitted by bidders requesting clarifications or non-material information may be answered by Commonly Asked Questions. A separate document link will be posted on the Purchasing Division’s website in conjunction with the bid solicitation. A CAQ is for informational purposes only and does not have to be acknowledged with the bid submittal. If CAQ is issued, Bidders should check Commonly Asked Questions frequently for any updates (document will be regularly updated as needed).

18. **Wage Rates:** The following wage rates shall apply:
   Davis-Bacon Wage Rates are specified and must be complied with. Applicable fringe benefits must be added to the prevailing hourly rate (refer to Exhibit 1).

19. "**Or Equal**" Clause: Whenever a material, article or piece of equipment is identified in the Contract Documents including plans and specifications by reference to manufacturers' or vendors' names, trade names, catalog numbers, or otherwise, COUNTY, through Consultant (if applicable), will have made its best efforts to name additional references. Any such reference is intended merely to establish a standard; and, unless it is followed by the words "no substitution is permitted" because of form, fit, function and quality, any material, article, or equipment of other manufacturers and vendors which will perform or serve the requirements of the general design will be considered equally acceptable provided the materials, article or equipment so proposed is, in the sole opinion of the Consultant, equal in substance, quality, and function. The decision of the equivalent shall be determined in a reasonable manner and at the sole discretion of the Consultant.

20. **Protested Solicitation and Award:** Any protest over solicitation or award of this contract must be in accordance with the Broward County Procurement Code provisions relating to Pre-Litigation Resolution of Controversies. In accordance with Sections 21.118 and 21.120 of the
Broward County Procurement Code, if a vendor intends to protest a solicitation or proposed award of a contract the following apply:

20.1. Any protest concerning the bid or other solicitation specifications, or requirements must be made and received by the COUNTY within seven (7) business days from the posting of the solicitation or addendum on the Purchasing Division's website. Such protest must be made in writing to the Director of Purchasing. Failure to timely protest bid specifications or requirements is a waiver of the ability to protest the specifications or requirements.

20.2. Any protest concerning a solicitation or proposed award above the authority of the Director of Purchasing, after the bid opening, shall be submitted in writing and received by the COUNTY within five (5) business days from the posting of the recommendation for award on the Purchasing Division's website.

20.3. Any actual or prospective bidder or offeror who has a substantial interest in and is aggrieved in connection with proposed award of a contract which does not exceed the amount of the award authority of the Director of Purchasing, may protest to the Director of Purchasing. The protest shall be submitted in writing and received within three (3) business days from the posting of the recommendation of award on the Purchasing Division's website.

20.4. For purposes of this section a business day is defined as Monday through Friday between 8:30am and 5:00pm. Failure to timely file a protest within the time prescribed for a solicitation or proposed contract award shall be a waiver of the vendor's right to protest. As a condition of initiating any bid protest, the protestor shall present the Director of Purchasing a nonrefundable filing fee. The filing fee shall be based upon the estimated contract amount. For purposes of the protest, the estimated contract amount shall be the contract bid amount submitted by the protestor. If no contract bid amount was submitted, the estimated contract amount shall be the COUNTY's estimated contract price for the project. The COUNTY may accept cash, money order, certified check, or cashier's check, payable to Broward County Board of Commissioners. The filing fees are as follows:

<table>
<thead>
<tr>
<th>Estimated Contract Amount</th>
<th>Filing Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>$30,000 - $250,000</td>
<td>$500</td>
</tr>
<tr>
<td>$250,001 - $500,000</td>
<td>$1,000</td>
</tr>
<tr>
<td>$500,001 - $5 million</td>
<td>$3,000</td>
</tr>
<tr>
<td>Over $5 million</td>
<td>$5,000</td>
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</table>

The estimated contract amount shall be based upon the contract bid amount submitted by the protestor. If no contract bid amount was submitted, the estimated contract amount shall be the COUNTY's estimated contract price for the project. The COUNTY may accept cash, money order, certified check, or cashier's check, payable to Broward County Board of County Commissioners.

21. False Claims: In accordance with the COUNTY's False Claims Ordinance, Sections 1-276 – 1-287, Broward County Code of Ordinances, the successful bidder must maintain, as a condition precedent to submitting a claim against the COUNTY, a final bid takeoff. The final bid takeoff shall contain a line item for allocation of overhead costs and must be prepared
contemporaneously with the bid, in anticipation of the bid submitted for this project. "Claim" means any invoice, statement, request, demand, lawsuit, or action under contract or otherwise, for money, property, or services made to any employee, officer, or agent of the county, or to any contractor, grantee, or other recipient if any portion of the money, property, or services requested or demanded was issued from, or was provided by, the COUNTY. "Bid Takeoff" means the final estimate, tabulation, or worksheet prepared by the contractor in anticipation of the bid submitted, and which shall reflect the final bid price. IT IS EXPRESSLY AND SPECIFICALLY AGREED THAT ANY AND ALL CLAIMS SHALL BE WAIVED IF NOT SUBMITTED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION AND THE BROWARD COUNTY FALSE CLAIMS ORDINANCE.

22. **Public Bid Disclosure Act:** Pursuant to the Public Bid Disclosure Act, the COUNTY is required to provide notice of each license, permit and fee a Contractor will have to pay the COUNTY before or during construction or the percentage method or unit method of all licenses, permits and fees required by the COUNTY and payable to the COUNTY by virtue of this construction are identified in Section 6: Public Bid Disclosure Act. Licenses, permits and fees which may be required by the State of Florida, state agencies or other local government entities are not included.

23. **Certification, License and Registration Requirements:** The certification, license and registration requirements for this project are identified in Section 5.

24. **Office of Economic and Small Business Development (OESBD) Requirements:** as provided for in Section 4, OESBD will review bidder's submission for compliance to the participation goal established for this Contract or demonstration that the bidder made a good faith effort to meet the participation goal and submit the required information with its bid.

25. **Bid Guaranty Requirement:** All bids shall be accompanied by either an original bid bond executed by a surety company meeting the qualifications for surety companies as specified in the Contract General Conditions, or by cash, money order, certified check, cashier's check, Bid Guaranty Form, Unconditional Letter of Credit (form available upon request), treasurer's check or bank draft of any national or state bank (United States), in an amount equal to five percent (5%) of the total base bid amount, payable to the Broward County Board of County Commissioners and conditioned upon the successful Bidder executing the Contract and providing the required Performance Bond/Guaranty and Payment Bond/Guaranty and evidence of required insurance (or enrollment into OCIP) within fifteen (15) calendar days after notification of award of the Contract. A PERSONAL CHECK OR A COMPANY CHECK OF A BIDDER SHALL NOT BE DEEMED A VALID BID GUARANTY. The guaranty of the successful Bidder shall be forfeited to the Board of County Commissioners as liquidated damages, not as a penalty, for the cost and expense incurred should said Bidder fail to execute the Contract, provide the required Performance Bond/Guaranty, Payment Bond/Guaranty and Certificate(s) of Insurance (or enrollment into OCIP), within fifteen (15) calendar days after notification of the award of the Contract, or failure to comply with any other requirements set forth herein. The time for execution of the Contract and provision of the Performance Bond, Payment Bond and Certificate(s) of Insurance may be extended by COUNTY's Director of Purchasing for good cause shown. Bid Securities of the unsuccessful Bidders will be returned after award of Contract.

26. **State of Florida Division of Corporations Requirements:** It is the vendor's responsibility to comply with all state and local business requirements. All vendors located within Broward County and/or providing a service within the County must have a current Broward County Local
Business Tax Receipt. All corporations and partnerships must have the authority to transact business in the State of Florida and be in good standing with the Florida Secretary of State. For further information, contact Broward County Records, Taxes and Treasury Division and the Florida Department of State, Division of Corporations. The COUNTY will review the vendor’s business status based on the information provided in response to this solicitation. If the vendor is an out-of-state or foreign corporation or partnership, the vendor must obtain the authority to conduct business in the State of Florida. Corporations or partnerships that are not in good standing with the Florida Secretary of State at the time of a submission to this solicitation may be deemed non-responsive. If successful in obtaining a contract award under this solicitation, the vendor must remain in good standing throughout the contractual period of performance.

27. **Local Business Tax Receipt Requirements:** All vendors maintaining a business address within Broward County must have and provide a copy of a current Broward County Local Business Tax Receipt prior to contract award. The Contractor should provide a copy of its Local Business Tax Receipt within five (5) business days after request by the Purchasing Agent but prior to award by the Director of Purchasing or recommendation of award to the Board of County Commissioners, whichever is applicable. Failure to do so may result in your bid being deemed non-responsive. Local Business Tax Receipts will be required pursuant to Chapter 205.065, Florida Statutes. For further information on obtaining or renewing your firm’s Local Business Tax Receipt, contact the Records, Taxes and Treasury Division at (954) 357-6200.

28. **Drug-Free Workplace Certification:** Broward County Procurement Code Chapter 21.31.a. requires awards of competitive sealed bids and sealed proposals requiring Board Award be made only to firms certifying the establishment of a drug free workplace. The Drug Free Workplace Certification Form should be furnished within five (5) business days after request by the Purchasing Agent but prior to recommendation of award to the Board of County Commissioners. Failure to provide this certification will render your firm unqualified and ineligible for award.

29. **Non-Collusion:** By submission of this bid, Bidder certifies that this bid is made independently and free from collusion. Failure of a vendor to disclose any relationship described herein shall be reason for debarment in accordance with the provisions of the Broward County Procurement Code. The Bidder should complete and submit the Non-Collusion Certification Form with the bid submittal, but must submit within five (5) business days of COUNTY’s request.

30. **Non-Certified Subcontractors and Suppliers:** CONTRACTOR shall within five (5) calendar days of the COUNTY’s request, or prior to award of the Contract, whichever occurs first, notify COUNTY and CONSULTANT in writing of the non-certified subcontractors proposed for the Work by submitting the Vendors List (Non-Certified Subcontractors and Suppliers Information) Form properly filled out with each subcontractor’s information. Each subcontractor must possess certificates of competency and licenses required by law and as set forth in the Contract. CONTRACTOR shall have a continuing obligation to notify COUNTY and CONSULTANT of any change in subcontractors. This includes all major material suppliers that provide materials in the amount of $50,000 or more. CONTRACTOR shall provide the COUNTY with the Final List of Non-Certified Subcontractors and Suppliers Form as part of CONTRACTOR’s Final Payment package.

31. **Lobbyist Registration Certification:** A vendor who has retained a lobbyist(s) to lobby in connection with a competitive solicitation shall certify that each lobbyist retained has timely filed the registration or amended registration required under Section 1-262, Broward County Code of Ordinances. If, after awarding a contract in connection with the solicitation, the County learns
that the certification was erroneous, and upon investigation determines that the error was willful
or intentional on the part of the vendor, the County may, on the basis, exercise any contractual
right to terminate the contract for convenience. The Bidder should complete and submit the
Lobbyist Registration Certification Form with the bid submittal, but must submit within five (5)
business days of COUNTY’s request.

32. Scrutinized Companies List: Any company, principals, or owners on the Scrutinized
Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the
Iran Petroleum Energy Sector List is prohibited from submitting a bid, proposal or response to a
Broward County solicitation for goods or services in an amount equal to or greater than $1
million. Therefore, if applicable, each company submitting a bid, proposal or response to a
solicitation must certify to the COUNTY that it is not on either list at the time of submitting a bid,
proposal or response. The Bidder should complete and submit the Scrutinized Companies
Certification Form with the bid submittal, but must submit within five (5) business days of
COUNTY’s request.

33. Trench Safety Act: The Bidder should complete and submit the Trench Safety Act Form, with
the bid submittal, but must submit within five (5) business days of COUNTY’s request.

34. Insurance Requirements: The insurance requirements for this project are identified in
Section 7.

34.1. OCIP Certification: Bidder should submit an Owner Controlled Insurance Program
Certification with bid submittal, but must submit within five (5) business days of
County’s request. Vendor assumes full responsibility to read, understand, and
comply with all of the COUNTY’s insurance requirements and OCIP requirements
as explained in the contract documents, the OCIP Insurance Manual, and the OCIP

34.2. OCIP Enrollment: Within five business days of the COUNTY’s request, the
recommended vendor for award shall complete the OCIP enrollment forms (OCIP
Insurance Manual, AON Form-3) and submit them to the OCIP Administrator. The
contract award shall be contingent upon AON’s review and the COUNTY’s Risk
Management Division’s approval of the forms.
SECTION 3: INSTRUCTIONS TO BIDDERS SUPPLEMENT

Qualifications and Experience of Bidders:

1. In order for the County to enter into a contract with a responsive and responsible vendor, the following requirements are necessary in determining the responsibility of a firm. Failure to provide the experience and reference information within five (5) business days from the written request of the Purchasing Agent shall render the bid non-responsive.

2. The Prime Contractor shall have a work experience history of at least three (3) airfield concrete pavement construction projects with airfield electrical components, having placed approximately 20,000 square yards of Portland Cement Concrete (P-501) for Runway, Taxiway, or Apron Construction. The project must have been completed within the last ten (10) years or must be in the substantially complete phase. Work must have been performed at a large or medium hub airport as defined by the USDOT Air Traffic Hubs 2011.

3. In the event that the bidder is submitting as a Joint Venture, the combined work experience and references from both firms can be used in fulfilling this requirement.

4. The bidder shall obtain and submit letters or e-mails of reference from airport representatives for the three (3) projects specified above. Each reference shall include the following information: Project Title and Description; Airport Designation; Initial Award Amount; Change Order History; Final Construction Cost; Date of Completion; Client's Contact Name, Phone Number and E-mail address.

Security:

1. Security background verification, fingerprinting and identification badging are required for all work conducted in Security Identification Display Areas (SIDA). The prime contractor is responsible for managing, obtaining and complying with all requirements of the above for their own firm as well as all subcontractors on their team.

2. The prime contractor and all subcontractors are responsible for all costs associated with complying with the terms and conditions of this security requirement including but not limited to any fines levied (including against BCAD) due to its non-compliance with SIDA or Airport Security rules.

3. Contractor shall be in compliance with Special Provision 11, Provisions Pertaining To Airport Projects, of the Contract Documents.
SECTION 4: OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

1. In accordance with Ordinance No. 2012-33, Broward County Business Opportunity Act of 2012, the Disadvantaged Business Enterprise (DBE) Program shall apply to this contract. All bidders responding to this solicitation shall utilize, or attempt to utilize, DBE firms to perform at least the assigned participation goal for this contract. The assigned DBE participation goal for this contract is 22%.

1.1. Compliance with DBE participation goal requirements is a matter of responsibility; required information should be submitted with bid submittal. If not provided with bid submittal, the bidder must supply information within three business days of the Office of Economic and Small Business Development's (OESBD) request. Bidder may be deemed non-responsible for failure to fully comply within stated timeframes.

1.2. DBE Program Requirements for Submitting Bids: a bidder should include in its bid a Letter of Intent (Form 6) for each certified DBE firm the bidder intends to use to achieve the assigned DBE participation goal.

1.3. DBE Program Requirements for Submitting Good Faith Effort: If a bidder is unable to attain the DBE participation goal, the bidder should include in its bid submittal, Application for Evaluation of Good Faith Effort (Form 7) and all of the following supporting information:

1.3.1. Documentation of providing timely solicitation activities to DBE firms, including attendance at pre-bid meetings, advertisements, or written notices;
1.3.2. Documentation of identifying appropriate contract portions and scopes of work that DBE firms could potentially perform;
1.3.3. Documentation of providing timely and adequate information to the DBE firms (including plans and specifications);
1.3.4. Documentation of good faith negotiation with each interested DBE firm (including names and contact information of each DBE considered) with an explanation as to why an agreement could not be reached with a DBE firm; and
1.3.5. Documentation of investigating DBE qualifications and capabilities; list reason(s) if a DBE is rejected.
1.3.6. Additional factors in review of Good Faith Effort: the County may also consider the response of other bidders' goal participation and the average goal participation obtained by other bidders in the evaluation of Good Faith Effort.

1.4. Program Requirements for DBE participation:

1.4.1. A DBE firm must be certified to perform the work required at time of the bid due date for participation to be considered for DBE goal attainment.
1.4.2. A DBE firm may only participate in a contract if it is performing a commercially useful function and is not acting as a broker.
1.4.3. Only the work performed by a DBE firm's own workforces shall be counted towards contract goal participation. This participation can include the cost of supplies and materials obtained by the certified DBE firm to perform the work and the amount of fees charged for bonds and insurance.
1.4.4. If a certified DBE firm subcontracts any part of the work to another firm, only subcontracted work to another certified DBE firm will be counted towards goal participation.
1.4.5. Only a DBE firm certified in the manufacture of, or certified as a regular dealer of, the materials and supplies being provided will be counted towards goal participation.

1.5. A certified DBE firm participating in a joint venture will only have DBE participation counted for the distinct, clearly defined portion of work performed by the DBE firm with its own workforces.

1.6. Nothing herein shall be construed to indicate that a higher level of DBE involvement above the stated goal in a solicitation will give that bidder the right of award over other bidders who have met the DBE goal or Good Faith Effort, as approved by the County.

1.7. The bidder shall only address the base bid for DBE goal participation. No alternate/optional bid item(s) shall be addressed. If the County chooses to exercise the right to award alternate/optional bid item(s), the DBE participation goal for this bid shall apply to the alternate/optional bid item(s) recommended to be awarded. The County shall issue a notice to the apparent successful bidder requiring the bidder to comply with the DBE participation goal for the alternate/optional bid item(s); bidder shall submit all required forms prior to award. Failure to submit the required forms may result in rejection of the bid.

1.8. A comprehensive listing of certified DBE Directory by Florida Department of Transportation (FDOT) can be viewed at the following Unified Certification Program (UCP) website: https://www3.dot.state.fl.us/EqualOpportunityOffice/BizNet/dl_dir.asp

For detailed information regarding the Disadvantaged Business Enterprise Program contact the Office of Economic and Small Business Development at (954) 357-6400 or visit the website at: http://www.broward.org/EconDev/SmallBusiness/Pages/Default.aspx
SECTION 5: CERTIFICATION, LICENSING AND REGISTRATION REQUIREMENTS

In order to be considered a responsible and responsive bidder for the scope of work set forth in these bid documents, the bidder shall possess one of the following licenses (including any specified State registration, if applicable) at the time of bid submittal. Proof of licensing should be furnished within five (5) business days after request by the Purchasing Agent but prior to award by the Director of Purchasing or recommendation of award to the Board of County Commissioners, whichever is applicable. Any certificate of competency that meets or exceeds those specified or can legally perform the scope of work specified will be considered responsible and responsive to the bid.

STATE: Certified General Contractor

OR

BROWARD COUNTY: General Building Contractor Class “A”
(Must be registered with the State)

OR

General Engineered Construction Builder

Any work performed not within the scope of the above contract must be performed by a licensed contractor.
SECTION 6: PUBLIC BID DISCLOSURE ACT

Pursuant to the Public Bid Disclosure Act, the COUNTY is required to provide notice of each license, permit and fees a Contractor will have to pay the COUNTY before or during construction or the percentage method or unit method of all licenses, permits and fees required by the COUNTY and payable to the COUNTY by virtue of this construction. The COUNTY identifies the following as applicable:

The Aviation Department will pay for all permits and fees required by the Broward County.

Licenses, permits and fees which may be required by the State of Florida, state agencies or other local government entities are not included.
SECTION 7: INSURANCE REQUIREMENTS

1. Without limiting any of the other obligations or liabilities of CONTRACTOR, CONTRACTOR shall provide, pay for, and maintain in force until all of its work to be performed under this Contract has been completed and accepted by COUNTY (or for such duration as is otherwise specified hereinafter), at least the minimum insurance coverage and limits set forth in Exhibit 2: Sample Insurance Certificate under the below conditions. If a limit or policy is not indicated on Insurance Requirements/Sample Certificate by a checkbox, it is not required as a condition of this contract.

1.1. Comprehensive Liability with minimum limits per occurrence, combined single limit for bodily injury and property damage, and when indicated a minimum limit per aggregate. County is to be expressly included as an Additional Insured in the name of Broward County arising out of operations performed for the County, by or on behalf of Vendor, or acts or omissions of Vendor in connection with general supervision of such operation. If Vendor uses a subcontractor, then Vendor shall ensure that subcontractor names County as an Additional Insured.

1.2. Business Automobile Liability with minimum limits per occurrence, combined single limit for bodily injury and property damage. Scheduled autos shall be listed on Vendor's certificate of insurance.

1.3. Workers' Compensation insurance to apply for all employees in compliance with Chapter 440, the "Workers' Compensation Law" of the State of Florida and all applicable federal laws. The policy must include Employers' Liability with minimum limits each accident. If any operations are to be undertaken on or about navigable waters, coverage must be included for the U.S. Longshoremen & Harbor Workers Act and Jones Act.

1.4. Excess Liability/Umbrella Insurance may be used to satisfy the minimum liability limits required; however, the annual aggregate limit shall not be less than the highest "each occurrence" limit for the underlying liability policy. Vendor shall endorse County as an Additional Insured unless the policy provides coverage on a pure/true "Follow-form" basis.

1.5. Builder's Risk or Equivalent Coverage (such as Property Insurance or Installation Floater) as applicable to the scope of work, is required as a condition precedent to the issuance of the Second Notice to Proceed. Vendor shall provide "All Risk" Completed Value form coverage with a deductible not to exceed Ten Thousand Dollars ($10,000.00) each claim for all perils, except wind and flood.

1.6. For the peril of wind, the Vendor shall maintain a deductible that is commercially feasible which does not exceed five percent (5%) of the value of the Contract Price. Such Policy shall reflect Broward County as an additional loss payee.

1.7. For the peril of flood, coverage must be afforded for the lesser of the total insurable value of such buildings or structures, and the maximum amount of flood insurance coverage available under the National Flood Program. Vendor shall maintain a deductible that is commercially feasible and does not exceed five
percent (5%) of the value of the Contract Price. Such Policy shall reflect Broward County as an additional loss payee.

1.8. The County reserves the right to provide Property Insurance covering the Project, materials, equipment and supplies intended for specific installation in the Project while such materials, equipment and supplies are located at the Project site, in transit, or while temporarily located away from the Project site. This coverage will not cover any of the Vendor's or subcontractors' tools, equipment, machinery or provide any business interruption or time element coverage to the contractor(s).

1.9. If the County decides to purchase Property Insurance or provide for coverage under its existing insurance policy for this Project, then the insurance required to be carried by the Vendor may be modified to account for the insurance being provided by the County. Such modification may also include execution of Waiver of Subrogation documentation.

1.10. In the event that a claim occurs for this Project and is made upon the County's insurance policy, for other than a windstorm, Vendor will pay at least Ten Thousand Dollars ($10,000.00) of the deductible amount for such claim.

1.11. Waiver of Occupancy Clause or Warranty - Policy must be specifically endorsed to eliminate any "Occupancy Clause" or similar warranty or representation that the building(s), addition(s) or structure(s) in the course of construction shall not be occupied without specific endorsement of the policy. The Policy must be endorsed to provide that the Builder's Risk coverage will continue to apply until final acceptance by County.

1.12. Pollution Liability or Environmental Impairment Liability: including clean-up costs, with minimum limits per claim, subject to a maximum deductible per claim. Such policy shall remain in force for the minimum length of time indicated, include an annual policy aggregate and name Broward County as an Additional Insured. Vendor shall be responsible for all deductibles in the event of a claim.

1.13. Professional Liability Insurance with minimum limits for each claim, subject to a maximum deductible per claim. Such policy shall remain in force for the minimum length of time indicated. Vendor shall notify County in writing within thirty (30) days of any claim filed or made against its Professional Liability Insurance policy. Vendor shall be responsible for all deductibles in the event of a claim. The deductible shall be indicated on the Vendor's Certificate of Insurance.

1.14. Coverage must be afforded on a form no more restrictive than the latest edition of the respective policy form as filed by the Insurance Services Office. If the initial insurance expires prior to the completion and acceptance of the Work, renewal certificates shall be furnished upon expiration. County reserves the right to obtain a certified copy of any insurance policy required by this Section within fifteen (15) calendar days of a written request by County.
1.15. Notice of Cancellation and/or Restriction - The policy(ies) must be endorsed to provide Broward County with at least thirty (30) days' notice of cancellation and/or restriction.

1.16. The official title of the Certificate Holder is Broward County. This official title shall be used in all insurance documentation.

1.17. Right to revise or reject. The County reserves the right, but not the obligation, to review and revise the insurance requirements at any time, not limited to deductibles, limits, coverage and endorsements.
FORM 1: BID TENDER

Print Name of Bidder: ____________________________________________________________

Date Submitted: __________________________

The Board of County Commissioners
Broward County Governmental Center
115 South Andrews Avenue
Fort Lauderdale, Florida 33301

The undersigned, as Bidder, hereby declares that the only persons interested in this bid as principal are named herein and that no person other than herein mentioned has any interest in this bid or in the Contract to be entered into; that this bid is made without connection with any other person, firm, or parties making a bid; and that it is, in all respects, made fairly and in good faith without collusion or fraud.

The Bidder further declares that it has examined the site of the Work and informed itself fully of all conditions pertaining to the place where the Work is to be done; that it has examined the Contract Documents and all addenda thereto furnished before the opening of the bids, as acknowledged below; and that it has satisfied itself about the Work to be performed; and that it has submitted the required Bid Guaranty; and all other required information with the bid; and that this bid is submitted voluntarily and willingly.

The Bidder agrees, if this bid is accepted, to contract with Broward County, a political subdivision of the State of Florida, pursuant to the terms and conditions of the Contract Documents and to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation, and all labor necessary to construct and complete within the time limits specified, the Work covered by the Contract Documents for the Project titled: Terminal 4 Apron Expansion.

The Bidder also agrees to furnish the required Performance Bond and Payment Bond or alternative form of security permitted by COUNTY Procurement Code, each for not less than the total bid price plus alternates, if any, and to furnish the required Certificate(s) of Insurance/enrollment into OCIP.

The undersigned further agrees that the bid guaranty accompanying the bid shall be forfeited if Bidder fails to execute said Contract, or fails to furnish the required Performance Bond and Payment Bond or fails to furnish the required Certificate(s) of Insurance within fifteen (15) calendar days after being notified of the award of the Contract.

In the event of arithmetical errors, the Bidder agrees that these errors are errors which may be corrected by COUNTY. In the event of a discrepancy between the price bid in figures and the price bid in words, the price in words shall govern. Bidder agrees that any unit price listed in the bid is to be multiplied by the stated quantity requirements in order to arrive at the total.
The Bidder certifies that no principals or corporate officers of the firm were principals or corporate officers in another firm at the time such other firm has the bidder, its principals, officers or predecessor organization(s) been debarred or suspended from bidding by any government during the last three (3) years? If yes, provide details:

Acknowledgment is hereby made of the following addenda (identified by number) received since issuance of the bid solicitation:

Attached is [check section that applies] a Bid Bond( ), Cash( ), Money Order( ), Unconditional Letter of Credit( ), Treasurer's Check( ), Bank Draft( ), Cashier's Check( ), or Certified Check( ), No. Bank of for the sum of Dollars ($__________).

The Bidder shall acknowledge this bid by signing and completing the spaces provided below.

Name of Bidder: ________________________________

Address: ______________________________________

City/State/Zip: _________________________________

Telephone/Fax No.: _____________________________

Email Address: __________________________________

Federal I.D. No.: ________________________________  Dun and Bradstreet No.: __________________________
(if applicable)

If a partnership, names and addresses of partners:

____________________________________________

____________________________________________

5-1-2013
WITNESSES: (Type or Print Name of Bidder)

(Signature)

(Type or Print Name Signed Above)

ATTEST: (Type or Print Name of Corporation)

Secretary (Signature and Title)

(CORPORATE SEAL)

(Type or Print Name Signed Above)

Incorporated under the laws of the State of ________________

5-1-2013
FORM 2: SCHEDULE OF PRICES BID

Supply all Labor, Materials, Equipment, and Supplies necessary in accordance with Specifications and Drawings.

Trench Safety Act applies to this bid solicitation. The Bidder should complete and submit the Trench Safety Act Certification Form with the bid but must complete and submit within five (5) calendar days of request by COUNTY and prior to award to be considered responsive.

Instructions for completing the Electronic Bid Pricing Sheet(s):

1. Download the Electronic Bid Pricing Sheet(s), in Microsoft Excel format, from the Purchasing Division website at http://www.broward.org/Purchasing/Pages/CurrentSolicitationList.aspx. Respond to this bid by inputting the company's information and unit pricing into the formatted Excel spreadsheet. Only the highlighted cells will be available for entering information.

2. Once the Electronic Bid Pricing Sheet(s) are completed, bidder should save the Excel file to a CD or DVD in a read-only format. Do not password protect the file and do not save it as a PDF. Label the front of the disk with the bidder's name and bid number.

3. Print the completed Electronic Bid Pricing Sheet(s); sign and date where indicated.

4. Bidder must submit, in one envelope, the printed, signed Electronic Bid Pricing Sheet(s) with the bidder’s complete, original bid submission as per the General Conditions and Special Instructions to Bidders and should include the CD/DVD (with the saved Excel file).

5. If bidder is unable to electronically fill out and submit Electronic Bid Pricing Sheet(s) with its bid submittal, bidder must submit a hardcopy of the Electronic Bid Pricing Sheet(s) with handwritten unit prices and extensions.

6. If the hardcopy of the Electronic Bid Pricing Sheet(s) does not match the Electronic Bid Pricing Sheet(s) submitted on the CD/DVD, the hardcopy prices shall prevail for any discrepancies in pricing. If hand-written bid Sheet(s) and electronic bid Sheet(s) are submitted, handwritten unit prices will prevail for any discrepancies in pricing.

7. Bidder must be a plan holder (by purchase of the project manual) in order to be deemed a responsive bidder.

8. It is the Bidder's responsibility to monitor the Purchasing Division's website for any issued addenda. Addenda may include revised Electronic Bid Pricing Sheet(s) that will need to be downloaded, properly filled out, and submitted by the Bidder.

9. The CD/DVD submitted with the bid will become County property; as such, it is submitted at no cost to the County.

10. If the Bidder believes there is an error in the Electronic Bid Pricing Sheet(s), Bidder must immediately notify the Purchasing Agent prior to the bid opening date.

Print Name of Bidder: ________________________________

5-1-2013  Page 24 of 49
FORM 3: BIDDER QUALIFICATIONS QUESTIONNAIRE

INFORMATION CONTAINED IN THIS DOCUMENT WILL BE USED BY THE COUNTY IN DETERMINING THE RESPONSIBILITY OF A RESPONDENT. THERE MUST BE A RESPONSE TO ALL QUESTIONS IN THIS DOCUMENT.

INFORMATION MUST EITHER BE PROVIDED OR AN INDICATION OF "NONE" (IF APPROPRIATE). DO NOT USE "N/A" AS A RESPONSE TO ANY QUESTION.

THIS COMPLETED FORM, INCLUDING A RESPONSE TO ALL QUESTIONS, SHOULD BE SUBMITTED WITH THE SOLICITATION; HOWEVER, IT MUST BE SUBMITTED WITHIN FIVE (5) WORKING DAYS OF THE COUNTY'S REQUEST. FAILURE TO PROVIDE THE COMPLETED FORM MAY RESULT IN THE SOLICITATION BEING DEEMED NON-RESPONSIVE.

The undersigned authorized representative of the Bidder certifies the truth and accuracy of all statements and the answers contained herein.

1. How many years has your organization been in business while possessing one of the licenses, certifications or registrations requested?

<table>
<thead>
<tr>
<th>License/Certification Registration</th>
<th># Years</th>
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</table>

1.1. What business are you in?

2. What is the last project of this nature that you have completed?

3. Have you ever failed to complete any work awarded to you? If so, where and why?

3.1. Give owner names, addresses and telephone numbers, and surety and project names, for all projects for which you have performed work, where your surety has intervened to assist in completion of the project, whether or not a claim was made.

PRINT NAME OF BIDDER: ____________________________

5-1-2013
4. Give names, addresses and telephone numbers of three individuals, corporations, agencies, or institutions for which you have performed work:

4.1

(Organization/Company) (Project Name)

(Contact Name) (Address) (Phone No.)

(Contract Number) (Project Value) (Date Services Provided)

Scope of Project:

4.2

(Organization/Company) (Project Name)

(Contact Name) (Address) (Phone No.)

(Contract Number) (Project Value) (Date Services Provided)

Scope of Project:

4.3

(Organization/Company) (Project Name)

(Contact Name) (Address) (Phone No.)

(Contract Number) (Project Value) (Date Services Provided)

Scope of Project:

PRINT NAME OF BIDDER: ________________________________
5. List the following information concerning all contracts in progress as of the date of submission of this Solicitation. (In case of co-venture, list the information for all co-venturers.)

<table>
<thead>
<tr>
<th>NAME OF PROJECT</th>
<th>OWNER OF CONTRACT</th>
<th>TOTAL VALUE</th>
<th>DATE OF COMPLETION</th>
<th>PER CONTRACT</th>
<th>% OF COMPLETION TO DATE</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

(Continue list on insert sheet, if necessary.)

6. Has a representative of the Respondent completely inspected the proposed project site and does the Respondent have a complete plan for its performance?

7. What equipment do you own that is available for the work?

8. What equipment will you purchase for the proposed work?

9. What equipment will you rent for the proposed work?

PRINT NAME OF BIDDER: ________________________________

5-1-2013
10. State the name of your proposed project manager and superintendent and give details of his or her qualifications and experience in managing similar work.


11. State the true, exact, correct and complete name of the partnership, corporation or trade name under which you do business and the address of the place of business. (If a corporation, state the name of the president and secretary. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name).

11.1 The correct name of the Respondent is:


11.2 The business is a (Sole Proprietorship) (Partnership) (Corporation):


11.3 The address of principal place of business is:


11.4 The names of the corporate officers, or partners, or individuals doing business under a trade name, are as follows:


11.5 List all organizations which were predecessors to Respondent or in which the principals or officers of the Respondent were principals or officers


PRINT NAME OF BIDDER: ________________________________

5-1-2013
11.6 List and describe all bankruptcy petitions (voluntary or involuntary) which have been filed by or against the Respondent, its parent or subsidiaries or predecessor organizations during the past three (3) years. Include in the description the disposition of each such petition.

________________________________________________________________________
________________________________________________________________________

12. List and describe all successful Performance or Payment Bond claims made to your surety(ies) during the last three (3) years. The list and descriptions should include claims against the bond of the Respondent and its predecessor organization(s).

________________________________________________________________________
________________________________________________________________________

12.1 Has the Respondent, its principals, officers or predecessor organization(s) been debarred or suspended from bidding by any government during the last three (3) years? If yes, provide details.

________________________________________________________________________
________________________________________________________________________

12.2 Under what conditions does the Respondent request Change Orders.

________________________________________________________________________
________________________________________________________________________
13. **LITIGATION HISTORY REQUIREMENT:** The COUNTY will consider a vendor's litigation history information in its review and determination of responsibility. All vendors are required to disclose to the COUNTY all "material" cases filed or resolved in the three (3) year period ending with the solicitation response due date, whether such cases were brought by or against the vendor, any parent or subsidiary of the vendor, or any predecessor organization. If the vendor is a joint venture, the information provided should encompass the joint venture (if it is not newly-formed for purposes of responding to the solicitation) and each of the entities forming the joint venture. For purpose of this disclosure requirement, a "case" includes lawsuits, administrative hearings and arbitrations. A case is considered to be "material" if it relates, in whole or in part, to any of the following:

13.1. A similar type of work that the vendor is seeking to perform for the COUNTY under the current solicitation;
13.2. An allegation of negligence, error or omissions, or malpractice against the vendor or any of its principals or agents who would be performing work under the current solicitation;
13.3. A vendor's default, termination, suspension, failure to perform, or improper performance in connection with any contract;
13.4. The financial condition of the vendor, including any bankruptcy petition (voluntary and involuntary); or
13.5. A criminal proceeding or hearing concerning business-related offenses in which the vendor or its principals (including officers) were/are defendants.

Notwithstanding the descriptions listed in paragraphs 13.1-13.5 above, a case is **not** considered to be "material" if the claims raised in the case involve only garnishment, auto negligence, personal injury, or a proof of claim filed by the vendor.

For each material case, the vendor is required to provide all information identified on the Litigation History Form.

A Vendor is also required to disclose to the COUNTY any and all case(s) that exist between the COUNTY and any of the vendor's subcontractors/subconsultants proposed to work on this project.

Failure to disclose any material case, or to provide all requested information in connection with each such case, may result in the vendor being deemed non-responsive. Prior to making such determination, the vendor will have the ability to clarify the submittal and to explain why an undisclosed case is not material.

PRINT NAME OF BIDDER: ________________________________
**FORM 4: LITIGATION HISTORY**

<table>
<thead>
<tr>
<th>Party</th>
<th>Vendor is Plaintiff □ Vendor is Defendant □</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Name</td>
<td></td>
</tr>
<tr>
<td>Case Number</td>
<td></td>
</tr>
<tr>
<td>Date Filed</td>
<td></td>
</tr>
<tr>
<td>Name of Court or other tribunal</td>
<td></td>
</tr>
<tr>
<td>Type of Case</td>
<td>□ Civil  □ Administrative/Regulatory  □ Criminal  □ Bankruptcy</td>
</tr>
<tr>
<td>Claim or Cause of Action and Brief description of each Count</td>
<td></td>
</tr>
<tr>
<td>Brief description of the Subject Matter and Project Involved</td>
<td></td>
</tr>
<tr>
<td>Disposition of Case</td>
<td>□ Pending  □ Settled  □ Dismissed</td>
</tr>
<tr>
<td>(Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)</td>
<td>□ Judgment Vendor’s Favor  □ Judgment Against Vendor</td>
</tr>
<tr>
<td>If Judgment Against, is Judgment Satisfied?</td>
<td>Yes □ No</td>
</tr>
<tr>
<td>Opposing Counsel</td>
<td>Name:</td>
</tr>
<tr>
<td></td>
<td>Email:  Phone number:</td>
</tr>
</tbody>
</table>

**NAME OF BIDDER:** ____________________________

5-1-2013
FORM 5: DRUG FREE WORKPLACE CERTIFICATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

The undersigned Bidder hereby certifies that it will provide a drug-free workplace program by:

1. Publishing a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the offeror's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;

2. Establishing a continuing drug-free awareness program to inform its employees about:
   (i) The dangers of drug abuse in the workplace;
   (ii) The Bidder's policy of maintaining a drug-free workplace;
   (iii) Any available drug counseling, rehabilitation, and employee assistance programs; and
   (iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

3. Giving all employees engaged in performance of the Contract a copy of the statement required by subparagraph (1);

4. Notifying all employees, in writing, of the statement required by subparagraph (1), that as a condition of employment on a covered Contract, the employee shall:
   (i) Abide by the terms of the statement; and
   (ii) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than five (5) calendar days after such conviction;

5. Notifying Broward County government in writing within ten (10) calendar days after receiving notice under subdivision (4) (ii) above, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

6. Within thirty (30) calendar days after receiving notice under subparagraph (4) of a conviction, taking one of the following actions with respect to an employee who is convicted of a drug abuse violation occurring in the workplace:
   (i) Taking appropriate personnel action against such employee, up to and including termination; or
   (ii) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency; and

7. Making a good faith effort to maintain a drug-free workplace program through implementation of subparagraphs (1) through (6).
FORM 5: DRUG FREE WORKPLACE CERTIFICATION (continued)

(Bidder Signature)

(Print Vendor Name)

STATE OF ________________

COUNTY OF ________________

The foregoing instrument was acknowledged before me this ___ day of ____________, 20___, by ___________________________ (name of person whose signature is being notarized) as ___________________________ (title) of ___________________________, known to me to be the person described herein, or who produced ___________________________ as identification, and who did/did not take an oath.

NOTARY PUBLIC:

______________________________
(Signature)

______________________________   My commission expires: _____________
(Print Name)

State of ________________ at Large     (SEAL)
**FORM 6: LETTER OF INTENT**

**OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT**

**LETTER OF INTENT BETWEEN BIDDER/OFFEROR AND DISADVANTAGED BUSINESS ENTERPRISE (DBE) / AIRPORT CONCESSIONS DISADVANTAGED BUSINESS ENTERPRISE (ACDBE) SUBCONTRACTOR/SUPPLIER**

(Form to be completed and signed for each DBE/ACDBE firm)

<table>
<thead>
<tr>
<th>Solicitation Number:</th>
<th>Project Title:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bidder/Offeror Name: ____________________________
Address: ____________________________
City: __________ State: ___ Zip: ___
Authorized Representative: ____________________________
Phone: ____________________________

DBE/ACDBE Subcontractor/Supplier Name: ____________________________
Address: __________________________________________________
Check one:

- DBE City: ____________________________ State: ___ Zip: ___ Phone: ____________________________
- ACDBE Authorized Representative: ____________________________

A. This is a letter of intent between the bidder/offeror on this project and a DBE/ACDBE firm for the DBE/ACDBE to perform subcontracting work on this project, consistent with Title 49 CFR Parts 26 or 23 as applicable.
B. By signing below, the bidder/offeror is committing to utilize the above-named DBE/ACDBE to perform the work described below.
C. By signing below, the above-named DBE/ACDBE is committing to perform the work described below.
D. By signing below, the bidder/offeror and DBE/ACDBE affirm that if the DBE/ACDBE subcontracts any of the work described below, it may only subcontract that work to another DBE/ACDBE if it wishes to receive DBE/ACDBE credit for said work.

### Work to be performed by DBE/ACDBE Firm

<table>
<thead>
<tr>
<th>Description</th>
<th>NAICS</th>
<th>DBE/ACDBE Contract Amount</th>
<th>DBE/ACDBE Percentage of Total Project Value</th>
</tr>
</thead>
<tbody>
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</table>

AFFIRMATION: I hereby affirm that the information above is true and correct.

**Bidder/Offeror Authorized Representative**

(Signature) ____________________________ (Title) ____________________________ (Date) __________

**DBE/ACDBE Subcontractor/Supplier Authorized Representative**

(Signature) ____________________________ (Title) ____________________________ (Date) __________


† To be provided only when the solicitation requires that bidder/offer include a dollar amount in its bid-offer.

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

*DBE ACDBE Letter of Intent - Rev. January 2013*
FORM 7: APPLICATION FOR EVALUATION OF GOOD FAITH EFFORT

BROWARD COUNTY

APPLICATION FOR EVALUATION OF GOOD FAITH EFFORT
PURSUANT TO
TITLE 49 CFR PARTS 23 AND 26

SOLICITATION NO.:_____________________________________

Please check one of the following to indicate the program goal on this solicitation: □ ACDBE  □ DBE

PROJECT NAME:____________________________________________________________________

ADDRESS:__________________________________________________________________________

TELEPHONE:_________________________________ FAX: ________________________________

The undersigned representative of the prime contractor affirms that his/her company has contacted Disadvantaged Business Enterprise (DBE)/Airport Concessions Disadvantaged Business Enterprise (ACDBE) certified firms in good faith effort to meet the DBE or ACDBE goal for this solicitation but has not been able to meet the goal. Consistent with the requirements of Title 49 CFR Part 26, Appendix A, the prime contractor hereby submits documentation (attached to this form) of good faith efforts made and requests to be evaluated under these requirements.

The prime contractor understands that a determination of good faith effort to meet the contract goal is contingent on both the information provided by the prime contractor as an attachment to this application and the other factors listed in Appendix A, of Title 49 CFR Part 26, as those factors are applicable with respect to this solicitation. The prime contractor acknowledges that the determination of good faith effort is made by the Director of the Office of Economic and Small Business Development, as the Disadvantaged Business Enterprise Liaison Officer (DBELO), in keeping with federal requirements.

SIGNATURE:______________________________________________________________________

PRINT NAME/TITLE:_________________________________________________________________

DATE:_____________________________________________________________________________

OESBD Compliance Form DBE/ACDBE GFE 03/4/13

5-1-2013 Page 35 of 49
FORM 8: NON-COLLUSION CERTIFICATE

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

By submission of this bid, Bidder certifies that this bid is made independently and free from collusion. Bidder shall disclose below, to the best of its knowledge, any Broward County officer or employee, or any spouse, son, daughter, stepson, stepdaughter, or parent of any such officer or employee, who is an officer or director of, or has a material interest in, the Bidder's business who is in a position to influence this procurement. Any Broward County officer or employee who has any input into the writing of specifications or requirements, solicitation of offers, decision to award, evaluation of offers, or any other activity pertinent to this procurement is presumed, for purposes hereof, to be in a position to influence this procurement. For purposes hereof, a person has a material interest if he or she directly or indirectly owns more than five percent (5%) of the total assets or capital stock of any business entity, or if he or she otherwise stands to personally gain if the Contract is awarded to this vendor. Failure of a vendor to disclose any relationship described herein shall be reason for debarment in accordance with the provisions of the Broward County Procurement Code.

NAME

RELATIONSHIPS

_________________________  ________________________________

_________________________  ________________________________

_________________________  ________________________________

STATE OF FLORIDA  )  SS.
COUNTY OF BROWARD)                    

The foregoing instrument was acknowledged before me this _____ day of ________________, 20___, by ________________________ who is personally known to me or who has produced ____________________ as identification and who did/did not take an oath.

WITNESS my hand and official seal, this _____ day of ________________, 20___.

(NOTARY SEAL)  

(Signature of person taking acknowledgment)

(Name of officer taking acknowledgment - Typed, printed, or stamped)

(Title or rank)

(Serial number, if any)
FORM 9: LOBBYIST REGISTRATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID: OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

The Vendor, by virtue of the signature below, certifies that:

a. It understands if it has retained a lobbyist(s) to lobby in connection with a competitive solicitation, it shall be deemed non-responsive unless the firm, in responding to the competitive solicitation, certifies that each lobbyist retained has timely filed the registration or amended registration required under Section 1-262, Broward County Code of Ordinances; and

b. It understands that if, after awarding a contract in connection with the solicitation, the County learns that the certification was erroneous, and upon investigation determines that the error was willful or intentional on the part of the vendor, the County may, on that basis, exercise any contractual right to terminate the contract for convenience.

Based upon these understandings, the vendor further certifies that: (Check One)

1. _____ It has not retained a lobbyist(s) to lobby in connection with this competitive solicitation; however, if retained after the solicitation, the County will be notified.

2. _____ It has retained a lobbyist(s) to lobby in connection with this competitive solicitation and certified that each lobbyist retained has timely filed the registration or amended registration required under Section 1-262, Broward County Code of Ordinances. It is a requirement of this solicitation that the names of any and all lobbyists retained to lobby in connection with this solicitation be listed below:

<table>
<thead>
<tr>
<th>Name of Lobbyist</th>
<th>Lobbyist's Firm</th>
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</table>

STATE OF ________ (Vendor Signature)
COUNTY OF ________ (Print Vendor Name)

The foregoing instrument was acknowledged before me this ___ day of __________, 20___, by

_____________________________ as __________________________ of
(Name of person who’s signature is being notarized) (Title)

_____________________________ known to me to be the person described herein, or
(Name of Corporation/Company)

who produced ______________________ as identification, and who did/did not take an oath.

(Type of Identification)

NOTARY PUBLIC:

_____________________________ My commission expires: __________
(Signature)
(Print Name)

5-1-2013
FORM 10: OWNER CONTROLLED INSURANCE PROGRAM CERTIFICATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

The undersigned vendor hereby certifies that:

1. The vendor has read and understands the insurance requirements set forth in the contract documents, including but not limited to the Owner Controlled Insurance Program ("OCIP") requirements set forth in the general conditions, and in the OCIP Insurance Manual, and the OCIP Safety and Loss Prevention Manual.

2. The vendor acknowledges and understands that the OCIP will provide to enrolled parties, as specified in the insurance requirements, workers' compensation and employer's liability insurance, commercial general liability insurance, excess liability insurance, builder's risk insurance, U.S. Longshoremen & Harbor Workers' act, Jones Act and contractor's pollution liability insurance.

3. The vendor has removed from its bid or bids submitted for the project the cost to provide any of the insurance provided under the OCIP, as instructed in the insurance requirements, and vendor shall not include, in any request for payment, request for compensation, change order, or claim, any of vendor's costs to provide the insurance coverages provided under the OCIP.

4. The vendor acknowledges and understands that vendor will still be required to provide additional insurance for risks and losses not covered by the OCIP, including but not limited to automobile liability insurance, commercial general liability insurance, workers' compensation, and employer's liability insurance, for off-site exposures, and such other insurance as required by owner, all as specified in the insurance requirements.

5. The vendor acknowledges and understands that COUNTY, its agents, employees, and officers, and the OCIP administrator, are not and have not acted as an insurance agent or broker for vendor. Vendor has reviewed and understands the OCIP coverages, and has solely relied upon vendor's own independent review and analysis of the OCIP coverages in formulating any understanding and/or belief as to the amount, nature, type, or extent of any OCIP coverage and its potential applicability to any potential claim or loss, or in deciding, in whole or in part, to submit a bid for the project.

6. The vendor acknowledges and agrees that COUNTY, its agents, employees, and officers, and the OCIP administrator are not agents, partners, or guarantors of the insurance companies providing coverage under the OCIP, and that neither COUNTY, its agents, employees, officers, nor the OCIP Administrator are responsible for any claims or disputes between or among vendor and any OCIP insurer.
FORM 10: OWNER CONTROLLED INSURANCE PROGRAM CERTIFICATION
(continued)

VENDOR
By: ________________________
   (Signature)

__________________________
(Print/Type Name and Title)

STATE OF ____________
COUNTY OF ____________

The foregoing instrument was acknowledged before me this ___ day of ____________,
20__, by ---------------------------------------- (Name of person whose signature is being notarized) as -------------------- (Title) of
------------------------------- (Name of Corporation/Company) known to me to be the person described herein, or who produced-------------------­
(Type of Identification) as identification, and who did/did not take an oath.

NOTARY PUBLIC:

__________________________
   (Signature)
__________________________
   (Print Name)

My commission expires: ________
FORM 11: SCRUTINIZED COMPANIES CERTIFICATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

The Vendor, by virtue of the signature below, certifies that:

a. The Vendor, owners, or principals are aware of the requirements of Section 287.135, Florida Statutes, regarding Companies on the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List; and

b. The Vendor, owners, or principals, are eligible to participate in this solicitation and not listed on either the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List; and

c. If awarded the Contract, the Vendor, owners, or principals will immediately notify the COUNTY in writing if any of its principals are placed on the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

(Authorized Signature)

(Print Name and Title)

(Name of Firm)

STATE OF ________________
COUNTY OF ________________

The foregoing instrument was acknowledged before me this ___ day of __________, 20__, by ______________________________________________________

(Name of person who's signature is being notarized)

as ___________________________________________ of _______________________

(Title) (Name of Corporation/Company)

known to me to be the person described herein, or who produced ______________________

as identification, and who did/did not take an oath.

NOTARY PUBLIC:

__________________________

(Signature)

__________________________ (Print name)

My commission expires: ______________

5-1-2013
FORM 12: TRENCH SAFETY ACT CERTIFICATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

On October 1, 1990 House Bill 3181, known as the Trench Safety Act became law. This incorporates the Occupational Safety & Health Administration (OSHA) revised excavation safety standards, citation 29 CFR.S.1926.650, as Florida’s own standards.

The Bidder, by virtue of the signature below, affirms that the Bidder is aware of this Act, and will comply with all applicable trench safety standards. Such assurance shall be legally binding on all persons employed by the Bidder and subcontractors. The Bidder is also obligated to identify the anticipated method and cost of compliance with the applicable trench safety standards.

BIDDER ACKNOWLEDGES THAT INCLUDED IN THE VARIOUS ITEMS OF THE PROPOSAL AND IN THE TOTAL BID PRICE ARE COSTS FOR COMPLYING WITH THE FLORIDA TRENCH SAFETY ACT. THESE ITEMS ARE A BREAKOUT OF THE RESPECTIVE ITEMS INVOLVING TRENCHING AND WILL NOT BE PAID SEPARATELY. THEY ARE NOT TO BE CONFUSED WITH BID ITEMS IN THE SCHEDULE OF PRICES, NOR BE CONSIDERED ADDITIONAL WORK.

COMPLETION REQUIRES FILLING IN THE APPROPRIATE DETAILS UNDER THE HEADINGS, i.e., DESCRIPTION, UNIT, QUANTITY, UNIT PRICE, EXTENDED, AND METHOD.

The Bidder further identified the costs and methods summarized below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Extended</th>
<th>Method</th>
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Total $ __________________________

______________________________
Name of Bidder

______________________________
Authorized Signature of Bidder

5-1-2013
FORM 13: VENDORS LIST (NON-CERTIFIED SUBCONTRACTORS AND SUPPLIERS)

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

Provide this information for any sub vendor(s) who will provide a service to the COUNTY for this solicitation. This includes major suppliers as well.

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Firm's Name: ____________________________</td>
</tr>
<tr>
<td>2.</td>
<td>Firm's Address: __________________________</td>
</tr>
<tr>
<td>3.</td>
<td>Firm's Telephone Number: ___________ Firm Email Address: ___________</td>
</tr>
<tr>
<td>4.</td>
<td>Contact Name and Position: ___________</td>
</tr>
<tr>
<td>5.</td>
<td>Alternate Contact Name and Position: ___________</td>
</tr>
<tr>
<td>6.</td>
<td>Alternate Contact Telephone Number: ___________ Email Address: ___________</td>
</tr>
<tr>
<td>7.</td>
<td>Bid/Proposal Number: ___________ Contracted Amount: ___________</td>
</tr>
<tr>
<td>8.</td>
<td>Type of Work/Supplies Bid: ___________ Award Date: ___________</td>
</tr>
</tbody>
</table>

I certify that the information submitted in this report is in fact true and correct to the best of my knowledge.

<table>
<thead>
<tr>
<th>Signature</th>
<th>Title / Firm Name</th>
<th>Date</th>
</tr>
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</table>

Note: the information provided herein is subject to verification by the Purchasing Division. Use additional sheets for more subcontractors or suppliers as necessary.
FORM 14: BUY AMERICA CERTIFICATION

Buy America Certification
(Title 49 U.S.C. Section 50101)

| PROJECT NAME: |
| AIRPORT NAME: |
| AIP NUMBER: |

This solicitation and any resulting contract are subject to the Buy America requirements of 49 U.S.C. Section 50101. The bidder certifies it and all associated subcontractors will comply with the Buy American preferences established under Title 49 U.S.C. Section 50101 as follows:

U.S.C. Section 50101 - Buying goods produced in the United States
(a) Preference. - The Secretary of Transportation may obligate an amount that may be appropriated to carry out section 106(k), 44502(a)(2), or 44509, subchapter I of chapter 471 (except section 47127), or chapter 481 (except sections 48102(e), 48106, 48107, and 48110) of this title for a project only if steel and manufactured goods used in the project are produced in the United States.
(b) Waiver. - The Secretary may waive subsection (a) of this section if the Secretary finds that:
   (1) Applying subsection (a) would be inconsistent with the public interest;
   (2) The steel and goods produced in the United States are not produced in a sufficient and reasonably available amount or are not of a satisfactory quality;
   (3) When procuring a facility or equipment under section 44502(a)(2) or 44509, subchapter I of chapter 471 (except section 47127), or chapter 481 (except sections 48102(e), 48106, 48107, and 48110) of this title -
      A. The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components of the facility or equipment; and
      B. Final assembly of the facility or equipment has occurred in the United States; or
   (4) Including domestic materials will increase the cost of the overall project by more than 25 percent.
(c) Labor Costs. - In this section, labor costs involved in final assembly are not included in calculating the cost of components.

As a matter of bid responsiveness, the bidder or offeror must complete and submit this certification with their bid proposal. The bidder must sign and date the certification. The bidder/offeror must indicate how they propose to comply with the Buy America provision by selecting one of the following certification statements:

- The bidder hereby certifies that it will comply with Title 49 U.S.C Section 50101(a) by only installing steel and manufactured products produced in the United States of America. The bidder further agrees that if chosen as the apparent low bid, it will submit documentation to the owner that demonstrate all steel and manufactured products are 100% manufactured in the United States.
- The bidder hereby certifies that it cannot fully comply with the Buy America preferences of Title 49 U.S.C Section 50101(a); bidder therefore requests a waiver per Title 49 U.S.C Section 50101(b) subject to the following conditions:
  - For equipment and material the FAA has already issued a waiver to AIP Buy American preferences as indicated on the current FAA Buy American conformance list, bidder shall submit a listing of specific equipment and material it proposes to install on the project prior to the issuance of a Notice-to-Proceed.
  - For equipment and material the FAA has not previously issued a waiver to Buy American preferences, the bidder identified with the apparent low bid agrees to prepare and submit to the owner a waiver request and component calculation information within 15 calendar days of the date of the notice of apparent award of contract.

Bidder’s Firm Name

Date

Signature

5-1-2013
EXHIBIT 1: WAGE RATE TABLES

General Decision Number: FL130208 01/04/2013 FL208
Superseded General Decision Number: FL20120208
State: Florida
Construction Type: Highway
County: Broward County in Florida.

**HIGHWAY CONSTRUCTION PROJECTS**

<table>
<thead>
<tr>
<th>Modification Number</th>
<th>Publication Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGI0487-018</td>
<td>01/04/2013</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$28.30</td>
<td>8.78</td>
</tr>
</tbody>
</table>

OPERATOR: Crane
Group 1 - All Tower Cranes
Mobile, Rail, Climbers,
Static-Mount; All Cranes
with Boom Length 150 Feet
& Over (With or without
jib) Friction, Hydro,
Electric or Otherwise;
Cranes 150 Tons & Over ;
Cranes with 3 Drums (When
3rd drum is rigged for
work); Gantry & Overhead
Cranes; Hydro Cranes Over
25 Tons but not more than
50 Tons; Hydro/Friction
Cranes; All Type of
Flying Cranes; Finish
Grader; Concrete Pumping
Machine with Boom
Attachments.............$ 28.30 8.78

Group 2 - Cranes with Boom
Length Less than 150 Feet
(With or without jib);
Hydro Cranes 25 Tons &
Under, & Over 50 Tons.......$ 27.57 8.78

OPERATOR: Oiler.................$ 22.24 8.78

* IRON0272-006 10/01/2011

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$23.94</td>
<td>5.93</td>
</tr>
</tbody>
</table>

* SUFL2009-204 08/05/2009
<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARPENTER, Includes Form Work</td>
<td>$11.48</td>
<td>0.69</td>
</tr>
<tr>
<td>CEMENT MASON/CONCRETE FINISHER</td>
<td>$12.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ELECTRICIAN</td>
<td>$19.84</td>
<td>0.00</td>
</tr>
<tr>
<td>HIGHWAY/PARKING LOT STRIPING: Operator (Striping Machine)</td>
<td>$11.97</td>
<td>2.23</td>
</tr>
<tr>
<td>HIGHWAY/PARKING LOT STRIPING: Painter</td>
<td>$14.38</td>
<td>1.73</td>
</tr>
<tr>
<td>IRONWORKER, REINFORCING</td>
<td>$15.00</td>
<td>2.45</td>
</tr>
<tr>
<td>LABORER: Asphalt Raker</td>
<td>$10.21</td>
<td>0.00</td>
</tr>
<tr>
<td>LABORER: Asphalt Shoveler</td>
<td>$10.70</td>
<td>0.00</td>
</tr>
<tr>
<td>LABORER: Common or General</td>
<td>$9.56</td>
<td>0.74</td>
</tr>
<tr>
<td>LABORER: Flagger</td>
<td>$11.00</td>
<td>3.79</td>
</tr>
<tr>
<td>LABORER: Grade Checker</td>
<td>$10.50</td>
<td>0.55</td>
</tr>
<tr>
<td>LABORER: Luteman</td>
<td>$10.32</td>
<td>0.00</td>
</tr>
<tr>
<td>LABORER: Mason Tender - Cement/Concrete</td>
<td>$12.00</td>
<td>1.80</td>
</tr>
<tr>
<td>LABORER: Pipelayer</td>
<td>$13.76</td>
<td>1.97</td>
</tr>
<tr>
<td>LABORER: Landscape &amp; Irrigation</td>
<td>$9.98</td>
<td>0.00</td>
</tr>
<tr>
<td>LABORER: Power Tool Operator (Hand Held Drills/Saws, Jackhammer and Power Saws Only)</td>
<td>$11.27</td>
<td>2.33</td>
</tr>
<tr>
<td>OPERATOR: Asphalt Plant</td>
<td>$12.20</td>
<td>0.00</td>
</tr>
<tr>
<td>OPERATOR: Asphalt Spreader</td>
<td>$10.76</td>
<td>0.00</td>
</tr>
<tr>
<td>OPERATOR: Auger</td>
<td>$19.40</td>
<td>0.44</td>
</tr>
<tr>
<td>OPERATOR: Backhoe Loader Combo</td>
<td>$18.00</td>
<td>1.39</td>
</tr>
<tr>
<td>OPERATOR: Backhoe/Excavator</td>
<td>$16.35</td>
<td>0.00</td>
</tr>
<tr>
<td>OPERATOR: Boom</td>
<td>$16.61</td>
<td>0.00</td>
</tr>
<tr>
<td>OPERATOR: Bulldozer</td>
<td>$18.47</td>
<td>0.00</td>
</tr>
</tbody>
</table>

5-1-2013
Bid No. Z1145017C1

OPERATOR: Distributor............$ 12.33 0.00
OPERATOR: Drill.....................$ 13.00 1.59
OPERATOR: Grader/Blade............$ 16.11 1.65
OPERATOR: Loader....................$ 10.94 0.69
OPERATOR: Mechanic....................$ 16.20 3.25
OPERATOR: Milling Machine...........$ 11.50 1.68
OPERATOR: Oil Distributor.........$ 11.15 0.48
OPERATOR: Paving.....................$ 11.89 2.28
OPERATOR: Piledriver................$ 14.15 2.26
OPERATOR: Roller....................$ 9.50 0.00
OPERATOR: Scraper...................$ 12.31 1.83
OPERATOR: Screed.....................$ 11.49 1.64
OPERATOR: Tractor...................$ 13.00 1.00
OPERATOR: Trencher...................$ 12.05 0.40
PAINTER: Spray and Steel............$ 16.62 0.00

TRAFFIC SIGNALIZATION:
Traffic Signal Installation........$ 14.00 0.65

TRUCK DRIVER, Includes 10 Yard Haul Away, A-Frame, Dump, Water Truck.............$ 12.50 0.00
TRUCK DRIVER: 4 Axle Truck..........$ 12.01 1.52
TRUCK DRIVER: Dump Truck............$ 10.44 0.50
TRUCK DRIVER: Lowboy Truck........$ 12.00 0.00
TRUCK DRIVER: Material Truck.......$ 13.15 9.80
TRUCK DRIVER: Tractor Haul Truck.......$ 10.64 0.00
TRUCK DRIVER: Water Truck...........$ 10.50 0.00
TRUCK DRIVER: 3 Axle Truck..........$ 9.81 0.00
TRUCK DRIVER: Distributor, Dump, Lowboy and Tandem.........$ 13.22 2.01
TRUCK DRIVER.......................$ 9.76 0.34

5-1-2013
WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters, PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana, 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.
WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION
EXHIBIT 2: SAMPLE CERTIFICATE OF INSURANCE

Insurance Request for T4 Apron Reconfiguration and Expansion

The following coverages are deemed appropriate for minimum insurance requirements for this project and will be required of the selected Firm and Identified in the negotiated agreement. Any deviation or change during the contract negotiation period shall be approved by Risk Management.

<table>
<thead>
<tr>
<th>TYPE OF INSURANCE</th>
<th>Limits on Liability in Thousands of Dollars</th>
<th>Each Occurrence</th>
<th>Aggregate</th>
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<tr>
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<td>Property Damage</td>
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<td>$5000k Airside</td>
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<td>AUTO LIABILITY</td>
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<td>Property Damage</td>
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<tr>
<td>EXCESS LIABILITY</td>
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<td>Covered by County’s OCIP Program</td>
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<td>Bodily Injury (each accident)</td>
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<td>Property Damage</td>
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<td>POLLUTION LIABILITY</td>
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<td></td>
<td>Property Damage</td>
<td>$1000K Non airside</td>
<td>$5000k Airside</td>
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</table>

Contractor responsible for all tools, materials, equipment, machinery, etc., until completion and acceptance by County.

Description of Operations/Locations/Vehicles Certificate must show on general liability and excess liability Additional Insured: Broward County. Also when applicable certificate should show B.C. as a named insured for property and builders risk and as a loss payee for installation floater when coverages are required. Certificate Must be Signed and All applicable Deductibles shown. CONTRACTOR RESPONSIBLE FOR ALL DEDUCTIBLES UNLESS OTHERWISE STATED. Indicate this number, RLRFP, and project manager.

NOTE: * If the Company is exempt from Workers’ Compensation Coverage, please provide a letter on company letterhead or a copy of the State’s exemption which documents this status and attaches to the Certificate of Insurance for approval. If any operations are to be undertaken on or about navigable waters, coverage must be included for U.S. Longshoremen & Harbor Workers’ Act & Jones Act.

CANCELLATION: Thirty (30) Day written notice of cancellation required to the Certificate Holder.

Name & Address of Certificate Holder:
Broward County
2200 Southwest 45th Street, Suite 101
Dania Beach, FL 33312
RE: (R. Waskiewicz, BCAD)

[Signature]
Aviation Division
Risk Insurance and Contracts Manager

5-1-2013
CONSTRUCTION CONTRACT DOCUMENTS
FOR THE FOLLOWING PROJECT:

TERMINAL 4 APRON EXPANSION
FOR THE
AVIATION DEPARTMENT

BROWARD COUNTY, FLORIDA
through its
BOARD OF COUNTY COMMISSIONERS
of
BROWARD COUNTY, FLORIDA

BID/CONTRACT NO.: Z1145017C1
Solicitation No. Z1145017C1
Addendum No. 1

ADDENDUM NO. 1

Solicitation No.: Z1145017C1
Solicitation Title: Terminal 4 Apron Expansion

Date Of Addendum: July 18, 2013

Attention all potential bidders:

Must Addendum: Read carefully and follow all instructions. Information included in this Addendum will have a material impact on the submittal for this solicitation. All "MUST" addenda and revised Bid Sheets are considered a matter of responsiveness. "MUST" addenda must be returned with your Bid Submittal or acknowledged on the Bid Tender Form. All revised Bid Sheets must be returned with your Bid. Failure of a Submitter to acknowledge the addendum and return the revised Bid Sheets shall be cause for rejection of the bid.

Return Addendum with Bid Submittal or Acknowledge on the Bid Tender Form
Return Completed Revised Bid Pricing Sheets with Bid Submittal

To all prospective bidders, please note the following changes and clarifications:
Words in strikethrough type are deletions from existing text. Words in bold underlined type are additions to existing text.

1. The Bid Opening Date remains as July 31, 2013 at 2:00 p.m.

2. The Electronic Bid Sheets have been revised and must be downloaded from the Purchasing Division website at: http://www.broward.org/PURCHASING/Pages/CurrentSolicitationList.aspx. These Revised Bid Pricing Sheets "MUST" be completed and returned with your Bid submittal. Revisions to Electronic Bid Sheets include:

- ADD Bid Item No. 39A, Specification No. C-11.34-.01 Installation of Passenger Boarding Bridge Anchor, 28 EA
- ADD Bid Item No. 31A, Specification No. P-162-8.1 12" Stabilized Subgrade with an Estimated quantity of 21,000 SY
- ADD Bid Item No. 31B, Specification No. P-154-5.1 6" Subbase Course with an Estimated Quantity of 12,000 SY
- REVISE Bid Item No. 38, Specification No. P-401-8.1 Bituminous Surface Course (3/4" Mix) to 11,100 Ton.
- REVISE Bid Item No. 90, Specification No. 15060-11 16"x8" DI Tapping Sleeve w/Double 16" Tapping Valve and Box, Estimated Quantity to one (1), EA.
- DELETE Bid Item No. 101, Specification No. 15060-22 16" Tapping Valve and Box

Addendum Form 3 (rev 08/2012)

A Service of the Broward County Board of County Commissioners
• ADD Bid Item No. 119A for 15060-57 16" DI 11.25 Degree Bend CL 350 with an Estimated Quantity of six (6), EA
• ADD Bid Item No. 137A for 15060-60 8" PLUG VALVE AND VALVE BOX with an Estimated Quantity of two (2), EA
• REVISE Bid Item No. 17, Specification No. P-107-4.1a Asphalt Pavement Demolition to 112,600 SY
• REVISE Bid Item No. 103, Specification No. 15060-24 20" Steel Casing to 30" Steel Casing with an Estimated Quantity to 20 LF
• ADD Bid Item No. 137B, Specification No. 15060-59 12" x 6" Tapping Sleeve with an Estimated Quantity of one (1) EA

3. The Contract Documents are amended as follows: Section 4: Office of Economic and Small Business Development Requirements of the Invitation for Bid, is replaced in its entirety with the Revised Section 4: Office of Economic and Small Business Development Requirements included in this Addendum. Information demonstrating compliance must be submitted with your response to the solicitation.

4. The Contract Documents are amended as follows: ADD to Volume 1 – Terminal 4 Apron Expansion (Combined Sheets) Sheet C2.01 and C2.02, Note 13: Contractor shall maintain vehicular access to Gate 504, the AOA Construction Access Gate, at all time.

5. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheet C2.33 and C2.36 the removal of existing power poles and associated cabling as shown. ADD Note 4. All costs associated with removal of the existing power poles shall be included in the Lump Sum price for Bid Item Nos. P-151-4.1d BCAD Office Trailer and Site Demolition and P-151-4.1e National Car Rental Buildings and Site Demolition.

6. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheet C2.33 and C2.36, Note 3, Contractor shall provide temporary power to Gate 504 prior to the demolition of the existing temporary Power Poles feeding Gate 504. All costs associated with providing temporary power to be included in the Lump Sum price for Bid Item No. P-105-4.1 Temporary Construction Items.

7. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheet C2.23 the removal of existing drainage canal vehicle crossing and culvert. Item to be paid in Lump Sum price for Bid Item 15 P-151.4.1d BCAD Office Trailer and Site Demolition.

8. The Contract Documents are amended as follows: ADD to Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheets C11.21, C11.24 and C11.25, approximate location of Passenger Boarding Bridge anchor and anchor denotation to the legend.
9. The Contract Documents are amended as follows: ADD to Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheets C11.34, Detail No. 8 and Notes for Passenger Boarding Bridge Anchor and add "Installed by Other" watermark on Detail Nos. 1, 3, & 4.

10. The Contract Documents are amended as follows: REVISED Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheets C11.32, Revise Detail 1 PCC Pavement to Typical Bituminous Shoulder Section, Callout 12'' Stabilized Subgrade (P-160) to 12'' Stabilized Subgrade (P-162).

11. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.22 and C11.23, approximate location of Passenger Boarding Bridge anchor and anchor denotation to the legend.

12. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.34, Detail 8 and Notes for Passenger Boarding Bridge Anchor and add "Installed by Other" watermark on Detail Nos. 1, 3, & 4.

13. The Contract Documents are amended as follows: REVISED Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.32, Revise Detail 1 PCC Pavement to Typical Bituminous Shoulder Section, Callout 12'' Stabilized Subgrade (P-160) to 12'' Stabilized Subgrade (P-162).

14. The Contract Documents are amended as follows: ADD to Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheet GTA3-CS1.01, Phasing Notes: GTA 3 work including, but not limited to, water main, communications and electrical ductbank installation shall not commence until RAPM Phase I & II, by others, in GTA 4 is completed. Contractor shall coordinate the start of GTA 3 work with the CPM.

15. Question: Can the CAD files be provided to the contractors for bidding/takeoff purposes?
Answer: CAD files shall not be provided during procurement process. To ensure competitiveness, bidders shall utilize the quantities identified in the Electronic Bid Sheets included in the solicitation.

16. Question: Pertaining to the 22% DBE goal, will SBE certified firms satisfy the DBE Goal? Can the goal be reduced to match recently bid projects? Can the allowance items be excluded from the 22% DBE goal? Provide the worksheet utilized to arrive at the 22% DBE participation for this project.
Answer: Only firms duly certified as DBE in the state of Florida at the time bids are due may be considered for credit toward the DBE goal. The assigned 22% DBE goal is not changed. The DBE goal applies to the entire value of the award amount, including allowances. Refer to the Office of Economic and Small Business Development Memorandum dated March 25, 2013 and associated Methodological Statement - Disadvantaged Business Enterprise (DBE) Program, attached in this Addendum.

17. Question: Provide a bid item for the 24'' Compacted Subgrade under the PCC apron and taxiway detail as shown in the pavement details.
Answer: Bidders shall utilize Bid Item Nos. 30 and 31 for Subgrade Preparation.

18. Question: Provide a bid item for the 12'' Stabilized Subgrade under the bituminous shoulder section as shown in the pavement details.
Answer: Bid Item 31A for P-162 12'' Stabilized Subgrade with an Estimated Quantity of 21,000 SY has been added. Specification Section P-162 Subgrade Stabilization is included in this Addendum.

19. Question: Provide a bid item for the 6'' Subbase under the full strength asphalt section as shown in the pavement details.
20. **Question:** Provide a bid item for the temporary asphalt pavement tie-in shown in the pavement details.  
**Answer:** The Estimated Quantity for Bid Item No. 38 P-401-8.1 Bituminous Surface Course (3/4" Mix) has been increased to 11,100 Ton to include the required temporary asphalt pavement.

21. **Question:** Provide the proposed schedule for the construction of Terminal 4.  
**Answer:** An approved Baseline Schedule for the Western and Eastern Terminal 4 Building Expansion is not available at this time.

22. **Question:** Provide the anticipated start date of this project.  
**Answer:** The construction start date is dependent on contract award and Contractor's ability to comply with the requirements of the First and Second Notice to Proceed as outlined in the Construction Contract Documents.

23. **Question:** Demolition: The demolition plan sheets for the east and west projects do not accurately depict the existing conditions. In order to provide a responsible proposal to the owner the plan sheets need to be accurate.  
**Answer:** The demolition drawings indicate basic surface conditions known to the Engineer. Specification Section P-151-2.1a states that "The Contractor shall be responsible for visiting the construction site to perform a field investigation and all other necessary due diligence to assess the extent of clearing and grubbing, pavement demolition, foundation removal and other demolition that will be required prior to submitting a bid."

24. **Question:** Unsuitable Excavation: The borings provided within the bid documents do not show any muck, peat and/or organic silt that fits the specification of unsuitable material. Provide the location that the engineer of record expects to encounter unsuitable excavation.  
**Answer:** Refer to Terminal 4 Apron Expansion (Combined Sheets) C01.20 through C01.27 for soil borings indicating construction debris, peat, etc. Refer to Soil Boring TB-AP-43 as an example.

25. **Question:** Unsuitable Subsurface Materials: The borings provided within the bid documents clearly show the existence of a previous dump site along the eastern edge of the project extending from the northernmost boring south to and under the current runway embankment. Provide the limits of the dump site and anticipated disposal procedure. Will the unsuitable subsurface materials allowance account be used to provide payment for this work?  
**Answer:** An Estimated Quantity of unsuitable materials is included in Bid Item No. 28 based on existing bore logs contained in the Contract Documents. It is the Contractor's responsibility to excavate and dispose of unsuitable materials as indicated in Specification Section P-159-2.1.

26. **Question:** PCC Concrete Pavement: Please review the stipulation in the specification that restricts the individual placement areas to less than 500 square yards. Considering the limitations of slip-form equipment 500 square yards or less of individual placement may be too restrictive.  
**Answer:** Specification Section P-501-4.1c calls for areas less than 500SY or irregular areas inaccessible to slip form paving.

27. **Question:** Remediation Activities: 1) Provide the waste characterization and concentrations of the contamination expected to be encountered during remediation. Based upon the anticipated characterization provide the procedure and site for disposal.
Answer: Refer to the Limited Scope Remedial Action Plan Addendum approved by the Florida Department of Environmental Protection. This document is being sent to all Planholders by HDR Engineering.

28. **Question:** Remediation Activities: 2) Provide the accurate location of the remediation area. At the pre-bid conference the area was said to be located in phase E, however utilizing the plan sheet provided and attempting to associate the location with the existing features shown the remediation area is within phase F.

**Answer:** The approximate limits of the existing contamination scheduled to be remediated are shown on Terminal 4 Apron Expansion (East Sheets) ENV 01.00. Remediation of the South Terminal Site shall be completed during Phase E as indicated by Note No. 5 on Terminal 4 Apron Expansion (Combined Sheets) C02.01.

29. **Question:** Remediation Activities: 3) The existing fuel line appears to traverse the excavation. The plan sheets show the fuel line to be removed. Will this fuel line be removed outside of the proposed excavation? Will the contaminated soil excavated during the removal of the fuel line by others be disposed by others?

**Answer:** The existing Broward County Aviation Department 14-inch hydrant fuel line will be rerouted east beyond the footprint of the proposed Terminal 4 Eastern Expansion through the limits of the excavation for the remediation. Refer to EAC Consulting, Inc. Hydrant Fueling System - Eastern Expansion Jet Fuel Layout Plan (CF101) included in this Addendum for reference.

The existing Everglades Pipeline is abandoned and will be grouted in place prior to the start of the apron expansion work.

Note 2 on Terminal 4 Apron Expansion (East Sheets) C02.26 requires "Contractor to remove abandoned fuel line when encountered during normal construction activities."

Contaminated soil removal associated with the South Terminal Site Remediation shall be performed by the apron contractor and paid under Bid Item P-151-4.1g South Terminal Phase III Remediation.

30. **Question:** Remediation Activities: 4) Excavation notes; note 5 states that the soil is to be removed to 4' below the water table (approximately 17 ft below the surface). Please provide the anticipated elevation of the water table.

**Answer:** Refer to Terminal 4 Apron Expansion (Combined Sheets) C01.20 through C01.27 for soil borings including the water table elevations. In addition, refer to the Limited Scope Remedial Action Plan Addendum approved by the Florida Department of Environmental Protection included in this Addendum. Contractor shall note that water table varies across the project and will vary depending on the time of year.

31. **Question:** Subgrade Preparation: Based upon the bid item quantities it appears that the design engineers are comfortable placing concrete pavement on top of unimproved existing soil. It that the intention of the engineer of record and the owner?

**Answer:** For Bid Item 30 - the Contractor shall create 24" of subgrade using existing limerock to achieve a CBR of 13.2 or better. Bid item 31 includes areas where limerock is not present and the 24" of subgrade will need to meet CBR 13.2 by blending rock with the native materials if acceptable or import CBR 13.2 materials for the 24". Subgrade below shoulders and full strength HMA can be placed on native soils compacted per the Plans and Specification P-152.
32. **Question:** Bid Item 15060-11 16"x8" Tapping Sleeve with 16" Tapping Valve has a quantity of 8 EA. Please state where in the plans the 8 EA are shown.

**Answer:** The Estimated Quantity for Bid Item No. 90, 15060-11 16"x8" DI Tapping Sleeve w/Double 16" Tapping Valve and Box, is revised to one (1), EA.

33. **Question:** Bid Item 15060-22 16" Tapping Valve & Box 2 EA seems to be a duplicate of Bid Item 15060-12 24"x16" Tapping Sleeve with 16" Tapping Valve & Box 1 EA. Please confirm Bid Item and quantity.

**Answer:** Delete Bid Item No. 101, 15060-22 16" Tapping Valve and Box.

34. **Question:** There is no Bid Item for 16" DI 11.25 Degree Bend CL 350 6 EA as shown on East and West Plan Sheets C05.01. Please confirm and add Bid Item.

**Answer:** Bid Item 119A for 15060-57 16" DI 11.25 Degree Bend CL 350 with an Estimated Quantity of six (6), EA has been added.

35. **Question:** There is no Bid Item for the Air Release Valve with Maintenance Access Structure as shown on West Plans Sheet C05.01. Please confirm and add Bid Item.

**Answer:** Bid Item 120A for 15060-58 Air Release Valve and Maintenance Structure with an Estimated Quantity of one (1) has been added.

36. **Question:** In what Bid Item is the removal of the existing Lift Station shown on East Plans Sheet C02.33 to be paid for in?

**Answer:** The removal of LS31A5 is to be priced under Bid Item No. 22, P-151-4.1d BCAD Office Trailer and Site Demolition.

37. **Question:** There is no Bid Item for the 8" Plug Valves with Valve Box as shown on West Plan Sheet C06.01 for the sewer. Please confirm and add Bid Item.

**Answer:** Bid Item 137A for 15060-60 8" PLUG VALVE AND VALVE BOX with an Estimated Quantity of two (2), EA has been added.

38. **Question:** Drawing C04.10 (Terminal Apron Expansion East) has a note on the bottom left-hand side of the drawings under the section titled "PUMPS AND CONTROL PANEL" that states the "Pumps and control panel will be provided to the Contractor by BCWWS for installation into the work. All appurtenances required to make a complete and operating system shall be furnished and installed by the Contractor."

Is BCWWS providing pumps for the Existing Lift Station 31-A (West - 20 HP pumps (2 ea.)) and New Lift Station 31 (East - 5.5 HP pumps (2 ea.))? Pumps shall be provided by BCWWS in accordance with BCWWS Typical Standard Lift Station Detail included on Terminal 4 Apron Expansion (East Sheets) C04.10.

**Answer:** Pumps shall be provided by BCWWS in accordance with BCWWS Typical Standard Lift Station Detail included on Terminal 4 Apron Expansion (East Sheets) C04.10.

39. **Question:** Specification Section 11305; Paragraph 2.3-A states that the pumps, motors, control panel, frames and cover, discharge elbows and guide rail system shall be supplied by the pump supplier to ensure unit responsibility. Are all of these accessories being provided by BCWWS? Please provide a bill of materials or list of items, accessories, etc. being provided with the BCWWS supplied pumps.

**Answer:** It is anticipated that BCWWS will supply the pumps, motors, and control panels. For Lift Station 31-A, the Contractor is to replace the dump station covers as indicated on Terminal 4 Apron Expansion (West Sheets) C04.11. For Lift Station 31(New) the Contractor shall supply everything excluding the pumps, motors, and control panel.
40. **Question:** Specification Section 11305; Paragraph 2.3 stated “frames and covers” will be provided by BCWWS. Does this mean the vault hatches as shown on Lift Station Plan Sheets C04.11 (West & East) will be provided to the Contractor?

**Answer:** Frames and covers shall be supplied by the Contractor.

41. **Question:** Specification Sections 11060 and 11305 lists field testing and training requirements for the pump manufacturer representative. Are these field services included with the BCWWS supplied pumps or will the Contractor be required to provide and pay for these services?

**Answer:** The Contractor shall arrange and pay for these services.

42. **Question:** Drawing C04.11 (West) shows the existing 50 HP pumps at the existing lift station being replaced with new 20 HP pumps. Notes 7 and 8 on this drawing state that the Contractor shall verify the existing guide rails and base elbows are compatible with the new proposed pumps, but the existing pump manufacturer and pump model is not provided. Please provide the existing pump manufacturer, model number and any other details that would enable the Contractor to determine if the existing guide rails and base elbows will be compatible with the new pumps if the Contractor is to supply the pumps.

**Answer:** According to the Wastewater Master Plan, the existing 50-HP pumps are EBARA 150DLF637 with a 6-inch discharge.

43. **Question:** Will Manufactured Sand be allowed instead of Natural Sand in the P-501 and P-610 Concrete provided it meets the other requirements in the specifications?

**Answer:** No, natural sand shall be used in accordance with the specification.

44. **Question:** The P-501 Specification disallows the use of Slag Cement; can Slag Cement be used if the Contractor can meet all other requirements of the P-501 specifications?

**Answer:** Specification Section P-501 does not allow slag to be used as an aggregate. The strikethrough of Specification Section P-501-2.3b is removed to allow the use of slag as a cementitious material. Refer to revised Specification Section P-501 in this Addendum.

45. **Question:** Is there any specific bid bond form Broward County requires?

**Answer:** Broward County does not supply a specific bid bond form; bidders may use the standard AIA Document A310, Bid Bond.

46. **Question:** Which bid item is dynamic compaction to be paid under? Can details be provided for the dynamic compaction showing where it will be required and what depth and pattern will be required? Can a bid Item be added for dynamic compaction if it is anticipated? Can a specification section be added for dynamic compaction if it is anticipated?

**Answer:** Contractor shall utilize means and methods, as they deem appropriate, to achieve the required density. Contractor shall be responsible for monitoring potential impacts of dynamic compaction to the MSE Wall, by others.

Bid Item Nos. 30 & 31 are applicable for this work. For Bid Item No. 30 the Contractor shall create 24" of subgrade using existing limerock to achieve a CBR of 13.2 or better. Bid Item No. 31 includes areas where limerock is not present and the 24" of subgrade will need to meet CBR 13.2 by blending rock with the native materials if acceptable or import CBR 13.2 materials for the 24".

47. **Question:** 100,000CY is a very large quantity of material. Can the anticipated limits of this volume be defined? In plan view what is the location of the unsuitable material? In section view at what depths is the anticipated unsuitable material to be encountered? How thick is the depth of unsuitable material
that is to be removed? From existing grade how far down is the surface of unsuitable material that is to be removed? From existing grade how far down is the bottom most limit of the unsuitable material that is to be removed? Is the unsuitable material under the proposed subgrade? Does the unsuitable material that is removed get backfilled? If the unsuitable material that gets removed gets backfilled, how does the backfill of unsuitable material get paid?

**Answer:** The Estimated Quantity is based on the provided geotechnical bore logs and approximate delineation included in the provided Geotechnical Report. The depth of the unsuitable materials varies based on the provided bore logs.

It shall be the Contractor’s responsibility to remove and dispose of all encountered unsuitable materials regardless of depth based on a cubic yard measurement.

Contractor may re-use on-site suitable material from cut areas and offsite borrow material, paid for under P-152-4.3, to backfill removed unsuitable material as needed to meet final grades as shown in the design plans.

**48. Question:** What are the actual limits of asphalt demotion at the West Side and East Side interface?

**Answer:** The Estimated Quantity for Bid Item No. 17 Asphalt Pavement Demolition has been revised to 112,600 SY to include the discrepancy between the Eastern and Western Drawing Sheets. Volume 3 Terminal 4 Apron Expansion (East Sheets) C02.24 & C02.25 have been updated accordingly.

**49. Question:** The plan and profile for new Sanitary Sewer dimensions do not match. Sanitary Plan C06.06 East indicates 13.30 LF of 6" FM and profile C06.12 East indicates 11.88 LF of 6" FM at N:631273.28, E:938438.21. Please provide the proper length of this pipe section.

**Answer:** The proposed connection to the existing twelve inch (12") force main has been revised to a proposed 12"x6" Tapping Sleeve. The revised length of pipe from the 45 degree bend to the proposed tapping sleeve has been revised to 16.94 feet. Bid Item 137B has been added for the 12" X 6" tapping sleeve. Volume 3 Terminal 4 Apron Expansion (East Sheets) C06.06 and C06.12 have been revised to include tapping sleeve and corrected pipe length.

**50. Question:** Please provide the proper length of the 30" Jack and Bore Steel Casing.

**Answer:** The correct length of 30" Jack and Bore Steel Casing shown on Volume 2 Terminal 4 Apron Expansion (West Sheets) C05.01 & C05.11 is ten (10) LF. Volume 2 Terminal 4 Apron Expansion (West Sheets) C05.01 has been revised to reflect the corrected length.

**51. Question:** Is the water filled barrier intended to be located in the middle of the SWM Pond? Is the water filled barrier in the way of the construction of the Storm Drain Str#24-#27 and the connecting Storm Drain Pipes?

**Answer:** Barricades in the island between Taxiway Connectors T7 and T8 are based on proposed phasing and are subject to modification to achieve Best Management Practices (BMP) Sediment and Erosion Control measures. Modification of the proposed barricades shall require coordination with Broward County Aviation Department (BCAD) Operations through the Construction Project Manager (CPM).

**52. Question:** What phase is the SWM pond to be constructed?

**Answer:** Grading of the island between Taxiway Connectors T7 and T8 shall be completed during Phase Nos. A-1 and A-2.
53. **Question:** What phase are the Str#24-#27 and the connecting storm drain pipe to be constructed?
**Answer:** Pursuant to the Construction Phasing Plan and Notes included in Volume 1 Terminal 4 Apron Expansion (Combined Sheets), Structure Nos. 24 & 25 shall be installed in Phase A-2 and Structure Nos. 26 & 27 shall be installed during Phase A-1.

54. **Question:** Please provide proposed elevations for the contours that elevations are not shown.
**Answer:** Please refer to Volume 3 Terminal 4 Apron Expansion (East Sheets) C14.00 - C14.15 for retaining wall information including cross sections with proposed grades.

All other terms, conditions and specifications remain unchanged for this bid.

**NAME OF COMPANY: ________________________________**
REVISED SECTION 4: OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT REQUIREMENTS

In accordance with 49 CFR Part 26, the Disadvantaged Business Enterprise (DBE) Program shall apply to this Contract. All persons or entities responding to this solicitation shall utilize, or attempt to utilize, DBE firms to perform at least the assigned participation goal ("DBE Goal") for this Contract, which is 22%.

1.1. Compliance with DBE Goal requirements is a matter of responsibility. Information demonstrating such compliance must be submitted with your response to the solicitation. You must at least show an attempt to meet the DBE Goal by providing Letters of Intent (LOI). Alternatively, you may show your good faith efforts to meet the DBE Goal by providing the documents listed in subsection 1.3.1 through 1.3.5 below. Your failure to meet the DBE Goal or demonstrate your good faith efforts to meet the DBE Goal shall be grounds for a finding of non-responsibility. In connection with the DBE Goal, you may be deemed responsible in one of two ways.

1.2. The first way you may be deemed responsible is by submitting LOIs (Form 6) from certified DBE firms which, cumulatively, fully meet the goal.

1.3. If you are unable to fully meet the DBE Goal, the second way you may be deemed responsible is by demonstrating your good faith efforts to meet the goal ("Good Faith Efforts") and submitting a completed Application for Evaluation of Good Faith Effort (Form 7). Such Good Faith Efforts shall be consistent with the Guidance Concerning Good Faith Efforts provided by the federal Department of Transportation, found in 49 CFR 26, Appendix A. Without limiting the preceding sentence, documentation you may submit to demonstrate your Good Faith Efforts may include but is not limited to:

1.3.1. Providing timely solicitation activities to certified DBE firms, including attendance at pre-bid meetings, advertisements, or written notices;
1.3.2. Identifying appropriate contract portions and scopes of work that certified DBE firms could potentially perform;
1.3.3. Providing timely and adequate information to the certified DBE firms (including plans and specifications);
1.3.4. Good faith negotiation with each interested, certified DBE firm (including names and contact information of each DBE firm considered) with an explanation as to why negotiations failed; and
1.3.5. Investigating DBE qualifications and capabilities; list reason(s) if a certified DBE firm is rejected.

1.4. Additional Factors in Review of Good Faith Efforts: In evaluating your Good Faith Efforts, the County may also consider the success other persons or entities that have responded to the solicitation have had in meeting the DBE Goal.

1.5. Opportunity to Cure. OESBD shall review your response to the solicitation. If OESBD discerns your intent to meet the DBE Goal, but determines that your response contains technical errors or requires further documentation, then OESBD may provide you with three (3) business days to correct those errors or provide documentation.

1.6. Program Requirements for DBE participation:

1.6.1. For a firm's participation to be considered in meeting the DBE Goal, the firm must be certified as a DBE to perform the applicable work no later than the date your response to the solicitation is due to the Purchasing Division.
1.6.2. Additionally, a certified DBE firm may only participate in a contract if it is performing a commercially useful function. A certified DBE firm performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the certified DBE firm must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

1.6.3. DBE participation shall be counted in accordance with 49 CFR 26.55.

1.7. Nothing herein shall be construed to indicate that a higher level of certified DBE firm involvement above the stated goal will give any person or entity that has responded to the solicitation an advantage over other responders who have met the DBE Goal or shown Good Faith Efforts, as determined by the County.

1.8. A comprehensive listing of certified DBE firms are published in the Florida Department of Transportation (FDOT) Business Directory and can be viewed at the following Unified Certification Program (UCP) website: https://www3.dot.state.fl.us/EqualOpportunityOffice/biznet/mainmenu.asp.

For detailed information regarding the Disadvantaged Business Enterprise Program, please contact the Office of Economic and Small Business Development at (954) 357-6400 or visit the website at: http://www.broward.org/EconDev/SmallBusiness/Pages/Default.aspx
MEMORANDUM

DATE: March 25, 2013

TO: Richard Waskiewicz, Expansion Project Administrator
Aviation Department

THRU: Pamela Madison, Deputy County Administrator
Acting Director, Office of Economic and Small Business Development

FROM: Chris Atkinson, Assistant Director
Office of Economic and Small Business Development

SUBJECT: Terminal 4 Apron Expansion

The DBE Goal assigned to the above mentioned project is as follows:

DBE GOAL: 22% of the total value of the project.

Estimated Federal Assistance: 75%

The above assigned goal for Disadvantaged Business Enterprises is based on our examination of the scope of work and cost estimate as submitted to the Office of Economic and Small Business Development by the using agency. If you have any concerns regarding subcontracting opportunities which may be available, please contact our office at (954) 359-6147.

cc: Alexander Horton, Small Business Development Specialist, BCAD/OESBD
METHODOLOGICAL STATEMENT
Disadvantaged Business Enterprise (DBE) Program

PROJECT TITLE: Terminal 4 Apron Expansion

DATA: 2010 County Business Patterns and Florida Department of Transportation (FDOT) Business Directory.

STEP 1 BASE GOAL CALCULATION:
Based on the percentage in scope of work available for subcontracting and the availability of DBE firms in the relevant market area of Broward, Miami-Dade and Palm Beach Counties, the base goal is 100%.

<table>
<thead>
<tr>
<th>Specialties in Scope of Work</th>
<th>NAICS Code</th>
<th>Scope %</th>
<th>Broward</th>
<th>Miami-Dade</th>
<th>Palm Beach</th>
<th>Total Tri-County</th>
<th>DBE Firms in Biznet</th>
<th>Total Firms in County Business Patterns</th>
<th>Weighted Availability</th>
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</thead>
<tbody>
<tr>
<td>Bonds and Mobilization</td>
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<td>8.26%</td>
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<td>1</td>
<td>1</td>
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<td>1</td>
<td>1</td>
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<td>37</td>
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<td>1.24%</td>
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Percentage Availability per Specialty: 0.17%
Percentage in Scope of Work available for sub-contracting: 0.08%

continued on next page
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<thead>
<tr>
<th>Specialties in Scope of Work</th>
<th>NAICS Code</th>
<th>Scope %</th>
<th>Broward</th>
<th>Miami-Dade</th>
<th>Palm Beach</th>
<th>Total Tri-County</th>
<th>Broward</th>
<th>Miami-Dade</th>
<th>Palm Beach</th>
<th>Total Tri-County</th>
<th>Percentage Availability per Specialty</th>
<th>Percentage in Scope of Work available for subcontracting</th>
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<td>600</td>
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<td>60</td>
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<td><strong>TOTAL</strong></td>
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<td>907</td>
<td>123</td>
<td>1294</td>
<td>9169</td>
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<td></td>
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<td></td>
<td><strong>51.28%</strong></td>
<td></td>
<td><strong>22%</strong></td>
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</table>

Weighted Availability: 51.28%
Goal: 22%

**STEP 2 BASE GOAL ADJUSTMENTS:**

The project manager has advised that the scopes of work for Bonds and Mobilization, Allowance Accounts, and Concrete Paving & Base Course are the responsibility of the prime contractor and do not provide subcontracting opportunities. In addition, the scopes of work for Maintenance of Traffic and Grading, Excavation lack DBE availability or are of a volume that is not reasonably expected to be performed by a DBE, respectively. Although weighted availability for all scopes is 51.28%, this number is not representative of the actual availability of DBEs to perform the scopes of work expected to be subcontracted. The exclusion of the aforementioned four (4) scopes of work results in a total DBE subcontracting potential of 29.06%. This project is 75% funded by a grant from the Federal Aviation Administration. As the DBE goal may only be assigned to the federally funded portion of the project, this number is revised to 21.80% (75% of 29.06%). This figure is rounded to 22%.
ITEM P-162 SUBGRADE STABILIZATION

DESCRIPTION

162-1.1 SCOPE. The work specified in this section consists of the stabilizing of designated portions of the pavement subgrade to provide a firm and unyielding subgrade having the required bearing value specified in the plans. The work shall be constructed in accordance with these specifications and the lines, grades, thicknesses and notes shown in the plans.

162-2.1 STABILIZED SUBGRADE. No separate payment for stabilizing materials will be made. Compliance with the bearing value requirements will be determined by the Limerock Bearing Ratio (LBR) Method.

It is the Contractor's responsibility that the finished pavement subgrade section meets the bearing value requirements, regardless of the quantity of stabilizing materials necessary to be added.

After the grading operations have been substantially completed, the Contractor shall make his own determination as to the quantity (if any) of stabilizing material necessary for compliance with the bearing value requirements. The Contractor shall notify the Engineer of the approximate quantity to be added. The spreading and mixing in of such quantity of materials shall meet the approval of the Engineer as to uniformity and effectiveness.

MATERIALS

162-3.1 MATERIALS. The particular type of stabilizing material to be used shall meet the requirements of Item Specification P-211 which require the material to be obtained from a FDOT Certified Pit, or the Contractor may utilize limerock material from another source if the material meets the LBR requirements outlined in these specifications, is free of unsuitable materials, and meets the requirements of the Engineer.

CONSTRUCTION METHODS

162-4.1 GENERAL. Prior to the beginning of stabilizing operations, the area to be stabilized shall have been constructed to an elevation such that upon completion of stabilizing operations the completed stabilized subgrade will conform to the lines, grades and cross-section shown in the plans. Prior to the spreading of any additive stabilizing material, the surface of the pavement subgrade shall be brought to a plane approximately parallel to the plane of the proposed finished surface.

The subgrade to be stabilized may be processed in one course unless the equipment and methods being used do not provide the required uniformity, particle size limitation, compaction and other desired results, in which case, the processing shall be done in more than one course.

162-4.2 APPLICATION OF STABILIZING MATERIAL. The designated quantity of stabilized material shall be spread uniformly over the area to be stabilized.

When materials from an existing base are to be utilized in the stabilizing at a particular location, all of such materials shall be placed and spread prior to the addition of other stabilizing additives.
162-4.3 MIXING. The mixing shall be done with rotary tillers or other equipment meeting the approval of the Engineer. At the Contractor's election, the mixing of the materials may be accomplished in a plant of an approved type suitable for this work. The area to be stabilized shall be thoroughly mixed throughout the entire depth and width of the stabilizing limits.

The mixing operations, as specified, (either in place or in a plant) will be required regardless of whether the existing soil, or any select soils placed within the limits of the stabilized sections, have the required bearing value without the addition of stabilizing materials.

162-4.4 MAXIMUM PARTICLE SIZE OF MIXED MATERIALS. At the completion of mixing, all particles of material within the limits of the area to be stabilized shall pass a 3-1/2 inch ring. Any particles not meeting this requirement shall be removed from the stabilized area or shall be broken down so as to meet this requirement.

162-4.5 COMPACTION. After the mixing operations have been completed and requirements for bearing value, uniformity and particle size have been satisfied, the stabilized area shall be compacted in accordance with paragraph 162-6.1. The materials shall be compacted at a moisture content permitting the specified compaction. If the moisture content of the material is improper for attaining the specified density, either water shall be added or the material shall be permitted to dry until the proper moisture content for the specified compaction is reached.

162-4.6 FINISH GRADING. The completed stabilized subgrade shall be shaped to conform with the finished lines, grades and cross-section indicated in the plans. The subgrade shall be checked by the use of elevation stakes or other means approved by the Engineer.

162-4.7 REQUIREMENTS FOR CONDITION OF COMPLETED SUBGRADE. After the stabilizing and compacting operations have been completed, the subgrade shall be firm and substantially unyielding to the extent that it will support construction equipment and will have the bearing value required by Section 162-5.2.

All soft and yielding material and any other portions of the subgrade which will not compact readily shall be removed and replaced with suitable material and the whole subgrade brought to line and grade with proper allowance for subsequent compaction.

162-4.8 MAINTENANCE OF COMPLETED SUBGRADE. After the subgrade has been completed as specified above, the Contractor shall maintain it free from ruts, depressions and any damage resulting from the hauling or handling of materials, equipment, tools, etc. It shall be the Contractor's responsibility to maintain the required density until the subsequent base or pavement is in place.

Any work required for recompaction shall be at the Contractor's expense.

162-5.1 BEARING VALUE REQUIREMENTS. Bearing value samples will be obtained and tested by the Engineer at completion of satisfactory mixing of the stabilized area. For any area where the bearing value obtained is deficient from the value of LBR 40 in excess of the tolerances established herein, additional stabilizing material shall be spread and mixed in accordance with paragraph 162-4.3. This reprocessing shall be done for the full width of the pavement area being stabilized which the bearing value is deficient.

The Contractor shall make his own determination of the quantity of additional stabilizing material to be used in reprocessing.
162-5.2 TOLERANCES IN BEARING VALUE REQUIREMENTS. The following under tolerances from the specified bearing value will be allowed on individual tests performed on samples obtained after mixing operations have been completed:

<table>
<thead>
<tr>
<th>Specified Bearing Value</th>
<th>Undertolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBR 40</td>
<td>3.0</td>
</tr>
</tbody>
</table>

162-6.1 DENSITY REQUIREMENTS. Within the entire limits of the width and depth of the areas to be stabilized the minimum in-place density acceptable at any location will be 100 percent of the maximum density as determined by ASTM D1556. For maximum laboratory density, Test Method ASTM D1557 will be used.

METHOD OF MEASUREMENT

162-7.1 MEASUREMENT. For all work of Subgrade Stabilization specified herein, the areas to be paid for shall be the quantity of per square yard of accepted stabilized subgrade.

BASIS OF PAYMENT

162-8.1 QUANTITY. The quantity of Subgrade Stabilization, determined as provided in paragraph 162-7.1, shall be paid for at the contract price per square yard of Stabilized Subgrade. Such price and payment shall constitute full compensation for all work specified in this section applicable to these types of stabilization, including furnishing and spreading of all stabilizing material required and any reprocessing of stabilization areas necessary to attain the specified bearing value.

162-8.2 COMMERCIAL STABILIZING MATERIAL. No separate payment shall be made for any stabilizing material which the Contractor may elect to utilize in Subgrade Stabilization.

No separate payment will be made for the work of utilizing of materials from an existing base in the stabilizing section.

162-8.3 GENERAL. The above prices and payments shall constitute full compensation for all work and materials specified in this section and shall specifically include all costs of the processing and incorporation of existing base materials into the proposed stabilization area when such work is required by the plans.

Payment shall be made under:

- Item P-162-8.1 12" Stabilized Subgrade – Per Square Yard.
TESTING REQUIREMENTS

ASTM C 136   Sieve or Screen Analysis of Fine and Coarse Aggregate
FM 5-515   Limerock Bearing Ratio ASTM D 698 Moisture-Density Relations of Soils and Aggregate Mixtures Using 5.5 lb (2.49 Kg) Rammer and 12 in.(305 mm) Drop.
ASTM D 1556 Density of Soil in Place by the Sand-Cone Method
ASTM D 1557   Test for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D 4318 Liquid limit, Plastic Limit, and Plasticity Index of Soils

END OF ITEM P-162
Item P-154 Subbase Course

DESCRIPTION
154-1.1 This item shall consist of a subbase course composed of granular materials constructed on a prepared subgrade or underlying course in accordance with these specifications, and in conformity with the dimensions and typical cross section shown on the plans.

MATERIALS
154-2.1 MATERIALS. The subbase material shall consist of hard durable particles or fragments of granular aggregates. This material will be mixed or blended with fine sand, clay, stone dust, or other similar binding or filler materials produced from approved sources. This mixture must be uniform and shall comply with the requirements of these specifications as to gradation, soil constants, and shall be capable of being compacted into a dense and stable subbase. The material shall be free from vegetable matter, lumps or excessive amounts of clay, and other objectionable or foreign substances. Pit-run material may be used, provided the material meets the requirements specified.

Table 1 Gradation Requirements

<table>
<thead>
<tr>
<th>Sieve designation (square openings) as per ASTM C 136 and ASTM D 422</th>
<th>Percentage by weight passing sieves</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 in (75.0 mm)</td>
<td>100</td>
</tr>
<tr>
<td>No. 10 (2.0 mm)</td>
<td>20-100</td>
</tr>
<tr>
<td>No. 40 (0.450 mm)</td>
<td>5-60</td>
</tr>
<tr>
<td>No. 200 (0.075 mm)</td>
<td>0-8</td>
</tr>
</tbody>
</table>

The portion of the material passing the No. 40 (0.450 mm) sieve shall have a liquid limit of not more than 25 and a plasticity index of not more than 6 when tested in accordance with ASTM D 4318. The maximum amount of material finer than 0.02 mm in diameter shall be less than 3%.

CONSTRUCTION METHODS
154-3.1 GENERAL. The subbase course shall be placed where designated on the plans or as directed by the Engineer. The material shall be shaped and thoroughly compacted within the tolerances specified. Granular subbases which, due to grain sizes or shapes, are not sufficiently stable to support without movement the construction equipment, shall be mechanically stabilized to the depth necessary to provide such stability as directed by the Engineer. The mechanical stabilization shall principally include the addition of a fine-grained medium to bind the particles of the subbase material sufficiently to furnish a bearing strength, so that the course will not deform under the traffic of the construction equipment. The addition of the binding medium to the subbase material shall not increase the soil constants of that material above the limits specified.

154-3.2 OPERATION IN PITS. All work involved in clearing and stripping pits and handling unsuitable material encountered shall be performed by the Contractor at his/her own expense. The subbase material shall be obtained from pits or sources that have been approved. The material in the pits shall be excavated and handled in such manner that a uniform and satisfactory product can be secured.
154-3.3 PREPARING UNDERLYING COURSE. Before any subbase material is placed, the underlying course shall be prepared and conditioned as specified. The course shall be checked and accepted by the Engineer before placing and spreading operations are started.

To protect the subgrade and to ensure proper drainage, the spreading of the subbase shall begin along the centerline of the pavement on a crowned section or on the high side of pavements with a one-way slope.

154-3.4 MATERIALS ACCEPTANCE IN EXISTING CONDITION. When the entire subbase material is secured in a uniform and satisfactory condition and contains approximately the required moisture, such approved material may be moved directly to the spreading equipment for placing. The material may be obtained from gravel pits, stockpiles, or may be produced from a crushing and screening plant with the proper blending. The materials from these sources shall meet the requirements for gradation, quality, and consistency. It is the intent of this section of the specifications to secure materials that will not require further mixing. The moisture content of the material shall be approximately that required to obtain maximum density. Any minor deficiency or excess of moisture may be corrected by surface sprinkling or by aeration. In such instances, some mixing or manipulation may be required, immediately preceding the rolling, to obtain the required moisture content. The final operation shall be blading or dragging, if necessary, to obtain a smooth uniform surface true to line and grade.

154-3.5 PLANT MIXING. When materials from several sources are to be blended and mixed, the subbase material shall be processed in a central or travel mixing plant. The subbase material, together with any blended material, shall be thoroughly mixed with the required amount of water. After the mixing is complete, the material shall be transported to and spread on the underlying course without undue loss of the moisture content.

154-3.5.1 MIXED IN PLACE. When materials from different sources are to be proportioned and mixed or blended in place, the relative proportions of the components of the mixture shall be as designated by the Engineer.

The subbase material shall be deposited and spread evenly to a uniform thickness and width. Then the binder, filler or other material shall be deposited and spread evenly over the first layer. There shall be as many layers of materials added as the Engineer may direct to obtain the required subbase mixture.

When the required amount of materials have been placed, they shall be thoroughly mixed and blended by means of graders, discs, harrows, rotary tillers, supplemented by other suitable equipment if necessary. The mixing shall continue until the mixture is uniform throughout. Areas of segregated material shall be corrected by the addition of binder or filler material and by thorough remixing. Water in the amount and as directed by the Engineer shall be uniformly applied prior to and during the mixing operations, if necessary, to maintain the material at its required moisture content. When the mixing and blending has been completed, the material shall be spread in a uniform layer which, when compacted, will meet the requirements of thickness and typical cross section.

154-3.6 GENERAL METHODS FOR PLACING. The subbase course shall be constructed in layers. Any layer shall be not less than 3 in (75 mm) nor more than 8 in (200 mm) of compacted thickness. The subbase material shall be deposited and spread evenly to a uniform thickness and width. The material, as spread, shall be of uniform gradation with no pockets of fine or coarse materials. The subbase, unless otherwise permitted by the Engineer, shall not be spread more than 2,000 sq yd (1700 sq m) in advance of the rolling. Any necessary sprinkling shall be kept within this limit. No material shall be placed in snow or on a soft, muddy, or frozen course.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

During the placing and spreading, sufficient caution shall be exercised to prevent the incorporation of subgrade, shoulder, or foreign material in the subbase course mixture.
154-3.7 FINISHING AND COMPACTING. After spreading or mixing, the subbase material shall be thoroughly compacted by rolling and sprinkling, when necessary. Sufficient rollers shall be furnished to adequately handle the rate of placing and spreading of the subbase course.

The field density of the compacted material shall be at least 100 percent of the maximum density of laboratory specimens prepared from samples of the subbase material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D 1557. The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 6938. The moisture content of the material at the start of compaction shall not be below nor more than 2 percentage points above the optimum moisture content.

When nuclear density gauges are to be used for density determination, testing shall be in accordance with Section 120 and ASTM D 6938.

The course shall not be rolled when the underlying course is soft or yielding or when the rolling causes undulation in the subbase. When the rolling develops irregularities that exceed 1/2 in (12 mm) when tested with a 16 ft (4.8 m) straightedge, the irregular surface shall be loosened and then refilled with the same kind of material as that used in constructing the course and again rolled as required above.

Along places inaccessible to rollers, the subbase material shall be tamped thoroughly with mechanical or hand tampers.

Sprinkling during rolling, if necessary, shall be in the amount and by equipment approved by the Engineer. Water shall not be added in such a manner or quantity that free water will reach the underlying layer and cause it to become soft.

154-3.8 SURFACE TEST. After the course is completely compacted, the surface shall be tested for smoothness and accuracy of grade and crown; any portion found to lack the required smoothness or to fail in accuracy of grade or crown shall be scarified, reshaped, recompacted, and otherwise manipulated as the Engineer may direct until the required smoothness and accuracy are obtained. The finished surface shall not vary more than 1/2 in (12 mm) when tested with a 16 ft (4.8 m) straightedge applied parallel with, and at right angles to, the centerline.

154-3.9 THICKNESS. The thickness of the completed subbase course shall be determined by depth tests or sample holes taken at intervals so each test shall represent no more than 500 sq yd (420 sq m). When the deficiency in thickness is more than 1/2 in (12 mm), the Contractor shall correct such areas by scarifying, adding satisfactory mixture, rolling, sprinkling, reshaping, and finishing in accordance with these specifications. The Contractor shall replace at his/her expense the subbase material where borings are taken for test purposes.

154-3.10 PROTECTION. Work on subbase course shall not be conducted during freezing temperature nor when the subgrade is wet. When the subbase material contains frozen material or when the underlying course is frozen, the construction shall be stopped.

154-3.11 MAINTENANCE. Following the final shaping of the material, the subbase shall be maintained throughout its entire length by the use of standard motor graders and rollers until, in the judgment of the Engineer, the subbase meets all requirements and is acceptable for the construction of the next course.

METHOD OF MEASUREMENT

154-4.1 The yardage of subbase course to be paid for shall be the number of cubic yards (cubic meters) of subbase course material accepted in accordance with these specifications, placed, compacted, and accepted in the completed course. The quantity of subbase course material shall be measured in final position based upon depth tests or cores taken as directed by the Engineer, or at the rate of 1 depth test for each 500 sq yd (420 sq m) of subbase course, or by means of average end areas on the complete work computed from elevations to the nearest 0.01 ft (3 mm). On individual depth measurements, thicknesses more than 1/2 in (12 mm) in excess of that shown on the plans shall be considered as the...
specified thickness plus 1/2 in (12 mm) in computing the yardage for payment. Subbase materials shall not be included in any other excavation quantities.

**BASIS OF PAYMENT**

154-5.1 Payment shall be made at the contract unit price per *square yard* cubic yard (cubic meter) for subbase course. This price shall be full compensation for furnishing all materials; for all preparation, hauling, and placing of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item. Payment will be made under:

| Item P-154-5.1 | 6" Subbase Coarse - per *square yard*cubic yard (cubic meter) |

**TESTING REQUIREMENTS**

- ASTM C 136  Sieve Analysis of Fine and Coarse Aggregates
- ASTM D 422  Particle Size Analysis of Soils
- ASTM D 698  Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb (2.49 kg) Rammer and 12 in (305 mm) Drop
- ASTM D 1556  Density of Soil in Place by the Sand-Cone Method
- ASTM D 1557  Test for Laboratory Compaction Characteristics of Soil Using Modified Effort
- ASTM D 6938  In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods
- ASTM D 4318  Liquid Limit, Plastic Limit, and Plasticity Index of Soils

**END OF ITEM P-154**
ITEM P-501 PORTLAND CEMENT CONCRETE PAVEMENT

DESCRIPTION

501-1.1 This work shall consist of pavement composed of Portland cement concrete, with reinforcement and without reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross sections shown on the plans. The concrete pavement for this project shall be mixed in a central plant, delivered in non-agitating trucks and placed with slip-form equipment. Individual placement areas of less than 500 square yards, irregular areas, and other inaccessible areas to the slip-form equipment, paving concrete shall be placed with side forms.

501-1.2 End Product Responsibility. The Contractor is entirely responsible for the materials and processes that produce the end products specified in this specification. It is the Contractor’s responsibility to prove by means of a test section, constructed at the start of construction, that the process for constructing the concrete pavement is valid. The Engineer will determine if the Contractor’s materials and processes produce an end product that is in conformity with the plans and specifications. Tolerances to determine conformity for measurable components of the materials, processes, and end product are provided. When the Engineer determines that the materials furnished, work performed, or the finished product are not in conformity with the plans and specifications and result in an unacceptable product, the affected work or materials shall be removed and replaced or otherwise corrected at the Contractor’s expense in accordance with this specification.

501-1.3 Pre-Paving Conference. At least 7 days before and not more than 30 days before concrete placement, the Contractor and his team members shall attend a pre-paving conference with the Engineer and airport personnel to review project specific requirements related to the concrete paving and related project-planning activities. The conference shall be attended by at least the Contractor’s general superintendent, pavement superintendent, and plant manager for the project. The following are the minimum agenda items:

b. Critical material supply/availability issues.
c. Concrete plant and aggregate stockpile management.
d. Concrete paving requirements.
e. Paving schedule.
f. Weather management plan.
g. Test section requirements.
h. Contractor process testing.
i. Contractor acceptance testing requirements.
j. Engineer monitoring of acceptance testing.
k. Stop work authority on Contractor’s staff.
l. Stop work authority on Owner’s staff.
m. Issues and disputes resolution hierarchy.
MATERIALS

501-2.1 AGGREGATES.

Sources of aggregates shall be selected by the Contractor. There is no limit to the number of aggregate sizes that may be used or blended. Maximum aggregate size shall be selected by the Contractor and shall not be greater than 2-1/2 inches.

a. Reactivity. Aggregates shall be tested for deleterious reactivity with alkalis in the cement, which may cause excessive expansion of the concrete. Separate tests of individual coarse and fine aggregate shall be made in accordance with ASTM C 1260. If the expansion of coarse or fine aggregate test specimens, tested in accordance with ASTM C 1260, does not exceed 0.10 % at 28 days (30 days from casting), the coarse or fine aggregates shall be accepted. Tests at 16 days are not acceptable. If the Contractor desires to use flyash as cement replacement, the contractor may proceed to conduct the tests in accordance to the following paragraph and not conduct the ASTM C1260 tests on the individual aggregates.

ASR Mitigation. If the expansion of any aggregate, coarse or fine, at 28 days is greater than 0.10%, tests of combined materials shall be made in accordance with ASTM C 1567 using the aggregates, cementitious materials, and/or specific reactivity reducing chemicals in the proportions proposed for the mixture design. If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C 1567, does not exceed 0.10 % at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10 % at 28 days, or new aggregates shall be evaluated and tested.

b. Fine Aggregate. Fine aggregate shall be natural sand and conform to the requirements of ASTM C 33, except as specified herein. The fine aggregate shall meet the requirements for deleterious materials contained in ASTM C 33, Table 1. The fineness modulus shall not be less than 2.3. There is no upper limit for fineness modulus. Gradation shall meet the requirements of Table 4 when tested in accordance with ASTM C 136, except as may otherwise be qualified under Section 6 of ASTM C 33.

Table 1. Gradation for Fine Aggregate (ASTM C 33)

<table>
<thead>
<tr>
<th>Sieve Designation (Square Openings)</th>
<th>Percentage by Weight Passing Sieves</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 in. (9.5 mm)</td>
<td>100</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>95-100</td>
</tr>
<tr>
<td>No. 8 (2.36 mm)</td>
<td>85-100</td>
</tr>
<tr>
<td>No. 16 (1.18 mm)</td>
<td>50-85</td>
</tr>
<tr>
<td>No. 30 (600 μm)</td>
<td>25-60</td>
</tr>
<tr>
<td>No. 50 (300 μm)</td>
<td>10-30</td>
</tr>
<tr>
<td>No. 100 (150 μm)</td>
<td>2-10</td>
</tr>
</tbody>
</table>

c. Coarse Aggregate. Coarse aggregate shall conform to the requirements of ASTM C 33 except as specified herein. Gradation, within the separated size groups, shall meet the requirements of Table 2 when tested in accordance with ASTM C 136. When the nominal maximum size of the aggregate is greater than 1 in, the aggregates shall be furnished in two size groups.

Aggregates delivered to the mixer shall consist of crushed stone, crushed or uncrushed gravel, air-cooled blast-furnace-slag, crushed-recycled-concrete-pavement, or a combination thereof. Crushed concrete and steel furnace slag shall not be used as aggregate. The aggregate shall be composed of clean, hard, uncoated particles and shall meet the requirements for deleterious substances contained in ASTM C 33, Class 1N. Dust and other coating shall be removed from the aggregate by washing. Aggregates
shall be washed. The aggregate in any size group shall not contain more than 8 percent by weight of flat or elongated pieces when tested in accordance with ASTM D 4791. A flat or elongated particle is one having a ratio between the maximum and the minimum dimensions of a circumscribing rectangular prism exceeding 5 to 1.

The percentage of wear shall be no more than 40 when tested in accordance with ASTM C 131 or ASTM C 535.

Aggregate susceptibility to Disintegration (D)-Cracking. Aggregates that have a history of D-cracking shall not be used. Prior to approval of mixture design and production of Portland cement concrete the Contractor shall submit written certification that the aggregate does not have a history of D-Cracking and that the aggregate meets the specified State requirements.

(1) Other sources of crushed stone aggregate shall be approved if the durability factor as determined by ASTM C 666 is greater than or equal to 95 and all other quality test requirements within these specifications are fulfilled. The FAA will consider and reserves final approval of other State classification procedures.

(2) Crushed gravel and sand gravel aggregates shall not be required to meet freeze-thaw durability ratings. These aggregates shall be approved for use in concrete by the state highway agency in the state from which the aggregate originates and the state in which they are to be used and shall meet all other criteria within these specifications.

d. Combined Gradation. The Contractor shall combine the aggregates in the proportions proposed for the concrete mixture and evaluate on the following sieve sizes: 2½-inch, 2-inch, 1¾ inch, 1-inch, ¾-inch, ½-inch, ⅛-inch, No. 4, No. 16, No. 30, No. 50, and No. 100.

The Contractor shall determine the Workability Factor (WF) and the Coarseness Factor (CF). The WF is the percentage of the combined aggregate by weight finer than the No. 8 sieve. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 94 pounds of cementitious material per cubic yard greater than 564 pounds per cubic yard. The CF is the percent of material by weight retained on the ¾-inch sieve divided by the percent by weight of all the aggregate retained on the No. 8 sieve and multiplying the ratio by 100.

The aggregates, as proportioned, shall be deemed to have met the requirements of a combined aggregate gradation when the following criterion is met: The WF and CF shall be within the parallelogram ABCD of the Aggregate Constructability Chart (Figure 1). The combined aggregates, as proportioned, shall be rejected if the combined aggregate gradation criterion is not met. Contractor shall select the proper gradations that provides the proper concrete workability for slip-form paving, side-form paving and hand placement.
501-2.2 CEMENT. Cement shall conform to the requirements of ASTM C 150 Type I. Blended cements are not allowed.

If for any reason, cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

Only The Contractor shall use cements containing less than 0.6% equivalent alkali or cements that can demonstrate a positive reduction in the expansion created by alkali-silica reactions shall be used—only if aggregates are prone to alkali-silica reactivity as determined in the paragraph Reactivity. If the ASTM C 1280 tests were not conducted, the Contractor shall use cements containing less than 0.6% equivalent alkali.

501-2.3 CEMENTITIOUS MATERIALS.

a. Flyash or Natural Pozzolan. Flyash shall meet the requirements of ASTM C 618, Class F or N with the exception of loss of ignition, where the maximum shall be less than 6 percent. Class F or N flyash for use in mitigating alkali-silica reactivity shall have a Calcium Oxide (CaO) content of less than 13 percent and a total equivalent alkali content less than 3 percent. Flyash such as is produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable used. The Contractor shall furnish the previous three most recent, consecutive ASTM C-618 reports for each source of flyash proposed in the mix design, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Engineer.

b. Blast Furnace Slag (Slag Cement). Ground Granulated Blast Furnace (GGBF) slag shall conform to ASTM C 989, Grade 100 or 120. GGBF shall be used only at a rate between 25 and 55 percent of the total cementitious material by mass.
501-2.4 PREMOLDED JOINT FILLER. Premolded joint filler for isolation expansion joints shall conform to the requirements of ASTM D 1751 or ASTM D 1752, Type II or III and shall be punched to admit dowels where called for on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified by the Engineer. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the Engineer.

501-2.5 JOINT SEALER. The joint sealer for the joints in the concrete pavement shall meet the requirements of Item P-604 and Item P-605 and shall be of the type specified in the plans.

501-2.6 STEEL REINFORCEMENT. Reinforcing shall consist of Welded Wire Steel Fabric conforming to the requirements of ASTM A 185.

501-2.7 DOWEL AND TIE BARS. Tie bars shall be deformed steel bars and conform to the requirements of ASTM A 615 or ASTM A 996, except that plain steel bars, Grade 50 or 60, shall not be used for tie bars that are to be bent or restraightened during construction. Tie bars designated as Grade 40 in ASTM A615 can be used for construction requiring bent bars.

Dowel bars shall be plain steel bars conforming to ASTM A 615 Grade 40 or 60 or ASTM A 996 Grade 50 or 60 and shall be free from burring or other deformation restricting slippage in the concrete. High strength dowel bars shall conform to ASTM A 714, Class 2, Type S, Grade I, II or III, Bare Finish. Before delivery to the construction site each dowel bar shall be painted with one coat of paint conforming to MIL-DTL-24441.20A, SPCC Paint 1 or SPCC Paint 25. Dowels shall be epoxy coated in conformance with ASTM A 775. Grout retention rings shall be full circular metal or plastic devices supporting the dowel until the epoxy hardens. Dowel inserters shall not be used.

The sleeves for dowel bars used in expansion joints shall be metal or other type of an approved design to cover 2 to 3 in (50 mm to 75 mm) of the bar with a closed end and with a suitable stop to hold the end of the bar at least 1 in (25 mm) from the closed end of the sleeve. Sleeves shall be of such design that they will not collapse during construction.

501-2.8 WATER. Water used in mixing or curing shall be clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product. Water will be tested in accordance with the requirements of AASHTO T 26. Water known to be of potable quality may be used without testing.

501-2.9 COVER MATERIAL FOR CURING. Curing materials shall conform to one of the following specifications:

a. Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C 309, Type 2, Class B, or Class A if wax base only.

b. White polyethylene film for curing concrete shall conform to the requirements of ASTM C 171.

c. White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C 171.

d. Waterproof paper for curing concrete shall conform to the requirements of ASTM C 171.

501-2.10 ADMIXTURES. The use of any material added to the concrete mix shall be approved by the Engineer. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples.
taken by the Engineer from the supply of the material being furnished or proposed for use on the
work to determine whether the admixture is uniform in quality with that approved.

a. Air-Entraining Admixtures. Air-entraining admixtures shall meet the requirements of ASTM C 260
and shall consistently entrain the air content in the specified ranges under field conditions. The air­
entrainment agent, and any water reducer admixture, and any other admixture
shall be compatible.

b. Chemical Admixtures. Water-reducing, set retarding, and set-accelerating admixtures shall meet the
requirements of ASTM C 494, including the flexural strength test. ASTM C 494 Type F and G high
range water reducers and ASTM C 1017 flowable admixtures shall not be used.

501-2.11 EPOXY-RESIN. Epoxy-resin used to anchor dowels and tie-bars in pavements shall conform
to the requirements of ASTM C 881, Type I, Grade 3, Class C. Class A or B shall be used when the
surface temperature of the hardened concrete is below 60 °F (16 °C).

501-2.12 MATERIAL ACCEPTANCE. Prior to use of materials, the Contractor shall submit certified test
reports to the Engineer for those materials proposed for use during construction. The certification
shall show the appropriate ASTM test for each material, the test results, and a statement that the
material passed or failed.

The Engineer may request samples for testing, prior to and during production, to verify the quality of
the materials and to ensure conformance with the applicable specifications.

MIX DESIGN

501-3.1 PROPORTIONS. Concrete shall be designed to achieve a 28-day flexural strength that meets
or exceeds the acceptance criteria contained in paragraph 501-5.2 for a flexural strength of 650 psi. The
mix shall be designed using the procedures contained in Chapter 9 12 of the 15th Edition of the
Portland Cement Association’s manual, “Design and Control of Concrete Mixtures”, American Concrete
Institute ACI 211.1 procedures or federal agency design guide for dense graded concrete mixes.

The Contractor shall note that to ensure that the concrete actually produced will meet or exceed the
acceptance criteria for the specified strength, the mix design average strength must be higher than the
specified strength. The amount of overdesign necessary to meet specification requirements depends
on the producer’s standard deviation of flexural test results and the accuracy that that value can
be estimated from historic data for the same or similar materials.

The minimum cementitious material (cement plus flyash, or GGBFS) shall be 517 pounds per cubic
yard (1 kg-per-cubic-meter). The ratio of water to cementitious material, including free surface moisture
on the aggregates but not including moisture absorbed by the aggregates shall not be more than 0.5 by
weight.

Prior to the start of paving operations and after approval of all material to be used in the concrete,
the Contractor shall submit a mix design showing the proportions and flexural strength obtained from the
concrete at 1, 3, 7, 14, and 28 days. The mix design shall include copies of test reports, including
test dates, and a complete list of materials including type, brand, source, and amount of cement,
flyash, ground slag, coarse aggregate, fine aggregate, water, and admixtures. The fineness modulus of
the fine aggregate and the air content shall also be shown. The mix design shall be submitted to the
Engineer at least 30 days prior to the start of operations. The submitted mix design shall not be more
than 90 days old. Production shall not begin until the mix design is approved in writing by the Engineer.

Should a change in sources be made, or admixtures added or deleted from the mix, a new mix design
must be submitted to the Engineer for approval. Previously approved mix designs for airfield
paving older than 90 days shall not be used without reapproval.
Flexural strength test specimens shall be prepared in accordance with ASTM C 192 and tested in accordance with ASTM C 78. The mix determined shall be workable concrete having a slump (taken at the site of placement) for side-form concrete between 1 and 2 in (25 mm and 50 mm) as determined by ASTM C 143. For vibrated slip-form concrete, the slump shall be between $\frac{1}{4}$ in (13 mm) and $1\frac{3}{4}$ in (38 mm) selected by the Contractor to produce in-place pavement meeting the specified tolerance for control of edge slump. The selected slump shall be applicable for both pilot and fill-in lanes.

501-3.2 CEMENTITIOUS MATERIALS.

a. Flyash. Flyash may be used in the mix design. When flyash is used as a partial replacement for cement, the minimum cement content may be met by considering Portland cement plus flyash as the total cementitious material. The replacement rate shall be determined from laboratory trial mixes, but shall be between 20 and 30 percent by weight of the total cementitious material. If flyash is used in conjunction with ground granular blast furnace slag the maximum replacement rate shall not exceed 10 percent by weight of total cementitious material.

b. Ground Slag. Ground blast-furnace slag may be used in a mix design containing Type I or Type II cement. The slag, or slag plus flyash if both are used, may constitute between 25 to 55 percent of the total cementitious material by weight. If the concrete is to be used for slipforming operations and the air temperature is expected to be lower than 55 °F (13 °C) the percent slag shall not exceed 30 percent by weight.

501-3.3 ADMIXTURES.

a. Air-Entraining. Air-entraining admixture shall be added in such a manner that will insure uniform distribution of the agent throughout the batch. The air content of freshly mix air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be as shown below. Air content shall be determined by testing in accordance with ASTM C 231 for gravel and stone coarse aggregate and ASTM C 173 for slag and other highly porous coarse aggregate.

```
<table>
<thead>
<tr>
<th>Exposure Level</th>
<th>Maximum Size Aggregate (mm)</th>
<th>Air Content (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2&quot;</td>
<td>1\frac{1}{2}&quot;</td>
</tr>
<tr>
<td>Mild</td>
<td>2.0%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>
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b. Chemical. Water-reducing, set-controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, in accordance with ASTM C 494. No admixture shall be added to the mix without trial mixes and approval by the Engineer.

501-3.4 CONCRETE MIX DESIGN LABORATORY. The Contractor's laboratory used to develop the concrete mix design shall meet the requirements of ASTM C 1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix design must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction and shall contain as a minimum:

a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.

b. A statement that the equipment used in developing the mix design is in calibration.
c. A statement that each test specified in developing the mix design is offered in the scope of the laboratory’s services.

d. A copy of the laboratory’s quality control system.

CONSTRUCTION METHODS

501-4.1 EQUIPMENT. Equipment necessary for handling materials and performing all parts of the work shall be approved by the engineer as to design, capacity, and mechanical conditions. The equipment shall be at the jobsite sufficiently ahead of the start of paving operations to be examined thoroughly and approved.

a. Batch Plant and Equipment. *The batch and mix plant shall be located on the project site as indicated in the drawings.* The batch plant and equipment shall conform to the requirements of ASTM C 94.

b. Mixers and Transportation Equipment.

(1) General. Concrete may *shall* be mixed at a central plant, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer’s nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

(2) Central plant mixer. Central plant mixers shall conform to the requirements of ASTM C 94. *The mixer shall be capable of combining the materials into a uniform mixture and of discharging this mixture without segregation.* The mixer shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 in (19 mm) or more. The Contractor shall have a copy of the manufacturer’s design on hand showing dimensions and arrangement of blades in reference to original height and depth.

(3) Truck mixers and truck agitators. Truck mixers used for mixing and hauling concrete and truck agitators used for hauling central mixed concrete shall conform to the requirements of ASTM C94. *Truck mixers and truck agitator shall not be used to transport paving concrete.*

(4) Nonagitator trucks. Concrete shall be transported to the paving site in nonagitating equipment. Nonagitating hauling equipment shall conform to the requirements of ASTM C 94.

c. Finishing Equipment. The standard method of constructing concrete pavements on FAA projects *for this project* shall be with an approved slip-form paving equipment. *The paver-finisher shall be a heavy-duty, self-propelled slip-form machine* designed to spread, consolidate, screed, and float-finish the freshly placed concrete in one complete pass of the machine so a dense and homogeneous pavement is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements. It shall weigh at least 2200 lbs. per foot of paving lane width and powered by an engine having at least 6.0 horsepower per foot of lane width.

On projects requiring less than 500 sq yd of cement concrete pavement or requiring individual *individual* placement areas of less than 500 sq yd, or irregular areas at locations inaccessible to slip-form paving equipment, cement concrete pavement may be placed with approved placement and finishing equipment using stationary side forms. Hand screeding and float finishing may only be used on small irregular areas as allowed by the Engineer.

d. Vibrators. Vibrator shall be the internal type. Operating frequency for internal vibrators shall be between 8,000 and 12,000 vibrations per minute. Average amplitude for internal vibrators shall be 0.025 – 0.05 in (0.63 – 0.13 cm). The number, spacing, and frequency shall be as necessary to
provide a dense and homogeneous pavement and meet the recommendations of ACI 309, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the Engineer. As a general guideline, operating frequency for internal vibrators may be between 8,000 and 12,000 vibrations per minute, and average amplitude for internal vibrators may be 0.025-0.05 in (0.06 - 0.13 cm). Hand held vibrators may be used in irregular areas only, but shall meet the recommendations of ACI 309, Guide for Consolidation of Concrete.

e. Concrete Saws. The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations.

f. Side Forms. Side-form paving shall be used in accordance to paragraph 501-4.1.c Finishing Equipment. Straight side forms shall be made of steel and shall be furnished in sections not less than 10 feet (3 m) in length. Forms shall have a depth equal to the pavement thickness at the edge, and a base width equal to or greater than the depth. Flexible or curved forms of proper radius shall be used for curves of 100 ft (31 m) radius or less. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 in (3 mm) in 10 ft (3 m), and the upstanding leg shall not vary more than 1/4 in (6 mm). The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the Engineer.

g. Pavers. The paver shall be fully energized, self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement, true to grade, tolerances, and cross section. It shall be of sufficient weight and power to construct the maximum specified concrete paving lane width as shown in the plans, at adequate forward speed, without transverse, longitudinal or vertical instability or without displacement. The paver shall be equipped with electronic or hydraulic horizontal and vertical control devices. The slip-form paver shall be automatically controlled from taut wire guideline for horizontal alignment and on both side from a taut wire guideline for vertical alignment, except that electronic control from a ski operating on a previously constructed adjoining lane shall be used where applicable for either or both sides. Automatic, electronic controls for vertical alignment shall always be used on both sides of the lane. Control from a slope-adjusted control or control operating from the underlying material shall never be used. Stringless guidance systems can be used providing it is a 3D machine control system where the target horizontal and vertical alignment is a digital terrain model. The system shall be fault tolerant in which the system cannot be affected by any electrical interference on or around the equipment. If the Contractor plans to use any type of stringless guidance system, the Contractor shall submit a detail description of the system and perform a trial field demonstration in the presence of the Engineer during the test section procedures. Approval of the systems will be based on the results of the demonstration and on continuing satisfactory operations during paving.

501-4.2 FORM SETTING. Side-form paving shall be used in accordance to paragraph 501-4.1.c Finishing Equipment. Forms shall be set sufficiently in advance of the concrete placement to insure continuous paving operation. After the forms have been set to correct grade, the underlying surface shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place sufficiently to maintain the form in position for the method of placement.
Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/8 in (3 mm) at any joint. Forms shall be so set that they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete.

501-4.3 CONDITIONING OF UNDERLYING SURFACE. The compacted underlying surface on which the pavement will be placed shall be widened approximately 3 ft (1 m) to extend beyond the paving machine track to support the paver without any noticeable displacement. After the underlying surface has been placed and compacted to the required density, the areas that will support the paving machine and the area to be paved shall be trimmed or graded to the plan grade elevation and profile by means of a properly designed machine. The grade of the underlying surface shall be controlled by a positive grade control system using lasers, stringlines, or guide wires. If the density of the underlying surface is disturbed by the trimming operations, it shall be corrected by additional compaction and retested at the option of the Engineer before the concrete is placed except when stabilized subbases are being constructed. If damage occurs on a stabilized subbase, it shall be corrected full depth by the Contractor in accordance with the stabilized subbase specification. If traffic is allowed to use the prepared grade, the grade shall be checked and corrected immediately before the placement of concrete. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete. The underlying surface shall be protected so that it will be entirely free of frost when concrete is placed cleaned, free of dirt, debris, and other undesirable materials.

If an asphalt subbase is used, the asphalt base shall be whitewashed. Whitewashing consists of either white-pigmented curing compound or lime slurry sprayed on the surface applied at a rate of one gallon to not more than 100 square feet. The cost of whitewashing is incidental to the cost of Portland Cement Concrete Pavement.

501-4.4 CONDITIONING OF UNDERLYING SURFACE, SIDE-FORM AND FILL-IN LANE CONSTRUCTION. The prepared underlying surface shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from the concrete. Damage caused by hauling or usage of other equipment shall be corrected and retested at the option of the Engineers. If damage occurs to a stabilized subbase, it shall be corrected full depth by the Contractor. A template shall be provided and operated on the forms immediately in advance of the placing of all concrete. The template shall be propelled only by hand and not attached to a tractor or other power unit. Templates shall be adjustable so that they may be set and maintained at the correct contour of the underlying surface. The adjustment and operation of the templates shall be such as will provide an accurate retest of the grade before placing the concrete thereon. All excess material shall be removed and wasted. Low areas shall be filled and compacted to a condition similar to that of the surrounding grade. The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily. The underlying surface shall be protected so that it will be entirely free from frost when the concrete is placed. The use of chemicals to eliminate frost in the underlying surface shall not be permitted. The underlying surface shall be cleaned, free of dirt, debris, and other undesirable materials.

The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily.

501-4.5 HANDLING, MEASURING, AND BATCHING MATERIAL. The batch plant site, layout, equipment, and provisions for transporting material shall assure a continuous supply of material to the work. Stockpiles shall be constructed in such a manner that prevents segregation and intermixing of deleterious materials. Stockpiles shall be tiered in layers not exceeding 12 feet high for one size aggregates, and shall be not more than 6 feet high for aggregate gradations that contain uniform percentages of varying size particles.
Aggregates that have become segregated or mixed with earth or foreign material shall not be used and shall be rejected by the Engineer. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipments requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage.

Batching plants shall be equipped to proportion aggregates and bulk cement, by weight, automatically using interlocked proportioning devices of an approved type. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, such as a chute, boot, or other approved device, to prevent loss of cement. The device shall be arranged to provide positive assurance that the cement content specified is present in each batch.

501-4.6 MIXING CONCRETE. The concrete may—shall be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C 94.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in non-agitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. Retempering concrete by adding water or by other means will—shall not be permitted. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified in the approved mix design is not exceeded, and approved by the Engineer.

501-4.7 LIMITATIONS ON MIXING AND PLACING. No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

a. Cold Weather. Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40 °F (4 °C) and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35 °F (2 °C). The temperature of the mixed concrete shall not be less than 50 °F (10 °C) at the time of placement.

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 50 °F (10 °C) at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150 °F (66 °C). The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

b. Hot Weather. During periods of hot weather when the maximum daily air temperature exceeds 85 °F (30 °C), the following precautions shall be taken.

The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90° F (35 °C). The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.
The finished surfaces of the newly laid pavement shall be kept damp by applying a water-fog or mist with approved spraying equipment until the pavement is covered by the curing medium. If necessary, wind screens shall be provided to protect the concrete from an evaporation rate in excess of 0.2 psf per hour as determined in accordance with Figure 2.1.5 in ACI 305R, Hot Weather Concreting, which takes into consideration relative humidity, wind velocity, and air temperature. For fast computation use Eq. 8 of ACI materials journal, V95, No 4 July-August 1993.

When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. Such measures shall consist of wind screens, more effective fog sprays, and similar measures commencing immediately behind the paver. If these measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

c. Temperature Management Program. Prior to the start of paving operation for each day of paving, the contractor shall provide the engineer with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. As a minimum the program shall address the following items:

1) Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

2) Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity.

3) Anticipated timing of initial sawing of joint.

d. Protecting Concrete from Rain Damage. The Contractor's Weather Management shall include provision to protect freshly placed concrete from rain damage. If rain appears imminent, the contractor shall not place concrete. The Contractor shall keep on-site sufficient water proof material and means to rapidly place the waterproof material over all unhardened concrete surface that may be damaged by rain. Concrete shall not be placed during rain that results in any standing water on the surface of the fresh concrete surface.

The Contractor shall not attempt to remove any rainwater from the unhardened concrete surface prior to application of the waterproof material. The Contractor shall also not manually finish or texture the freshly place concrete if there is any rainwater on the concrete surface. At the end of the rainstorm, the Contractor shall remove the waterproof material, allow any standing rainwater to evaporate, and apply curing material.

Rain-damaged concrete shall be cored as directed by the Designer and depth of damage determined by petrographic examination. If the depth of damage is % inch or less of the pavement thickness, the damaged area may be corrected by diamond grinding as directed by the Engineer. If the damage is greater that % inch of the pavement thickness, the slab shall be considered defective and replaced in accordance with paragraph 501-4.19 REPAIR, REMOVAL, and REPLACEMENT OF SLABS.

e. Documentation of Weather Data. The Contractor shall provide a continuous and accurate record of air temperature, relative humidity, concrete temperature and wind velocity at the project site with portable weather station, adjacent to paving areas(s). The data shall be collected and documented by the Contractor continuously for the full duration of the project. The Contractor's quality control staff shall document the weather data in the daily Quality Control Reports and use and implement the data to eliminate the potential for plastic cracking of Portland cement concrete pavement by estimation the evaporation rate from Figure 2.1.5 in ACI 305R or Eq. 8 of the ACI Materials Journal.
501-4.8 PLACING CONCRETE. The Contractor has the option of placing the concrete with either side (fixed) forms or slip-forms, except as indicated by the Engineer. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 ft (1 m). Backhoes and Grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used unless the contractor demonstrates that they can be used without contaminating the concrete and base course and it is approved by the Engineer.

Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a flexural strength of 550 psi, based on the average of four field cured specimens per 2,000 cubic yards (1,530 cubic meters) of concrete placed. Also, subgrade and subbase planers, concrete pavers, and concrete finishing equipment may be permitted to ride upon the edges of previously constructed pavement when the concrete has attained a minimum flexural strength of 400 psi. The flexural strength of the concrete shall be determined in accordance with paragraph 501-4.18 Opening to Traffic.

a. Slip-Form Construction. The concrete shall be distributed uniformly into final position by a self propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well defined edges. The sliding forms shall be rigidly held together laterally to prevent spreading of the forms.

The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 in. The spacing of internal units shall be uniform and shall not exceed 18 in.

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be within 8000 to 12000 cycles per minute or as required to adequately consolidate the concrete, and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least 1 ft. The frequency of vibration or amplitude shall vary proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible. All operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.

b. Side-Form Construction. Side form sections shall be straight, free from warps, bends, indentations, or other defects. Defective forms shall be removed from the work. Metal side forms shall be used except at end closures and transverse construction joints where straight forms of other suitable material may be used.
Side forms may be built up by rigidly attaching a section to either top or bottom of forms. If such build-up is attached to the top of metal forms, the build-up shall also be metal.

Width of the base of all forms shall be equal to at least 80 percent of the specified pavement thickness.

Side forms shall be of sufficient rigidity, both in the form and in the interlocking connection with adjoining forms, that springing will not occur under the weight of subgrading and paving equipment or from the pressure of the concrete. The Contractor shall provide sufficient forms so that there will be no delay in placing concrete due to lack of forms.

Before placing side forms, the underlying material shall be at the proper grade. Side forms shall have full bearing upon the foundation throughout their length and width of base and shall be placed to the required grade and alignment of the finished pavement. They shall be firmly supported during the entire operation of placing, compacting, and finishing the pavement.

Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and oiled each time they are used and before concrete is placed against them.

Concrete shall be spread, screeded, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery.

Concrete for the full paving width shall be effectively consolidated by internal vibrators without causing segregation. Internal type vibrators' rate of vibration shall be not less than 7,000 cycles per minute. Amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete more than 1 ft from the vibrating element. The Contractor shall furnish a tachometer or other suitable device for measuring and indicating frequency of vibration.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete.

c. Consolidation Testing. The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete. If a lack of consolidation of the concrete is suspected by the Engineer, additional referee testing may be required. Referee testing of hardened concrete will be performed by cutting cores from the finished pavement after a minimum of 24 hours curing. Density determinations will be made based on the water content of the core as taken. ASTM C 642 shall be used for the
determination of core density in the saturated-surface dry condition. Referee cores will be taken at the minimum rate of one for each 500 cubic yards of pavement, or fraction thereof.

The average density of the cores shall be at least 97 percent of the original mix design density, with no cores having a density of less than 96 percent of the original mix design density.

Failure to meet the above requirements will be considered as evidence that the minimum requirements for vibration are inadequate for the job conditions, and additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete as indicated by further referee testing shall conform to the above listed requirements.

501-4.9 STRIKE-OFF OF CONCRETE AND PLACEMENT OF REINFORCEMENT. Following the placing of the concrete, it shall be struck off to conform to the cross section shown on the plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced-concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screeded. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading. For reinforced concrete, the reinforcement shall be placed and secured on approved chairs as detailed in the drawings. The Contractor shall provide enough chairs to avoid sagging of the reinforcement during concrete placement. Reinforcement shall not be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

501-4.10 JOINTS. Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2 in (13 mm) from their designated position and shall be true to line with not more than 1/4 in (6 mm) variation in 10 ft (3 m). The surface across the joints shall be tested with a 10 ft (3 m) straightedge as the joints are finished and any irregularities in excess of 1/4 in (6 mm) shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

a. Construction. Longitudinal construction joints shall be slip-formed or formed against side forms with or without keyways, as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.

b. Contraction. Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves
shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer’s instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 in (3 mm) wide and to the depth shown on the plans.

c. Expansion—Isolation. Expansion—Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface. A solid cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck off, the cap shall be carefully withdrawn leaving the space over the premolded filler. The edges of the joint shall be finished and tooled while the concrete is still plastic. Any concrete bridging the joint space shall be removed for the full width and depth of the joint.

d. Keyways. Keyways (only female keys permitted) shall be formed in the plastic concrete by means of side forms or the use of keyway liners that are inserted during the slip-form operations. The keyway shall be formed to a tolerance of 1/4 in (6 mm) in any dimension and shall be of sufficient stiffness to support the upper keyway flange without distortion or slumping of the top of the flange. The dimensions of the keyway forms shall not vary more than plus or minus 1/4 in (6 mm) from the mid-depth of the pavement. Liners that remain in place permanently and become part of the keyed joint shall be made of galvanized, copper clad, or of similar rust-resistant material compatible with plastic and hardened concrete and shall not interfere with joint reservoir sawing and sealing.

de. Tie bars. Tie bars shall consist of deformed bars installed in joints as shown on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth. When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. These bars shall not be painted, greased, or enclosed in sleeves. When slip-form operations call for tie bars, two-piece hook bolts can be installed in the female side of the keyed joint provided the installation is made without distorting the keyed dimensions or causing edge slump. If a bent tie bar installation is used, the tie bars shall be inserted through the keyway liner only on the female side of the joint. In no case shall a bent tie bar installation for male keyways be permitted.

df. Dowel bars. Dowel bars or other load-transfer units of an approved type shall be placed across joints in the manner as shown on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. A metal, or other type, dowel expansion cap or sleeve shall be furnished for each dowel bar used with expansion joints. These caps shall be substantial enough to prevent collapse and shall be placed on the ends of the dowels as shown on the plans. The caps or sleeves shall fit the dowel bar tightly and the closed end shall be watertight. The portion of each dowel painted with rust preventative paint, as required under paragraph 501-2.7 and shown on the plans to receive a debonding lubricant, shall be thoroughly coated with asphalt MC-70, or an approved lubricant, to prevent the concrete from bonding to that portion of the dowel. If free-sliding plastic-coated or epoxy-coated steel dowels are used, a lubrication bond breaker shall be used except when approved pullout tests indicate it is not necessary. Where butt-type joints with dowels are designated, the exposed end of the dowel shall be oiled.

Dowel bars at contraction joints may be placed in the full thickness of pavement by a mechanical device approved by the Engineer. The device shall be capable of installing dowel bars within the maximum permissible alignment tolerances. Dowel bars at longitudinal construction joints shall be bonded in drilled holes.
fg. Installation. All devices used for the installation of expansion joints shall be approved by the Engineer.

The top of an assembled joint device shall be set at the proper distance below the pavement surface and the elevation shall be checked. Such devices shall be set to the required position and line and shall be securely held in place by stakes or other means to the maximum permissible tolerances during the pouring and finishing of the concrete. The premolded joint material shall be placed and held in a vertical position; if constructed in sections, there shall be no offsets between adjacent units.

Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerances on dowel bar alignment shall be in accordance with paragraph 501-5.2e(6). During the concrete placement operation, it is advisable to place plastic concrete directly on dowel assemblies immediately prior to passage of the paver to help maintain dowel position and alignment within maximum permissible tolerances.

When concrete is placed using slip-form pavers, dowels and tie bars shall be placed in longitudinal construction joints by bonding the dowels or tie bars into holes drilled into the hardened concrete. Holes approximately 1/8 in to 1/4 in (3 to 6 mm) greater in diameter than the dowel or tie bar shall be drilled with rotary-type core drills that must be held securely in place to drill perpendicularly into the vertical face of the pavement slab. Dowel holes may be drilled when the concrete has achieved a flexural strength of 400 psi. The flexural strength of the concrete shall be determined in accordance with paragraph 501-4.18 Opening to Traffic. Rotary-type percussion drills may be used provided that spalling of concrete does not occur. Any damage of the concrete shall be repaired by the Contractor in a method approved by the Engineer. Dowels or tie bars shall be bonded in the drilled holes using an epoxy resin material. Installation procedures shall be adequate to insure that the area around dowels is completely filled with epoxy grout. Epoxy shall be injected into the back of the hole and displaced by the insertion of the dowel bar. Bars shall be completely inserted into the hole and shall not be withdrawn and reinserted creating air pockets in the epoxy around the bar. The Contractor shall furnish a template for checking the position and alignment of the dowels. Dowel bars shall not be less than 10 in (25 cm) from a transverse joint and shall not interfere with dowels in the transverse direction.

g. Sawing of Joints. Joints shall be cut as shown on the plans. Equipment shall be as described in paragraph 501-4.1. The circular cutter shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/8 in (3 mm) wide and to the depth shown on the plans. The top portion of the slot shall be widened by sawing to provide adequate space for joint sealers as shown on the plans. Sawing shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs. Sawing shall be carried on both during the day and night as required. The joints shall be sawed at the required spacing, consecutively in sequence of the concrete placement or as approved by the Engineer. Curing compound, if being used as the cure type, shall be reapplied in the initial sawcut and maintained for the remaining cure period. Curing compound shall not be applied, and used as the cure method, to any final concrete face that is to receive a sealant. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing.

501-4.11 FINAL STRIKE-OFF, CONSOLIDATION, AND FINISHING.

a. Sequence. The sequence of operations shall be the strike-off, floating and removal of laitance, straightedging, and final surface finish. The addition of superficial water to the surface of the concrete to assist in finishing operations will shall not be permitted. During extreme hot weather conditions, the Engineer may allow a light fog spray to be used to assist in finishing operations. The light fog spray shall be approved by the Engineer.

b. Finishing at Joints. The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material; it shall be firmly placed without voids or segregation.
under and around all load-transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated as required in paragraph 501-4.8.a. After the concrete has been placed and vibrated adjacent to the joints, the finishing machine shall be operated in a manner to avoid damage or misalignment of joints. If uninterrupted operations of the finishing machine, to, over, and beyond the joints, cause segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the screed is approximately 8 in (20 cm) from the joint. Segregated concrete shall be removed from the front of and off the joint; and the forward motion of the finishing machine shall be resumed. Thereafter, the finishing machine may be run over the joint without lifting the screed, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.

c. Machine Finishing. The concrete shall be spread as soon as it is placed, and it shall be struck-off and screeded by a finishing machine. The machine shall go over each area as many times and at such intervals as necessary to give to proper consolidation and to leave a surface of uniform texture. Excessive operation over a given area shall be avoided. Paving equipment for slip-form paving shall be in accordance with paragraph 501-4.1.c Finishing Equipment. The slip-from paver shall shape the concrete to the specified and indicated cross section, meeting all tolerances, in one pass. The slip-form paver shall finish the surface and edges so that only a very minimum isolated amount of hand finish is required. If the paving operation does not meet the above requirements and the specified tolerances, immediately stop the operation, replace or modify any equipment as necessary, modify paving procedures or modify the concrete mix in order to resolve the problem.

When side forms are used in placement areas less than 500 square yards, the tops of the forms shall be kept clean by an effective device attached to the machine, and the travel of the machine on the forms shall be maintained true without lift, wobbling, or other variation tending to affect the precision finish. During the first pass of the finishing machine, a uniform ridge of concrete shall be maintained ahead of the front screed for its entire length. The machine shall make only one pass over each areas of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operations shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary. When in operation, the screed shall be moved forward with a combined longitudinal and transverse shearing motion, always moving in the direction in which the work is progressing, and so manipulated that neither end is raised from the side forms during the striking-off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross section, and free from porous areas.

d. Hand Finishing. Hand finishing methods will not be permitted, except under the following conditions: in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade; in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used.

The screed for the surface shall be a least 2 feet (0.6 m) longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and shall be constructed either of metal or of other suitable material covered with metal. Consolidation shall be attained by the use of suitable vibrators. A second screed shall be provided for striking off the bottom layer of concrete when reinforcement is used.

e. Floating. After the concrete has been struck off and consolidated, it shall be further smoothed and trued by means of a longitudinal float using one of the following methods:

(1) Hand Method. Long-handled floats shall not be less than 12 feet (3.6 m) in length and 6 in (15 cm) in width, stiffened to prevent flexibility and warping. The float shall be operated from foot bridges spanning but not touching the concrete or from the edge of the pavement. Floating shall pass gradually from one side of the pavement to the other. Forward movement along the centerline of the
pavement shall be in successive advances of not more than one-half the length of the float. Any excess water or laitance in excess of 1/8 in (3 mm) thick shall be removed and wasted.

(2) Mechanical method. The Contractor may use a machine composed of a cutting and smoothing floats, suspended from and guided by a rigid frame and constantly in contact with, the side forms or underlying surface. If necessary, long-handled floats having blades not less than 5 feet (1.5 m) in length and 6 in (15 cm) in width may be used to smooth and fill in open-textured areas in the pavement. When the crown of the pavement will not permit the use of the mechanical float, the surface shall be floated transversely by means of a long-handled float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance in excess of 1/8 in (3 mm) thick shall be removed and wasted. Successive drags shall be lapped one-half the length of the blade.

f. Straight-edge Testing and Surface Correction. After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a Contractor furnished 16 ft (5 m) straightedge swung from handles 3 feet (1 m) longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 in (3 mm) thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements of paragraph 501-5.2e(3). Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

501-4.12 SURFACE TEXTURE. The surface of the pavement shall be finished with either a brush or broom, burlap drag, or artificial turf finish for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the Engineer.

a. Brush or Broom Finish. If the pavement surface texture is to be a type of brush or broom finish, it shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface, providing corrugations that are uniform in appearance and approximately 1/16 of 1 in (2 mm) in depth.

b. Burlap Drag Finish. If a burlap drag is used to texture the pavement surface, it shall be at least 15 ounces per square yard (555 grams per square meter). To obtain a textured surface, the transverse threads of the burlap shall be removed approximately 1 ft (0.3 m) from the trailing edge. A heavy buildup of grout on the burlap threads produces the desired wide sweeping longitudinal striations on the pavement surface. The corrugations shall be uniform in appearance and approximately 1/16 in (2 mm) in depth.

c. Artificial Turf Finish. If artificial turf is used to texture the surface, it shall be applied by dragging the surface of the pavement in the direction of concrete placement with an approved full-width drag made with artificial turf. The leading transverse edge of the artificial turf drag will be securely fastened to a lightweight pole on a traveling bridge. At least 2 feet of the artificial turf shall be in contact with the concrete surface during dragging operations. A variety of different types of artificial turf are available and approval of any one type will be done only after it has been demonstrated by the Contractor to provide a satisfactory texture. One type that has provided satisfactory texture consists of 7,200 approximately 0.85 inch long polyethylene turf blades per square foot. The corrugations shall be uniform in appearance and approximately 1/16 in (2 mm) in depth.
SKID-RESISTANT SURFACES SAW-CUT GROOVING. If shown on the plans, skid-resistant surfaces for asphalt pavements shall be provided by construction of saw-cut grooves as shown in the plans. Saw-cut grooves must meet the requirements of Item P-621.

501-4.14 CURING. Immediately after finishing operations are completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-sawcut method is used to construct the contraction joint, the curing compound shall be applied to the sawcut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

a. Impervious Membrane Method. The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of 1 gallon (4 liters) to not more than 150 sq ft (14 sq m). The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application the compound shall be stirred continuously by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the Engineer, a double application rate shall be used to insure coverage. The curing compound shall be of such character that the film will harden within 30 minutes after application. Should the film become damaged from any cause, including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

b. Polyethylene Films. The top surface and sides of the pavement shall be entirely covered with polyethylene sheeting. The units shall be lapped at least 18 in (457 mm). The sheeting shall be placed and weighted to cause it to remain in contact with the surface and sides. The sheeting shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the pavement. Unless otherwise specified, the sheeting shall be maintained in place for 7 days after the concrete has been placed. This sheeting will be on site to protect fresh pavement from unanticipated rain events that could mar the surface finish.

c. Waterproof Paper. The top surface and sides of the pavement shall be entirely covered with waterproofed paper. The units shall be lapped at least 18 in (457 mm). The paper shall be placed and weighted to cause it to remain in contact with the surface covered. The paper shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the slab. The surface of the pavement shall be thoroughly saturated prior to placing of the paper. Unless otherwise specified, the paper shall be maintained in place for 7 days after the concrete has been placed.

cd. White Burlap-Polyethylene Sheets. The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for 7 days after the concrete has been placed.
(1) Curing in Cold Weather. The concrete shall be maintained at a temperature of at least 50°F (10°C) for a period of 72 hours after placing and at a temperature above freezing for the remainder of the curing time. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather, and any concrete injured by frost action—low temperatures shall be removed and replaced at the Contractor’s expense.

e. Water Method. The entire area shall be covered with burlap or other water-absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for 7 days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.

501-4.15 REMOVING FORMS. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently for at least 12 hours to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured as outlined in one of the methods indicated in paragraph 501-4.14. Major honeycombed areas shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-5.2(f).

501-4.16 SEALING JOINTS. The joints in the pavement shall be sealed in accordance with Item P-605.

501-4.17 PROTECTION OF PAVEMENT. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor’s employees and agents. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor’s expense. The Contractor shall have available at all times, materials for the protection of the edges and surface of the unhardened concrete. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

501-4.18 OPENING TO TRAFFIC. The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C 31 have attained a flexural strength of 550 lb / sq in (3,792 kPa) when tested in accordance with ASTM C 78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion. The pavement shall be cleaned before opening for normal operations.

501-4.19 REPAIR, REMOVAL, REPLACEMENT OF SLABS.

a. General. New pavement slabs that are broken or contain cracks shall be removed and replaced or repaired as specified hereinafter at no cost to the Owner. Spalls along joints not exceeding 15 percent of each slab’s longitudinal joint edge shall be repaired as specified. Slabs exceeding this quantity regardless of spall size shall be removed and replaced. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The engineer will determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be 4 in (100 mm) diameter, shall be drilled by the Contractor and shall be filled by the Contractor with a well-consolidated concrete mixture bonded to the
walls of the hole with epoxy resin, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the owner. All epoxy resin used in this work shall conform to ASTM C 881, Type V.

b. Shrinkage Cracks. Shrinkage cracks, which do not exceed 4 in in depth, shall be cleaned and then pressure injected with epoxy resin, Type IV, Grade 1, using procedures as approved. Care shall be taken to assure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the Engineer. Shrinkage cracks, which exceed 4 in in depth, shall be treated as full depth cracks in accordance with paragraphs 4.19b and 4.19c.

c. Slabs With Cracks through Interior Areas. Interior area is defined as that area more than 6 in (600 mm) from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the owner, when there are any full depth cracks, or cracks greater than 4 in in depth, that extend into the interior area.

d. Cracks Close To and Parallel To Joints. All cracks essentially parallel to original joints, extending full depth of the slab, and lying wholly within 6 in either side of the joint shall be treated as specified hereinafter. Any crack extending more than 6 in (600 mm) from the joint shall be treated as specified above in subparagraph “Slabs With Cracks Through Interior Area.”

(1) Full Depth Cracks Present, Original Joint Not Opened. When the original uncracked joint has not opened, the crack shall be sawed and sealed, and the original joint filled with epoxy resin as specified below. The crack shall be sawed with equipment specially designed to follow random cracks. The reservoir for joint sealant in the crack shall be formed by sawing to a depth of 3/4 in (19 mm), plus or minus 1/16 in (1.6 mm), and to a width of 5/8 in (16 mm), plus or minus 1/8 in (3.2 mm). Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent such raveling or spalling. The joint sealant shall be a liquid sealant as specified. Installation of joint seal shall be as specified for sealing joints or as directed. If the joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly troweled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. If filler type material has been used to form a weakened plane in the transverse joint, it shall be completely sawed out and the saw cut pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remainder of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.

(2) Full Depth Cracks Present, Original Joint Also Cracked. At a joint, if there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced for the full lane width and length.

be. Removal and Replacement of Full Slabs. Where it is necessary to remove full slabs, unless there are keys or dowels present, all edges of the slab shall be cut full depth with a concrete saw. All saw cuts shall be perpendicular to the slab surface. If keys, dowels, or tie bars are present along any edges, these edges shall be sawed full depth 24 in (150 mm) from the edge if only keys are present, or just beyond the end of the dowels or tie bars if they are present. These joints shall then be carefully sawed on the joint line to within 1 in (25 mm) of the depth of the dowel or key.

The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed. Suitable equipment shall be used to provide a truly vertical lift, and approved safe lifting devices used for attachment to the slabs. The narrow strips along keyed or doweled edges shall be carefully broken up and removed using light, hand-held jackhammers, 30 lb (14 kg) or less, or other approved similar equipment.
Care shall be taken to prevent damage to the dowels, tie-bars, or keys or to concrete to remain in place. The joint face below keys or dowels shall be suitably trimmed so that there is not abrupt offset in any direction greater than 1/2 in (12 mm) and no gradual offset greater than 1 in (25 mm) when tested in a horizontal direction with a 12 ft (3.6 m) straightedge.

No mechanical impact breakers, other than the above hand-held equipment shall be used for any removal of slabs. If underbreak between 1-1/2 and 4 in (37 and 100 mm) deep occurs at any point along any edge, the area shall be repaired as directed before replacing the removed slab. Procedures directed will be similar to those specified for surface spalls, modified as necessary.

If underbreak over 4 in (100 mm) deep occurs, the entire slab containing the underbreak shall be removed and replaced. Where there are no dowels, tie-bars, or keys on an edge, or where they have been damaged, dowels of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete using procedures as specified. Original damaged dowels or tie bars shall be cut off flush with the joint face. Protruding portions of dowels shall be painted and lightly oiled. All 4 edges of the new slab shall thus contain dowels or original keys or original tie bars.

Placement of concrete shall be as specified for original construction. Prior to placement of new concrete, the underlying material (unless it is stabilized) shall be re-compacted and shaped as specified in the appropriate SECTION of these specifications. The surfaces of all four joint faces shall be cleaned of all loose material and contaminants and coated with a double application of membrane forming curing compound as bond breaker. Care shall be taken to prevent any curing compound from contacting dowels or tie bars. The resulting joints around the new slab shall be prepared and sealed as specified for original construction.

cf. Repairing Spalls Along Joints. Where directed, spalls along joints of new slabs, and along parallel cracks used as replacement joints, Spalls along joints not exceeding 15.0 percent of each slab's longitudinal joint edge shall be repaired by first making a vertical saw cut at least 1 in (25 mm) outside the spalled area and to a depth of at least 2 in (50 mm). Saw cuts shall be straight lines forming rectangular areas. The concrete between the saw cut and the joint, or crack, shall be chipped out to remove all unsound concrete and at least 1/2 in (12 mm) of visually sound concrete. The cavity thus formed shall be thoroughly cleaned with high-pressure water jets supplemented with compressed air to remove all loose material. Immediately before filling the cavity, a prime coat of epoxy resin, Type III, Grade I, shall be applied to the dry cleaned surface of all sides and bottom of the cavity, except any joint face. The prime coat shall be applied in a thin coating and scrubbed into the surface with a stiff-bristle brush. Pooling of epoxy resin shall be avoided. The cavity shall be filled with low slump Portland cement concrete or mortar or with epoxy resin concrete or mortar. Concrete shall be used for larger spalls, generally those more than 1/2 cu. ft. (0.014 m³) in size, and mortar shall be used for the smaller ones. Any spall less than 0.1 cu. ft. (0.003 m³) shall be repaired only with epoxy resin mortar or a Grade III epoxy resin. Portland cement concrete and mortar mixtures shall be proportioned as directed and shall be mixed, placed, consolidated, and cured as directed. Epoxy resin mortars shall be made with Type III, Grade 1, epoxy resin, using proportions and mixing and placing procedures as recommended by the manufacturer and approved by the Engineer. The epoxy resin materials shall be placed in the cavity in layers not over 2 in (50 mm) thick. The time interval between placement of additional layers shall be such that the temperature of the epoxy resin material does not exceed 140 °F (60 °C) at any time during hardening. Mechanical vibrators and hand tampers shall be used to consolidate the concrete or mortar. Any repair material on the surrounding surfaces of the existing concrete shall be removed before it hardens. Where the spalled area abuts a joint, an insert or other bond-breaking medium shall be used to prevent bond at the joint face. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints. If any spall penetrates half the depth of the slab or more, the entire slab shall be removed and replaced as previously specified.
501-4.20 EXISTING CONCRETE PAVEMENT REMOVAL AND REPAIR.

All operations shall be carefully controlled to prevent damage to the concrete pavement and to the underlying material to remain in place. All saw cuts shall be made perpendicular to the slab surface.

a. Removal of Existing Pavement Slab.

When it is necessary to remove existing concrete pavement and leave adjacent concrete in place, the joint between the removal area and adjoining pavement to stay in place, including dowels, tie bars or keys, shall first be cut full depth with a standard diamond-type concrete saw. If keys or dowels are present at this joint, the saw cut shall be made full depth 6 in (150 mm) from the joint if only keys are present, or just beyond the end of dowels if dowels are present. The edge shall then be carefully sawed on the joint line to within 1 in (25 mm) of the top of the dowel or key. Next, a full depth saw cut shall be made parallel to the joint at least 24 in (600 mm) from the joint and at least 12 in (300 mm) from the end of any dowels. All pavement between this last saw cut and the joint line shall be carefully broken up and removed using hand-held jackhammers, 30 lb. (14 kg) or less, or the approved light-duty equipment which will not cause stress to propagate across the joint saw cut and cause distress in the pavement which is to remain in place. Where dowels or keys are present, care shall be taken to produce an even, vertical joint face below the dowels or keys. If the Contractor is unable to produce such a joint face, or if underbreak or other distress occurs, the Contractor shall saw the dowels or keys flush with the joint. The Contractor shall then install new dowels, of the size and spacing used for other similar joints, by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph “Placing Dowels.” All this shall be at no additional cost to the Owner. Dowels of the size and spacing indicated shall be installed as shown on the drawings by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph “Placing Dowels”. The joint face shall be sawed or otherwise trimmed so that there is no abrupt offset in any direction greater than 1/2 in (12 mm) and no gradual offset greater than 1 in (25 mm) when tested in a horizontal direction with a 12 ft. (3.6 m) straightedge.

b. Edge Repair.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Areas that are damaged during construction shall be repaired at no cost to the Owner; repair of previously existing damage areas [will be paid for as listed in the bid schedule] will be considered a subsidiary part of concrete pavement construction.

(1) Spall Repair. Spalls shall be repaired where indicated and where directed. Repair materials and procedures shall be as previously specified in subparagraph “Repairing Spalls Along Joints.”

(2) Underbreak Repair. All underbreak shall be repaired. First, all delaminated and loose material shall be carefully removed. Next, the underlying material shall be recompacted, without addition of any new material. Finally, the void shall be completely filled with paving concrete, thoroughly consolidated. Care shall be taken to produce an even joint face from top to bottom. Prior to placing concrete, the underlying material shall be thoroughly moistened. After placement, the exposed surface shall be heavily coated with curing compound.

(3) Underlying Material. The underlying material adjacent to the edge of an under the existing pavement which is to remain in place shall be protected from damage or disturbance during removal operations and until placement of new concrete, and shall be shaped as shown on the drawings or as directed. Sufficient material shall be kept in place outside the joint line to prevent disturbance (or sloughing) of material under the pavement that is to remain in place. Any material under the portion of the concrete pavement to remain in place, which is disturbed or loses its compaction shall be carefully removed and replaced with concrete as specified in paragraph “Underbreak Repair.” The underlying material outside the joint line shall be thoroughly compacted and moist when new concrete is placed.
501-4.21 TEST SECTION. In order to adjust the concrete mix and validate the concrete placement methods and consolidation of concrete, the Contractor shall place a concrete test section a minimum 2 panels wide by 500 feet long minimum or more as required for the Contractor to demonstrate that production can be conducted in accordance with all requirements specified in Item P-501. The location of the test section shall be determined by the Engineer. The test section shall be placed a minimum of 3 days prior to start of paving operations and must be accepted by Engineer before the Contractor proceeds with any concrete paving operations.

The various placement parameters that affect the placement of the concrete shall be recorded by the Contractor during the test section placement. Those parameters include but are not limited to speed of the machine, placement of vibrators, frequency and amplitude of the vibrators, concrete characteristics, weather, concrete beam placement and initial curing methods, coring and handling of thickness cores. Before the test section is placed, the Engineer and the Contractor shall meet to discuss the proposed test section placement and agree to all of the various parameters to be recorded. The records are to be turned over to the Engineer at the end of the placement operation.

The Contractor will not be allowed to place the test section until the Contractor Quality Control Program, showing conformance with the requirements of Paragraph 501-6.1, has been approved, in writing, by the Engineer.

A minimum of 8 cores shall be taken by the Contractor and submitted to the Engineer within three (3) days of placement. The location of the cores shall be determined by the Engineer.

If the initial test section should prove to be unacceptable, it shall be removed at the Contractor's expense and the necessary adjustments to the job mix formula, plant operation, placing procedures, etc. shall be made. Another test section shall then be placed. Additional test sections, if required, shall be constructed and evaluated for conformance to the specifications. Any sections that are not acceptable shall be removed at the Contractor's expense. Full production shall not begin until an acceptable section has been constructed and accepted in writing by the Engineer. Once a test section is accepted by the Engineer, the Contractor shall not deviate from the placement methods and mix design used for the test section for the concrete paving operations.

Once an acceptable test section has been placed, payment for that test section shall be made in accordance with paragraph 501-8.1.

501-4.22 CURING COMPOUND REMOVAL. In accordance with the Drawings and Engineer direction, CONTRACTOR shall use high pressure water to remove curing compound in the areas to be painted by others.

MATERIAL ACCEPTANCE

501-5.1 ACCEPTANCE SAMPLING AND TESTING. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the Engineer at no cost to the Contractor. The Contractor shall bear the cost of providing curing facilities for the strength specimens, per paragraph 501-5.1a(3), and coring and filling operations, per paragraph 501-5.1b(1).

Testing organizations performing these tests shall meet the requirements of ASTM C 1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction.
Concrete shall be accepted for strength and thickness on a lot basis. A lot shall consist of:

4,000 square yards (14,000 square meters).

a. Flexural Strength.

(1) Sampling. Each lot shall be divided into four equal sublots. One sample shall be taken for each sublot from the plastic concrete delivered to the job site. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D 3665. The concrete shall be sampled in accordance with ASTM C 172.

(2) Testing. Two (2) specimens shall be made from each sample. Specimens shall be made in accordance with ASTM C 31 and the flexural strength of each specimen shall be determined in accordance with ASTM C 78. The flexural strength for each sublot shall be computed by averaging the results of the two test specimens representing that sublot.

Immediately prior to testing for flexural strength, the beam shall be weighed and measured for determination of a sample unit weight. Measurements shall be made for each dimension; height, depth, and length, at the mid-point of the specimen and reported to the nearest 1/100 in. The weight of the specimen shall be reported to the nearest 0.1 pound. The sample unit weight shall be calculated by dividing the sample weight by the calculated volume of the sample. This information shall be reported as companion information to the measured flexural strength for each specimen.

The samples will be transported while in the molds. The curing, except for the initial cure period, will be accomplished using the immersion in saturated lime water method.

Slump, air content, and temperature tests will also be conducted by the quality assurance laboratory for each set of strength test samples, per ASTM C 31.

The Contractor shall make, cure and deliver all required beams to Owner’s Q/A testing organization lab curing room within 48 hours of casting the beams. All beams shall be transported per ASTM/ACI methods approved by the Engineer. The Contractor shall observe all tests. All broken and/or unused test specimens and beams shall become the property of the Contractor and shall be removed off of airport property.

(3) Curing. The Contractor shall provide adequate facilities for the initial curing of beams. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60 °F to 80 °F (16 °C to 27 °C), and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather, or in heavyweight closed plastic bags, or using other suitable methods, provided the temperature and moisture loss requirements are met.

(4) Acceptance. Acceptance of pavement for flexural strength will be determined by the Engineer in accordance with paragraph 501-5.2b.

b. Pavement Thickness.

(1) Sampling. Each lot shall be divided into four equal sublots and one core shall be taken by the Contractor for each sublot. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D 3665. Areas, such as thickened edges, with planned variable thickness, shall be excluded from sample locations.

Cores shall be neatly cut with a core drill. The Contractor shall furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes shall be filled by the Contractor with a non-shrink grout approved by the Engineer within one day after sampling.
(2) Testing. The thickness of the cores shall be determined by the Engineer by the average caliper measurement in accordance with ASTM C 174.

(3) Acceptance. Acceptance of pavement for thickness shall be determined by the Engineer in accordance with paragraph 501-5.2c.

c. Partial Lots. When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot, or when the Contractor and Engineer agree in writing to allow overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they shall constitute a lot. Where one or two sublots have been produced, they shall be incorporated into the next lot or the previous lot and the total number of sublots shall be used in the acceptance criteria calculation, that is, n=5 or n=6.

d. Outliers. All individual flexural strength tests within a lot shall be checked for an outlier (test criterion) in accordance with ASTM E 178, at a significance level of 5 percent. Outliers shall be discarded, and the PWL shall be determined using the remaining test values.

501-5.2 ACCEPTANCE CRITERIA.

a. General. Acceptance will be based on the following characteristics of the completed pavement:

(1) Flexural strength
(2) Thickness
(3) Smoothness
(4) Grade
(5) Edge slump
(6) Dowel bar alignment

Flexural strength and thickness shall be evaluated for acceptance on a lot basis using the method of estimating percentage of material within specification limits (PWL). Acceptance using PWL considers the variability (standard deviation) of the material and the testing procedures, as well as the average (mean) value of the test results to calculate the percentage of material that is above the lower specification tolerance limit (L).

Acceptance for flexural strength will be based on the criteria contained in accordance with paragraph 501-5.2e(1). Acceptance for thickness will be based on the criteria contained in paragraph 501-5.2e(2). Acceptance for smoothness will be based on the criteria contained in paragraph 501-5.2e(3). Acceptance for grade will be based on the criteria contained in paragraph 501-5.2e(4).

The Engineer may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and if it can be demonstrated in the laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.
b. Flexural Strength. Acceptance of each lot of in-place pavement for flexural strength shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

c. Pavement Thickness. Acceptance of each lot of in-place pavement shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

d. Percentage of Material Within Limits (PWL). The percentage of material within limits (PWL) shall be determined in accordance with procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for flexural strength and thickness shall be:

<table>
<thead>
<tr>
<th>Flexural Strength</th>
<th>[0.93 \times \text{strength specified in paragraph 501-3.1}]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>Lot Plan Thickness in inches - 0.50 in</td>
</tr>
</tbody>
</table>

e. Acceptance Criteria.

1. Flexural Strength. If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

2. Thickness. If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

3. Smoothness. As soon as the concrete has hardened sufficiently, the pavement surface shall be tested in the transverse direction with a 16 ft straightedge or other specified device. Surface smoothness deviations shall not exceed 1/4 in from a 16 ft straightedge at any location, including placement along and spanning any pavement joint or edge.

Areas in the slab showing high spots of more than 1/4 in but not exceeding 1/2 in in 16 feet shall be marked and immediately ground down with an approved grinding machine to an elevation that falls within the tolerance of 1/4 in or less. Where the departure from the correct cross section exceeds 1/2 in, the pavement shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

In addition to the 16 ft straight edge, the Contractor shall furnish a 25’ wheel base California type profilograph and competent operator to be used to measure longitudinal pavement surface deviations. The profilograph shall be operated under the supervision of the Engineer and in accordance with the manufacturer’s instructions. The profilograph shall be operated at a speed no greater than a normal walk. Original profilograms for the appropriate locations interpreted in accordance with ASTM E 1274 shall be furnished to the Engineer. The profilograms shall be recorded on a scale of 1 in equal to 25 feet longitudinally and 1 in equal to 1 in or full scale vertically. Records shall be maintained showing all smoothness measurements.

a. The surface of Runway and Taxiway pavements of continuous placement of 50 feet or more shall be tested and evaluated as described herein. Two passes shall be made in each paving lane greater than 20 feet in width; each pass shall be six feet from and parallel with the centerline of the paving lane. The average of the two passes shall be considered as the profilograph result for the paving lane. For paving lanes less than 20 feet in width, one pass along the centerline shall be required. Tests shall be run the next working day following concrete placement. Each trace shall be completely labeled to show paving lane, wheel pass, and stationing.
b. The Contractor shall furnish paving equipment and employ methods that produce a riding surface for each section of pavement having an average profile index meeting the requirements of paragraph 501-8.1c. A typical subsection will be considered to be the width of the paving lane and 1/10 mile long. The profile index will be determined in accordance with ASTM E 1274 using a 0.2 in blanking band. Within each 1/10th mile subsection, all areas represented by high points having a deviation in excess of 0.4 in in 25 feet or less shall be removed by the contractor using an approved grinding device or a device consisting of multiple diamond blades. The use of a bush hammer or other impact devices will not be permitted. After removing all individual deviations in excess of 0.4 in, additional corrective work shall be performed if necessary to achieve the required ride quality. All corrective work shall be completed prior to determination of pavement thickness.

c. On those pavement subsections where corrections were necessary, second profilograph runs will be performed to verify that the corrections have produced an average profile index of 15 in per mile or less. If the initial average profile index was less than 15, only those areas representing greater than 0.4 in deviation will be re-profiled for correction verification.

d. When the average profile index does not exceed 7 inches per mile, payment will be made for that section at the contract unit price for the completed pavement. When the average profile index exceeds 7 inches per mile, but does not exceed 15 in per mile, the Contractor may elect to accept a contract unit price adjustment in lieu of reducing the profile index.

e. Individual sections shorter than 50 feet and the last 15 feet of any section where the contractor is not responsible for the adjoining section, shall be straightedged in accordance with Section 501.5.2.e.(3).

f. If there is a section of 250 feet or less, the profilogram for that section shall be included in the evaluation of the previous section. If there is an independently placed section of 50 to 250 feet in length, a profilogram shall be made for that section and the pay adjustment factors for short sections of paragraph 8.1c shall apply.

g. Any corrective work required shall be performed prior to joint sealing and grooving operations.

h. All cost necessary to provide the profilograph and related to furnishing the appropriate profilograms as required in this provision are incidental to concrete pavement construction and no direct compensation will be made therefore.

(4) Grade. An evaluation of the surface grade shall be made by the Engineer for compliance to the tolerances contained below. The finish grade will be determined by running levels at intervals of 60-ft (18.2 m) or less longitudinally and all breaks in grade transversely (not to exceed 80 ft) - all slab corners and center slab to determine the elevation of the completed pavement. The Contractor shall pay the costs of surveying the level runs, and this work shall be performed by a licensed surveyor. The documentation, stamped and signed by a licensed surveyor, shall be provided by the Contractor to the Engineer.

Lateral Deviation. Lateral deviation from established alignment of the pavement edge shall not exceed plus or minus 0.10 ft (30 mm) in any lane.

Vertical Deviation. Vertical deviation from established grade shall not exceed plus or minus 0.04 ft (12 mm) at any point.

(5) Edge Slump. When slip-form paving is used, not more than 15 percent of the total free edge of each 500 ft (150 m) segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 in (6 mm), and none of the free edge of the pavement shall have an edge slump exceeding 3/8 in (10 mm). (The total free edge of 500 feet (150 m) of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet (150 m) of paving lane originally constructed as a separate lane will have 1,000 feet
(300 m) of free edge, 500 feet (150 m) of fill-in lane will have no free edge, etc.). The area affected by
the downward movement of the concrete along the pavement edge shall be limited to not more than
18 in (457 mm) from the edge. **Excessive edge slump may be corrected during production prior to concrete harding by removing the affected area, placing edge forms and a new concrete mix added to the removed area. Production shall be halted to assess the excessive edge slump problem.** When excessive edge slump cannot be corrected before the concrete has hardened, the area—slab or slabs with excessive edge slump shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

(6) Dowel Bar Alignment. Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerance on dowel bar alignment in each plane, horizontal and vertical, shall not exceed 2 percent or 1/4 in per ft (20 mm per meter) of a dowel bar. Vertical alignment of dowels shall be measured parallel to the designed top surface of the pavement, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes, shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge.

f. Removal and Replacement of Concrete. Any area or section of concrete that is removed and replaced shall be removed and replaced back to planned joints. The Contractor shall replace damaged dowels and the requirements for doweled longitudinal construction joints in paragraph 501-4.10 shall apply to all contraction joints exposed by concrete removal. Removal and replacement shall be in accordance with paragraph 501-4.19 of this specification.

**CONTRACTOR QUALITY CONTROL**

501-6.1 QUALITY CONTROL PROGRAM. The Contractor shall develop a Quality Control Program in accordance with Section 100 of the General Provisions. The program shall address all elements that affect the quality of the pavement including but not limited to:

a. Mix Design
b. Aggregate Gradation
c. Quality of Materials
d. Stockpile Management
e. Proportioning
f. Mixing and Transportation
g. Placing and Consolidation
h. Joints
i. Dowel Placement and Alignment
j. Flexural or Compressive Strength
k. Finishing and Curing
l. Surface Smoothness

501-6.2 QUALITY CONTROL TESTING. The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to this specification and as set forth in the Quality Control Program. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content.
A Quality Control Testing Plan shall be developed as part of the Quality Control Program.


(1) Gradation. A sieve analysis for each individual aggregate size shall be made at least twice daily in accordance with ASTM C 136 from randomly sampled material taken from the discharge gate of storage bins, or from the conveyor belt, or from the stockpile. If samples are taken from the stockpile, it shall be taken from the bucket of a front-end loader removed vertically from bottom to top of the stockpile.

(2) Moisture Content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C 70 or ASTM C 566.

b. Coarse Aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C 136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture Content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C 566.

c. Slump. Four slump tests shall be performed for each lot of material produced in accordance with the lot size defined in Section 501-5.1. One test shall be made for each sublot. Slump tests shall be performed in accordance with ASTM C 143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C 172.

d. Air Content. Four air content tests shall be performed for each lot of material produced in accordance with the lot size defined in Section 501-5.1. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C 231 for gravel and stone coarse aggregate and ASTM C 173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C 172.

de. Four unit weight and yield tests shall be made in accordance with ASTM C 138. The samples shall be taken in accordance with ASTM C 172 and at the same time as the air content tests.

501-6.3 CONTROL CHARTS. The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, combined aggregate WF and CF values, slump, and air content. Control charts shall be posted in a location satisfactory to the Engineer and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the Engineer may halt production or acceptance of the material.

a. Fine- and Coarse Combined Aggregate Gradation. The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Specification limits contained in Tables 1 and 2 shall be superimposed on the Control Chart for job control. The Individual
gradations shall be mathematically combined and used to monitor each day's batch weights to provide the target combined gradation. The workability and coarseness factor shall be calculated and plot on the Aggregate Constructability Chart of Figure 1. The combined gradation using the batch tickets percentages shall be plus or minus 3 points for the Workability Factor and plus or minus 5 points for the Coarseness Factor for the Workability and Coarseness Factors established for the approved concrete mixture.

b. Slump and Air Content. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

<table>
<thead>
<tr>
<th>Control Parameter</th>
<th>Individual Measurements</th>
<th>Range Suspension Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action Limit</td>
<td>Suspension Limit</td>
</tr>
<tr>
<td>Slip Form:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slump</td>
<td>+0 to -1 in (0.25 mm)</td>
<td>+/- 0.5 to -1.5 in (13-38 mm)</td>
</tr>
<tr>
<td>Air Content</td>
<td>+/- 1.2%</td>
<td>+/- 1.8%</td>
</tr>
<tr>
<td>Fixed Form:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slump</td>
<td>+0.5 to -1 in (13-25 mm)</td>
<td>+1 to -1.5 in (25-38 mm)</td>
</tr>
<tr>
<td>Air Content</td>
<td>+/- 1.2%</td>
<td>+/- 1.8%</td>
</tr>
</tbody>
</table>

The individual measurement control charts shall use the mix design target values as indicators of central tendency.

501-6.4 CORRECTIVE ACTION. The Contractor Quality Control Program shall indicate that appropriate action shall be taken when the process is believed to be out of control. The Contractor Quality Control Program shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists.

a. Fine and Coarse Combined Aggregate Gradation. When two consecutive averages of five tests are outside of the Table 1 and Table 2 specification limits, immediate steps, including a halt to production, shall be taken to correct the grading. If the tolerances of paragraph 501-6.3(a) are not met, the grading shall be considered out of control. When proportioning can solve the problem, adjustments to weights shall be conducted. If proportioning adjustments do not correct the problem, production shall be halted and new stockpile aggregates shall be used.

b. Fine and Coarse Aggregate Moisture Content. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5 percent, the scale settings for the aggregate batcher and water batcher shall be adjusted.

c. Slump. The Contractor shall halt production and make appropriate adjustments whenever:

(1) one point falls outside the Suspension Limit line for individual measurements or range OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

d. Air Content. The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:

(1) one point falls outside the Suspension Limit line for individual measurements or range

OR
(2) two points in a row fall outside the Action Limit line for individual measurements.

Whenever a point falls outside the Action Limits line, the air-entraining admixture dispenser shall be calibrated to ensure that it is operating correctly and with good reproducibility.

METHOD OF MEASUREMENT

501-7.1 Portland cement concrete pavement shall be measured by the number of square yards of either plain or reinforced pavement as specified in-place, completed and accepted. Saw-cut-grooving shall be measured by the number of square yards (square meters) of saw-cut-grooving as specified in-place, completed and accepted.

BASIS OF PAYMENT

501-8.1 PAYMENT. Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-5.2 Acceptance Criteria shall be based on results of smoothness, strength and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness and 501-8.1c for smoothness, subject to the limitation that: The total project payment for concrete pavement shall not exceed 100 percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under Table 3).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings. No additional payment over the unit contract bid price shall be made for any pavement which has an average thickness in excess of that shown on the plans. No additional payments will be made for reinforced panels or for thickened edges.

a. Basis of Adjusted Payment. The pay factor for each individual lot shall be calculated in accordance with Table 3. A pay factor shall be calculated for both flexural strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both flexural strength and thickness are 100 percent or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either flexural strength or thickness is 100 percent or higher. The lot pay factor shall be the lower of the two values when calculations for both flexural strength and thickness are less than 100 percent.

Table 3. Price Adjustment Schedule

<table>
<thead>
<tr>
<th>Percentage of Materials Within Specification Limits (PWL)</th>
<th>Lot Pay Factor (Percent of Contract Unit Price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>96 – 100</td>
<td>106</td>
</tr>
<tr>
<td>90 – 95</td>
<td>PWL + 10</td>
</tr>
<tr>
<td>75 – 90</td>
<td>0.5 PWL + 55</td>
</tr>
<tr>
<td>55 – 74</td>
<td>1.4 PWL – 12</td>
</tr>
<tr>
<td>Below 55</td>
<td>Reject*</td>
</tr>
</tbody>
</table>

BROWARD COUNTY
FT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT
Terminal 4 Apron Expansion P-501-33

WP-404/408 TECHNICAL SPECIFICATIONS
May, 2013
Issued for Bid
Addendum No. 1
Page 72 of 82
Although it is theoretically possible to achieve a pay factor of 106 percent for each lot, actual payment in excess of 100 percent shall be subject to the total project payment limitation specified in paragraph 501-8.1.

The lot shall be removed and replaced. However, the Engineer may decide to allow the rejected lot to remain. In that case, if the Engineer and contractor agree in writing that the lot shall not be removed, it shall be paid for at 50 percent of the contract unit price and the total project payment limitation shall be reduced by the amount withheld for the rejected lot.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 501-8.1. Payment in excess of 100 percent for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100 percent.

b. Payment. Payment shall be made under:

Item P-501-8.1 Portland Cement Concrete Pavement (15.5" Thick) -- Per Square Yard

c. Basis of adjusted payment for Smoothness. Price adjustment for pavement smoothness will apply to the total area of concrete within a section of pavement and shall be applied in accordance with the following equation and schedule:

\[(\text{Sq yd in section}) \times (\text{original unit price per sq yd}) \times \text{PFm} = \text{reduction in payment for area within section}\]

<table>
<thead>
<tr>
<th>Average Profile Index (Inches Per Mile)</th>
<th>Contract Unit Price Adjustment (PFm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 30,000 lb</td>
<td></td>
</tr>
<tr>
<td>0 - 7</td>
<td>0.00</td>
</tr>
<tr>
<td>7.1 - 9</td>
<td>0.02</td>
</tr>
<tr>
<td>9.1 - 11</td>
<td>0.04</td>
</tr>
<tr>
<td>11.1 - 13</td>
<td>0.06</td>
</tr>
<tr>
<td>13.1 - 14</td>
<td>0.08</td>
</tr>
<tr>
<td>14.1 - 15</td>
<td>0.10</td>
</tr>
<tr>
<td>15.1 and up</td>
<td>Corrective work required</td>
</tr>
</tbody>
</table>

**TESTING REQUIREMENTS**

ASTM C 31 Making and Curing Concrete Test Specimens in the Field

ASTM C 39 Compressive Strength of Cylindrical Concrete Specimens ASTM C 70 Surface Moisture in Fine Aggregate

ASTM C 78 Test for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)

ASTM C 88 Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C 131 Test for Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
ASTM C 136  Sieve Analysis of Fine and Coarse Aggregates
ASTM C 138  Test for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C 143  Test for Slump of Hydraulic Cement Concrete
ASTM C 172  Sampling Freshly Mixed Concrete
ASTM C 173  Test for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 174  Measuring Thickness of Concrete Elements Using Drilled Concrete Cores
ASTM C 227  Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)
ASTM C 231  Test for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 289  Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
ASTM C 295  Petrographic Examination of Aggregates for Concrete
ASTM C 114  Chemical Analysis of Hydraulic Cement
ASTM C 535  Test for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 566  Total Evaporable Moisture Content of Aggregates by Drying
ASTM C 642  Test for Density, Absorption, and Voids in Hardened Concrete
ASTM C 666  Resistance of Concrete to Rapid Freezing and Thawing
ASTM C 1077  Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction And Criteria for Laboratory Evaluation
ASTM C 1260  Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM D 3665  Random Sampling of Paving Materials
ASTM D 4791  Test Method for Flat or Elongated Particles in Coarse Aggregate
ASTM E 178  Dealing With Outlying Observations
ASTM E 1274  Test for Measuring Pavement Roughness Using a Profilograph
AASHTO T 26  Quality of Water to be Used in Concrete

MATERIAL REQUIREMENTS

ASTM A 184  Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement

ASTM A 185  Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement

ASTM A 497  Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement

ASTM A 615  Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

ASTM A 704  Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement

ASTM A 714  Specification for High-Strength Low-Alloy Welded and Seamless Steel Pipe

ASTM A 996  Specification for Rail-Steel and Axle Steel Deformed Bars for Concrete Reinforcement

ASTM C 33  Specification for Concrete Aggregates

ASTM C 94  Specification for Ready-Mixed Concrete

ASTM C 150  Specification for Portland Cement

ASTM C 171  Specification for Sheet Materials for Curing Concrete

ASTM C 260  Specification for Air-Entraining Admixtures for Concrete

ASTM C 309  Specification for Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C 494  Specification for Chemical Admixtures for Concrete

ASTM C 595  Specification for Blended Hydraulic Cements

ASTM C 618  Specification for Coal Flyash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete

ASTM C 881  Specification for Epoxy-Resin Base Bonding System for Concrete

ASTM C 989  Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

ASTM D 1751  Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752 Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving And Structural Construction

ACI 305R Hot Weather Concreting

ACI 306R Cold Weather Concreting

ACI 309 Guide for Consolidation of Concrete

Department of Defense MIL- DTL- 4441/20a (1999)_Paint, Epoxy-Polyamide, Green Primer, Formula 150, Type III

END ITEM P-501
NOTICE FOR BIDS

Solicitation No.: Z1145017C1
Solicitation Title: Terminal 4 Apron Expansion

Sealed bids for selling and delivering all necessary labor, materials, equipment, and services for the completion of the work, including installation of materials, supplies and equipment for the construction of Terminal 4 Apron Expansion located at the Fort Lauderdale-Hollywood International Airport, will be received by the Board of County Commissioners until 2:00 p.m. on Wednesday, July 31, 2013, at the offices of the Purchasing Division of Broward County, Governmental Center, Room 212, 115 South Andrews Avenue, Fort Lauderdale, Florida 33301. Bids will be publicly opened and read thereafter.

Scope of Work: The Scope of Work includes, but is not limited to, the furnishing of all labor, materials, equipment, services and incidentals for the construction of Terminal 4 Apron Expansion. The expansion and reconfiguration of the existing Terminal 4 aircraft apron to accommodate the new T4 concourse is comprised of site preparation, grading, building and pavement demolition, construction of concrete and asphalt pavement, base course, pavement markings, airfield lighting, electrical and communication ductbanks, storm drainage, underground water and sanitary sewer services, landscaping, fencing and retaining walls at the Fort Lauderdale-Hollywood International Airport.

The Cone of Silence is currently in effect for this solicitation. In accordance with Section 1-266, of the Broward County Code of Silence Ordinance, as amended, after the advertisement of the bid solicitation, potential vendors and their representatives are substantially restricted from communicating regarding the Bid with the County Administrator, Deputy County Administrator, Assistant County Administrator, Assistants to the County Administrator, their respective support staff, or any or any staff person that is to evaluate or recommend selection in this bid process. The Cone of Silence Ordinance further provides that after the bid opening for this solicitation, potential vendors and their representatives are substantially restricted from communicating regarding this Bid with the County Commissioners and their staff. For Invitations for Bids, the Cone of Silence shall be in effect for staff involved in the award decision process at the time of the solicitation advertisement. The Cone of Silence shall be in effect for the Board of County Commissioners upon bid opening for the solicitation. The Cone of Silence terminates when the County Commission or other awarding authority takes action which ends the solicitation. Any violations of this ordinance by any member(s) of the responding firm or joint venture may be reported to the County’s Office of Professional Standards. If there is a determination of violation, a fine shall be imposed against the vendor as provided in the County Code of Ordinances. Additionally, a determination of violation shall render any award to a vendor who is found to have violated the Ordinance voidable, at the sole discretion of the Board of County Commissioners.
Pre-bid Conference: A Pre-Bid Conference will be held on Monday, July 8, 2013 at 10:00am at:

Secret Woods Nature Center
2701 W. State Road 84
Dania Beach, FL 33312
Julia Hall

Attendance at the Pre-Bid Conference is not mandatory but is highly encouraged as a source of information. Attendance at the Site Visit immediately following the Pre-Bid Conference is not mandatory but is highly encouraged as a source of information.

Goal Participation: This project will be funded in part by one or more grants from the Federal Aviation Administration (FAA) Airport Improvement Program. The Disadvantaged Business Enterprise (DBE) participation goal for this project is 22%.

Purchase of the Project Manual: A copy of the Contract Documents may be obtained at HDR Engineering, Inc., 3250 West Commercial Blvd, Suite 100, Ft. Lauderdale, FL 33309, contact Timothy J. Fish (954) 233-4926 for a non-refundable charge of $575.00, payable by cash or check; checks should be made payable to: HDR Engineering, Inc.

Inspection of the Project Manual: The Project Manual is open to public inspection at the offices of the Purchasing Division of Broward County, located at Governmental Center, Room 212, 115 South Andrews Avenue, Fort Lauderdale, Florida 33301.

Project Manager: Richard Waskiewicz, Expansion Project Administrator, Aviation Department, Email: rwaskiewicz@broward.org

Purchasing Agent: Sarah Townsend, Purchasing Agent III, Purchasing Division, Email: satownsend@broward.org

Addenda: All Addenda will be posted to the Broward County Purchasing Division’s website under “Current Solicitations” at http://www.broward.org/purchasing/Pages/Default.aspx. Bidders shall be responsible for obtaining, reviewing, and executing addenda.

License Requirements: In order to be considered a responsive bidder for the scope of work set forth in these bid documents, the bidder must possess one of the following licenses at the time of bid submittal:

State:  Certified General Contractor
OR

Broward County: General Building Contractor Class "A"
(Must be registered with the State)
OR
General Engineered Construction Builder

Bid Guaranty: Each bid shall be accompanied by a bid guaranty in an amount equal to five percent (5%) of the bid amount.
ADDENDUM NO. 2

Solicitation No.: Z1145017C1
Solicitation Title: Terminal 4 Apron Expansion

Date Of Addendum: July 23, 2013

Attention all potential bidders:

☒ Must Addendum: Read carefully and follow all instructions. Information included in this Addendum will have a material impact on the submittal for this solicitation. All "MUST" addenda are considered a matter of responsiveness. "MUST" addenda must be returned with your Bid Submittal or acknowledged on the Bid Tender Form. Failure of a Submitter to acknowledge the addendum shall be cause for rejection of the bid.

☒ Return Addendum with Bid Submittal or Acknowledge on the Bid Tender Form

To all prospective bidders, please note the following changes and clarifications:

Words in strikethrough type are deletions from existing text. Words in bold underlined type are additions to existing text.

1. The Bid Opening Date remains as July 31, 2013 at 2:00 p.m.

2. The Contract Documents are amended as follows: REVISED Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheets C11.32, Revise Detail 5 Type Bt – Buried Transition Joint, Callout 10.5" P-211 Limerock Base Course to 12" P-211 Limerock Base Course.

3. The Contract Documents are amended as follows: REVISED Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.32, Revise Detail 5 Type Bt – Buried Transition Joint, Callout 10.5" P-211 Limerock Base Course to 12" P-211 Limerock Base Course.

4. The Contract Documents are amended as follows: ADD Note 1 Temporary asphalt tie in from completed PCC to existing apron shall not have a slope greater than 2% in any direction. For asphalt tie in detail, see Detail 3 on Sheet C11.31 to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.01.

5. Question: Spec section P-152 defines Unsuitable as Organic materials (see spec page P-152-1), yet the allowance Account for Unsuitable Subsurface materials refers to reimbursement in accordance with specification section P-159-Contaminated Soils. Is unsuitable material only organic type material when being paid for in bid item #28- P-152.4.2? Is unsuitable material only contaminated material when being reimbursed for in bid item #7-G103-4.7? Please clarify the definition of unsuitable material for this project.
Answer: Specification Section G-103 has been revised, and is included in this Addendum, to include both Unsuitable Subsurface Materials as defined in Specification Section P-152 Excavation and Embankment and Contaminated Unclassified Materials as defined in Specification Section P-159.

6. **Question:** Can the contractor have the option to import concrete from offsite concrete producing plants? Can the contractor have the option to transport the concrete using truck mixers and/or truck agitators? Can the contractor have the option to place the concrete with a roller screed in lieu of a slip-form paver?

**Answer:** REPLACE Specification Section P-501 Paragraph 501-1.1 with:

501-1.1 This work shall consist of pavement composed of Portland cement concrete, with reinforcement and without reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross sections shown on the plans. The concrete pavement for this project shall be mixed in a central plant or an on-site batch plant, delivered in non-agitating trucks and placed with slip-form equipment. Individual placement areas of less than 500 square yards, irregular areas, and other inaccessible areas to the slip-form equipment, paving concrete shall be placed with side forms.

REPLACE Specification Section P-501 Paragraph 501-4.1 with:

501-4.1 EQUIPMENT. Equipment necessary for handling materials and performing all parts of the work shall be approved by the engineer as to design, capacity, and mechanical conditions. The equipment shall be at the jobsite sufficiently ahead of the start of paving operations to be examined thoroughly and approved.

The Consultant will consider for review offsite Batch Plants meeting the requirements of 501-4.1. This includes “Central Plant Mixer.” Submittal(s) not having “Central Plant Mixer” meeting the specifications will be rejected.

a. Batch Plant and Equipment. If Contractor utilizes an on-site batch plant, the batch and mix plant shall be located on the project site as indicated in the drawings. The batch plant and equipment shall conform to the requirements of ASTM C 94. **Contractor is responsible to define, determine capacity, determine requirements, design, permit, install, etc. any utilities or supporting elements required for the batch plant as well as any other construction system.**

All other Sections of Paragraph 501-4.1 remain unchanged. Use of truck mixers and/or truck agitators is not permitted as stated in P-501 specification. Contractor shall use slip form paver as required by P-501 specification.

7. **Question:** Which plan sheet grades is the contractor responsible to establish as final grades, the West Side or the East Side?

**Answer:** Volume 2 Terminal 4 Apron Expansion (West Sheets) C11.15 & C10.02 and Volume 3 Terminal 4 Apron Expansion (East Sheets) C11.12 & C11.15 have been updated to match final elevations including contour lines at the connection between phases.

8. **Question:** Are intermediate grades required by the contractor at the West and East interface? Please provide the details of the tie-ins for the West Side and East Side proposed grades. The asphalt Tie-in shown on C11.31 does not show the elevation differences that appear on the proposed grade drawings. Please explain. Please provide the details of the tie-ins for the West Side and East Side proposed grades. The asphalt Tie-in shown on C11.31 does not show the elevation differences that
appear on the proposed grade drawings. Please explain.

**Answer:** There are transition grade profiles required between phases. These transitions shall not exceed a 2% slope in any direction as indicated by Note 1 on Volume 2 Terminal 4 Apron Expansion (West Sheets) C11.01 through C11.03 and Volume 3 Terminal 4 Apron Expansion (East Sheets) C11.00 through C11.05.

The Contract Documents indicate where Terminal 4 Apron Expansion (West Sheets and East Sheets) C11.31 Detail 2 Full Strength Asphalt Pavement and Detail 3 Typical Temporary Asphalt Pavement Tie-in shall be utilized to achieve a transition between grade differences between phases.

Final grades shall be constructed in accordance with Contract Documents.

9. **Question:** The plan and profile for new Sanitary Sewer dimensions do not match. Sanitary Plan C06.01West indicates 4.72LF of 8" FM and profile C06.11 West indicates 10.00LF of 8" FM at N:632216.46, E:936640.81. Please provide the proper length of this pipe section.

**Answer:** The correct length of the 8" FM section is 10.00 LF. Volume 2 Terminal 4 Apron Expansion (West Sheets) C06.01 has been revised accordingly.

10. **Question:** The plan and profile for new Sanitary Sewer dimensions do not match. Sanitary Plan C06.01East indicates 40.66 LF of 6" FM and profile C06.12 East indicates 50.66LF of 6" FM at N:631995.51, E:93676.72. Please provide the proper length of this pipe section.

**Answer:** 40.66' is correct, Contractor to install to the coordinates given in state plane. Volume 3 Terminal 4 Apron Expansion (East Sheets) C06.12 has been revised accordingly.

11. **Question:** Please provide the proper size of pipe or pipe fittings in phase G-2.

**Answer:** The 30 L.F. shall be 6" DIP. Volume 3 Terminal 4 Apron Expansion (East Sheets) C05.02 has been revised accordingly.

12. **Question:** Please provide existing spot elevations that are able to be read.

**Answer:** Spot Elevations were included in Owner provided survey. Spot elevations become more legible if plans are enlarged utilizing electronic files provided with Bid Documents.

13. **Question:** Figure 8 in the RAP identifies a Phase I & II activities in the Terminal Roads, and a Phase III activity in the Airside. On Sheet ENV-00.01, there are numerous references on this Sheet to Phase I & II, and Note #7 under General Project Description says that Phase I & II are to be implemented under this project. In addition, notes 13, 14 & 16 under Project Description reference drawings that do not exist: ENV-02.02, ENV-02.03 & ENV-02.07. Based on the above, this would lead the Bidder to believe that they are to price Phase I, II and III remediation, and the original bid documents are missing drawings. However, there is only a Bid Item for Phase III remediation (P-151-4.1g). Please confirm which Phases we are to include with our bid. If Phase I & II need to be priced, please provide the missing drawings.

**Answer:** Only Phase III remediation Activities for the South Terminal Site are to be completed by the Contractor. Volume 3 Terminal 4 Apron Expansion (East Sheets) ENV00.01 has been revised accordingly.

All other terms, conditions and specifications remain unchanged for this bid.

**NAME OF COMPANY:** ____________________________________

Addendum Form 3 (rev 08/2012)
ITEM G-103 ALLOWANCE ACCOUNTS

DESCRIPTION

103-1.1 The allowance accounts described herein have been set up to compensate the Contractor for any approved reimbursement of unforeseen items related to FAA change requests, Broward County change requests, utility resolution costs, other agency change requests, regulatory agency permit fees, airside maintenance of traffic and operational requirements, and unsuitable subsurface materials as may be required during construction and not already accounted for within the Contract Documents. The following descriptions will detail the particular issues that may precipitate a reimbursement to the Contractor for those unforeseen items and the procedure for obtaining reimbursement.

DEFINITIONS

103-2.1 FAA CHANGE ALLOWANCE ACCOUNT. If, during the course of the construction, the FAA requests or mandates that specific changes be made to the construction project to conform to any of their regulations, directives, rulemakings, advisory circulars, orders, notices, etc., that have not been addressed in the Contract Documents, the CPM shall notify the Contractor of such changes being required.

This account was established as a method of payment for the requirements identified in the following items:

- a. Revising the construction to conform to any FAA change request or mandate.
- b. Agreed upon price from Contractor regarding an FAA change request or mandate.

Upon notice by the FAA of a Change Request, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

- a. Defined requirements set forth by the FAA.

The Contractor shall provide on the electronic excel form the following items:

- a. Complete breakdown of the work elements.
- b. Associated costs and the allowable overhead and profit associated with each work element.
- c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a formal CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.2 BROWARD COUNTY CHANGE ALLOWANCE ACCOUNT. If, during the course of the construction, the COUNTY requests or mandates that specific changes be made to the construction project to conform to any of their regulations, directives, rulemakings, specifications, orders, notices, etc., or other changes that are required by BCAD to be incorporated into the project, the CPM shall notify the Contractor of such changes being required.
This account was established as a method of payment for the requirements identified in the following items:

a. Revising the construction to conform to any COUNTY change request or mandate.

b. Agreed upon price from Contractor regarding an COUNTY change request or mandate.

Upon notice by the COUNTY of a Change Request, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the COUNTY.

b. Appropriate electronic excel form for the Contractor to use in developing his cost(s). The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements.

b. Associated costs and the allowable overhead and profit associated with each work element.

c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a formal Work Order from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.3 UTILITY RESOLUTION ALLOWANCE ACCOUNT. If during the course of construction, a utility not shown on the plans is discovered or a utility which is shown to be proposed and utilized but in found to in such condition that it is deemed unusable including, but not limited to, any public utility, stormwater management system, FAA cable infrastructure or system, or airfield infrastructure, the Contractor shall be reimbursed for the costs associated with maintenance, adjustment or relocation of the unknown existing facility(ies) through the use of the Utility Relocation Allowance Account. All costs associated with the related maintenance, adjustment or relocation shall be submitted to the CPM. Expenses due to damage of a utility by the Contractor, or relocation of a utility solely for the Contractor’s convenience, shall be the responsibility of the Contractor and are not included in this account.

This account was established as a method of payment for the requirements identified in the following items:

a. Actual charges from a public utility or third party agency such as the FAA regarding relocation of an existing service to avoid new construction.

b. Agreed upon price from Contractor regarding relocation an existing utility line.

Upon notice by the Contractor of the discovery of an unknown utility, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:
a. Defined requirements set forth for the remediation of the unknown utility.

b. Appropriate electronic excel form for the Contractor to use in developing his cost(s) associated with the remediation.

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements.

b. Associated costs and the allowable overhead and profit associated with each work element.

c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a formal Work Order from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.4 OTHER REGULATORY AGENCY CHANGE ALLOWANCE ACCOUNT. If, during the course of the construction, any other regulatory agency requests or mandates that specific changes be made to the construction project to conform to any of their regulations, directives, rulemakings, advisory circulars, orders, notices, etc., that have not been addressed in the Contract Documents, the CPM shall notify the Contractor of such changes being required.

This account was established as a method of payment for the requirements identified in the following items:

a. Revising the construction to conform to any other regulatory agency change request or mandate.

b. Agreed upon price from Contractor regarding another regulatory agency change request or mandate.

Upon notice by any other regulatory agency of a Change Request, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the other regulatory agency.

b. Appropriate electronic excel form for the Contractor to use in developing his cost(s).

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements.

b. Associated costs and the allowable overhead and profit associated with each work element.

c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon
acceptance by all responsible parties, a formal Work Order from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.5 REGULATORY AGENCY PERMIT FEES ALLOWANCE ACCOUNT. If, during the course of the construction, any other regulatory agency requests or mandates that additional permits and associated fees are required to conform to any of their regulations, directives, rulemakings, advisory circulars, orders, notices, etc., that have not been addressed in the Contract Documents, the CPM shall notify the Contractor of such permits and fees being required.

This account was established as a method of payment for the requirements identified in the following items:

a. Revising the construction to conform to any additional regulatory agency permits and associated fees.

b. Agreed upon price from Contractor regarding the regulatory agency permits and fees.

Upon notice by any other regulatory agency of a Permit and associated Fee, the Engineer shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the other regulatory agency to submit appropriate applications to obtain the required permits and pay the required fees.

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements required to develop, submit and obtain approvals for the permit and the documentation showing the required fees.

b. Associated costs and the allowable overhead and profit associated with each work element associated with the permit development.

c. Any subcontractor(s) work, their work elements and associated costs related to the permit and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.6 AIRSIDE MAINTENANCE OF TRAFFIC AND OPERATIONAL REQUIREMENTS ALLOWANCE ACCOUNT. If, during the course of the construction, it is determined that additional or modified maintenance of traffic plans or other related operational requirements be developed due to issues beyond the control of the Contractor, and that have not been addressed in the Contract Documents, the CPM shall notify the Contractor of such additional maintenance of traffic and/or operational requirements being required.

This account was established as a method of payment for the requirements identified in the following items:

a. Revising of the construction maintenance of traffic plans, phasing plans or other operational requirements established by various departments of the Airport.
b. Agreed upon price from Contractor regarding the required work to meet the requirements of the additional maintenance of traffic plans and other operational requirements.

Upon notice by the FAA, Engineer, BCAD Planning, Maintenance or Operations Departments of the need to modify any of the existing approved maintenance of traffic plans, phasing plans or other operational requirements, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the BCAD department or their authorized representative to respond to the requirements of a revised maintenance of traffic plan, phasing plan or other operational requirement.

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements required to mobilize, revise, or otherwise change the contract documents approved maintenance of traffic plans, phasing plans or other operational requirements.

b. Associated costs and the allowable overhead and profit associated with each work element associated with responding to the revised maintenance of traffic plans, phasing plans or other operational requirements.

c. Any subcontractor(s) work, their work elements and associated costs related to the permit and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.7 UNSUITABLE SUBSURFACE MATERIALS ALLOWANCE ACCOUNT. If during the course of the construction, unsuitable subsurface and/or contaminated unclassified materials that have not been accounted for are encountered, the Contractor shall be reimbursed for the costs associated with handling in accordance with Specification Sections P-152 Excavation and Embankment, P-159 – Contaminated Soils and P-160 – Ground Water Control Procedures and Requirements through the use of the Unsuitable Subsurface Materials Allowance Account. All costs associated with the encountered unsuitable subsurface and/or contaminated unclassified materials shall be submitted to the CPM. Upon acceptance by all responsible parties, a CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

This account was established as a method of payment for the requirements identified in the following items:

a. Actual charges for handling, transporting, disposing, replacing, or remediating any areas of unsuitable subsurface and/or contaminated unclassified materials.

b. Agreed upon price from Contractor regarding the required work to meet the requirements outlined in Specification Sections P-152 Excavation and Embankment, P-159 – Contaminated Soils and P-160 – Ground Water Control Procedures and Requirements.
Upon notice by the Contractor of the discovery of unknown unsuitable subsurface and/or contaminated unclassified materials, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

- Defined requirements set forth for remediation of the unknown unsuitable subsurface and/or contaminated unclassified materials.

The Contractor shall provide on the electronic excel form the following items:

- Complete breakdown of the work elements.
- Associated costs and the allowable overhead and profit associated with each work element.
- Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

**METHOD OF MEASUREMENT**

**103-3.1** The measurement for FAA Change Allowance Account will be in accordance with the negotiated change to resolve the FAA requirement during construction per each occurrence. The change shall be submitted to the CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

**103-3.2** The measurement for Broward County Change Allowance Account will be in accordance with the negotiated change to resolve the Broward County requirement during construction per each occurrence. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

**103-3.3** The measurement for Utility Resolution Allowance Account will be in accordance with the actual fee charged by the utility for each identified area or for the actual cost incurred by the Contractor. The cost in this allowance associated with actual fees charged by the utility are pass-through costs (no mark up is permitted for utility company costs). The cost in this allowance associated with actual cost incurred by the Contractor may include allowable overhead and profit for work accomplished by the Contractor. Verification is required to be documented prior to payment. Agreed upon costs shall include all costs associated with moving the utility, removing the utility, providing the approved conflict structure(s), abandoning the utility, or grout filling the utility including mark ups. The item shall be measured based on the actual cost incurred by the Contractor.

**103-3.4** The measurement for Other Regulatory Agency Change Allowance Account will be in accordance with the negotiated change to resolve the other regulatory agency requirement(s) during construction per each occurrence. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

**103-3.5** The measurement for Regulatory Agency Permit Fees Allowance Account will be in accordance with the negotiated change to resolve regulatory agency permit fee requirement(s) during construction per each occurrence. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.
103-3.6 The measurement for Airside Maintenance of Traffic and Operational Requirements Allowance Account will be in accordance with the negotiated change to resolve the additional FAA; BCAD Maintenance, Planning, or Operations maintenance of traffic plans; phasing plans; or other operational requirements during construction per each occurrence. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

103-3.7 The measurement for Unsuitable Subsurface Materials Allowance Account will be in accordance with the actual cost incurred by the Contractor to handle, transport, dispose, replace, or remediate any areas of unsuitable subsurface material. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

**BASIS OF PAYMENT**

103-4.1 Payment will be made for each occurrence as a portion of the allowance amount for FAA Change requests. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.2 Payment will be made for each occurrence as a portion of the allowance amount for Broward County Change requests. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.3 Payment will be made for each occurrence as a portion of the allowance amount for Other Regulatory Agency change requests. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.4 Payment will be made for each occurrence as a portion of the allowance amount for Utility Resolution allowances. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.5 Payment will be made for each occurrence as a portion of the allowance amount for Regulatory Agency Permit Fees allowances. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.6 Payment will be made for each occurrence as a portion of the allowance amount for Airside Maintenance of Traffic and Operational Requirements allowances. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary...
103-4.7 Payment will be made for each occurrence as a portion of the allowance amount for Unsuitable Subsurface Materials allowances. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

Payment will be made under:

- Item G-103-4.1 FAA Change Allowance Account -- per Allowance
- Item G-103-4.2 Broward County Change Allowance Account – per Allowance
- Item G-103-4.3 Utility Resolution Allowance Account -- per Allowance
- Item G-103-4.4 Other Regulatory Agency Change Allowance Account – per Allowance
- Item G-103-4.5 Regulatory Agency Permit Fees Allowance Account – per Allowance
- Item G-103-4.6 Airside Maintenance of Traffic and Operational Requirement Allowance Account – per Allowance
- Item G-103-4.7 Unsuitable Subsurface Materials Allowance Account – per Allowance

END OF ITEM G-103
ITEM P-501 PORTLAND CEMENT CONCRETE PAVEMENT

DESCRIPTION

501-1.1 This work shall consist of pavement composed of Portland cement concrete, with reinforcement and without reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross sections shown on the plans. The concrete pavement for this project shall be mixed in a central plant or an on-site batch plant, delivered in non-agitating trucks and placed with slip-form equipment. Individual placement areas of less than 500 square yards, irregular areas, and other inaccessible areas to the slip-form equipment, paving concrete shall be placed with side forms.

501-1.2 End Product Responsibility. The Contractor is entirely responsible for the materials and processes that produce the end products specified in this specification. It is the Contractor’s responsibility to prove by means of a test section, constructed at the start of construction, that the process for constructing the concrete pavement is valid. The Engineer will determine if the Contractor’s materials and processes produce an end product that is in conformity with the plans and specifications. Tolerances to determine conformity for measurable components of the materials, processes, and end product are provided. When the Engineer determines that the materials furnished, work performed, or the finished product are not in conformity with the plans and specifications and result in an unacceptable product, the affected work or materials shall be removed and replaced or otherwise corrected at the Contractor’s expense in accordance with this specification.

501-1.3 Pre-Paving Conference. At least 7 days before and not more than 30 days before concrete placement, the Contractor and his team members shall attend a pre-paving conference with the Engineer and airport personnel to review project specific requirements related to the concrete paving and related project-planning activities. The conference shall be attended by at least the Contractor’s general superintendent, pavement superintendent, and plant manager for the project. The following are the minimum agenda items:

b. Critical material supply/availability issues.
c. Concrete plant and aggregate stockpile management.
d. Concrete paving requirements.
e. Paving schedule.
f. Weather management plan.
g. Test section requirements.
h. Contractor process testing.
i. Contractor acceptance testing requirements.
j. Engineer monitoring of acceptance testing.
k. Stop work authority on Contractor’s staff.
l. Stop work authority on Owner’s staff.
m. Issues and disputes resolution hierarchy.
MATERIALS

501-2.1 AGGREGATES.

Sources of aggregates shall be selected by the Contractor. There is no limit to the number of aggregate sizes that may be used or blended. Maximum aggregate size shall be selected by the Contractor and shall not be greater than 2-1/2 inches.

a. Reactivity. Aggregates shall be tested for deleterious reactivity with alkalis in the cement, which may cause excessive expansion of the concrete. Separate tests of individual coarse and fine aggregate shall be made in accordance with ASTM C 1260. If the expansion of coarse or fine aggregate test specimens, tested in accordance with ASTM C 1260, does not exceed 0.10 % at 28 days (30 days from casting), the coarse or fine aggregates shall be accepted. **Tests at 16 days are not acceptable. If the Contractor desires to use flyash as cement replacement, the contractor may proceed to conduct the tests in accordance to the following paragraph and not conduct the ASTM C1260 tests on the individual aggregates.**

**ASR Mitigation.** If the expansion of any aggregate, coarse or fine, at 28 days is greater than 0.10%, tests of combined materials shall be made in accordance with ASTM C 1567 using the aggregates, cementitious materials, and/or specific reactivity reducing chemicals in the proportions proposed for the mixture design. If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C 1567, does not exceed 0.10 % at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10 % at 28 days, or new aggregates shall be evaluated and tested.

b. Fine Aggregate. Fine aggregate shall be natural sand and conform to the requirements of ASTM C 33, except as specified herein. The fine aggregate shall meet the requirements for deleterious materials contained in ASTM C 33, Table 1. The finess modulus shall not be less than 2.3. There is no upper limit for finess modulus. Gradation shall meet the requirements of Table 1 when tested in accordance with ASTM C 33. When the nominal maximum size of the aggregate is greater than 1 in, the aggregates will be furnished in two size groups.

<table>
<thead>
<tr>
<th>Sieve Designation (Square Openings)</th>
<th>Percentage by Weight Passing Sieves</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 in. (9.5 mm)</td>
<td>100</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>95-100</td>
</tr>
<tr>
<td>No. 8 (2.36 mm)</td>
<td>85-100</td>
</tr>
<tr>
<td>No. 16 (1.18 mm)</td>
<td>50-85</td>
</tr>
<tr>
<td>No. 30 (600 μm)</td>
<td>25-60</td>
</tr>
<tr>
<td>No. 50 (300 μm)</td>
<td>10-30</td>
</tr>
<tr>
<td>No. 100 (150 μm)</td>
<td>2-10</td>
</tr>
</tbody>
</table>

c. Coarse Aggregate. Coarse aggregate shall conform to the requirements of ASTM C 33 except as specified herein. Gradation, within the separated size groups, shall meet the requirements of Table 2 when tested in accordance with ASTM C 136. When the nominal maximum size of the aggregate is greater than 1 in, the aggregates shall be furnished in two size groups.

Aggregates delivered to the mixer shall consist of crushed stone, crushed or uncrushed gravel, air-cooled blast furnace slag, crushed recycled concrete pavement, or a combination thereof. **Crushed concrete and steel furnace slag shall not be used as aggregate.** The aggregate shall be composed of clean, hard, uncoated particles and shall meet the requirements for deleterious substances contained in ASTM C 33, Class 1N. Dust-and-other-coating shall be removed from the aggregate by washing. **Aggregates BROWARD COUNTY WP-404/408 TECHNICAL SPECIFICATIONS**

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shall be washed. The aggregate in any size group shall not contain more than 8 percent by weight of flat or elongated pieces when tested in accordance with ASTM D 4791. A flat or elongated particle is one having a ratio between the maximum and the minimum dimensions of a circumscribing rectangular prism exceeding 5 to 1.

The percentage of wear shall be no more than 40 when tested in accordance with ASTM C 131 or ASTM C 535.

Aggregate Susceptibility to Disintegration (D) Cracking. Aggregates that have a history of D-cracking shall not be used. Prior to approval of mixture design and production of Portland cement concrete the Contractor shall submit written certification that the aggregate does not have a history of D-cracking and that the aggregate meets the specified State requirements.

(4) Other sources of crushed stone aggregate shall be approved if the durability factor as determined by ASTM C 666 is greater than or equal to 95 and all other quality test requirements within these specifications are fulfilled. The FAA will consider and reserves final approval of other State classification procedures.

(2) Crushed gravel and sand gravel aggregates shall not be required to meet freeze-thaw durability ratings. These aggregates shall be approved for use in concrete by the state highway agency in the state from which the aggregate originates and the state in which they are to be used and shall meet all other criteria within these specifications.

d. Combined Gradation. The Contractor shall combine the aggregates in the proportions proposed for the concrete mixture and evaluate on the following sieve sizes: 2½-inch, 2-inch, 1½ inch, 1-inch, %inch, ½-inch, ¾-inch, No. 4, No. 16, No. 30, No. 50, and No. 100.

The Contractor shall determine the Workability Factor (WF) and the Coarseness Factor (CF). The WF is the percentage of the combined aggregate by weight finer than the No. 8 sieve. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 94 pounds of cementitious material per cubic yard greater than 564 pounds per cubic yard. The CF is the percent of material by weight retained on the ½-inch sieve divided by the percent by weight of all the aggregate retained on the No. 8 sieve and multiplying the ratio by 100.

The aggregates, as proportioned, shall be deemed to have met the requirements of a combined aggregate gradation when the following criterion is met: The WF and CF shall be within the parallelogram ABCD of the Aggregate Constructability Chart (Figure 1). The combined aggregates, as proportioned, shall be rejected if the combined aggregate gradation criterion is not met. Contractor shall select the proper gradations that provides the proper concrete workability for slip-form paving, side-form paving and hand placement.
501-2.2 CEMENT. Cement shall conform to the requirements of ASTM C 150 Type I. Blended cements are not allowed. If for any reason, cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

Only The Contractor shall use cements containing less than 0.6% equivalent alkali or cements that can demonstrate a positive reduction in the expansion created by alkali-silica reactions shall be used only if aggregates are prone to alkali-silica reactivity as determined in the paragraph Reactivity. If the ASTM C 1260 tests were not conducted, the Contractor shall use cements containing less than 0.6% equivalent alkali.

501-2.3 CEMENTITIOUS MATERIALS.

a. Flyash or Natural Pozzolan. Flyash shall meet the requirements of ASTM C 618, Class F or N with the exception of loss of ignition, where the maximum shall be less than 6 percent. Class F or N flyash for use in mitigating alkali-silica reactivity shall have a Calcium Oxide (CaO) content of less than 13 percent and a total equivalent alkali content less than 3 percent. Flyash such as is produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable used. The Contractor shall furnish the previous three most recent, consecutive ASTM C-618 reports for each source of flyash proposed in the mix design, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Engineer.

b. Blast Furnace Slag (Slag Cement). Ground Granulated Blast Furnace (GGBF) slag shall conform to ASTM C 989, Grade 100 or 120. GGBF shall be used only at a rate between 25 and 55 percent of the total cementitious material by mass.
501-2.4 PREMOLDED JOINT FILLER. Premolded joint filler for isolation expansion joints shall conform to the requirements of ASTM D 1751 or ASTM D 1752, Type II or III and shall be punched to admit dowels where called for on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified by the Engineer. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the Engineer.

501-2.5 JOINT SEALER. The joint sealer for the joints in the concrete pavement shall meet the requirements of Item P-604 and Item P-605 and shall be of the type specified in the plans.

501-2.6 STEEL REINFORCEMENT. Reinforcing shall consist of Welded Wire Steel Fabric conforming to the requirements of ASTM A 185.

501-2.7 DOWEL AND TIE BARS. Tie bars shall be deformed steel bars and conform to the requirements of ASTM A 615 or ASTM A 996, except that rail steel bars, Grade 50 or 60, shall not be used for tie bars that are to be bent or restraightened during construction. Tie bars designated as Grade 40 in ASTM A615 can be used for construction requiring bent bars.

Dowel bars shall be plain steel bars conforming to ASTM A 615 Grade 40 or 60 or ASTM A 966 Grade 50 or 60 and shall be free from burring or other deformation restricting slippage in the concrete. High strength dowel bars shall conform to ASTM A 714, Class 2, Type S, Grade I, II or III, Bare Finish. Before delivery to the construction site each dowel bar shall be painted with one coat of paint conforming to MIL-DTL-24441/20A - SPCC Paint S or SPCC Paint 25. Dowels shall be epoxy coated in conformance with ASTM A 775. Grout retention rings shall be full circular metal or plastic devices supporting the dowel until the epoxy hardens. Dowel inserters shall not be used.

The sleeves for dowel bars used in expansion joints shall be metal or other type of an approved design to cover 2 to 3 in (50 mm to 75 mm) of the dowel, with a closed end and with a suitable stop to hold the end of the bar at least 1 in (25 mm) from the closed end of the sleeve. Sleeves shall be of such design that they will not collapse during construction.

501-2.8 WATER. Water used in mixing or curing shall be clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product. Water will be tested in accordance with the requirements of AASHTO T 26. Water known to be of potable quality may be used without testing.

501-2.9 COVER MATERIAL FOR CURING. Curing materials shall conform to one of the following specifications:

a. Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C 309, Type 2, Class B, or Class A if wax base only.

b. White polyethylene film for curing concrete shall conform to the requirements of ASTM C 171.

c. White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C 171.

d. Waterproof paper for curing concrete shall conform to the requirements of ASTM C 171.

501-2.10 ADMIXTURES. The use of any material added to the concrete mix shall be approved by the Engineer. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples.
taken by the Engineer from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-Entraining Admixtures. Air-entraining admixtures shall meet the requirements of ASTM C 260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent, and any water reducer admixture, and any other admixture shall be compatible.

b. Chemical Admixtures. Water-reducing, set retarding, and set-accelerating admixtures shall meet the requirements of ASTM C 494, including the flexural strength test. ASTM C 494 Type F and G high range water reducers and ASTM C 1017 flowable admixtures shall not be used.

501-2.11 EPOXY-RESIN. Epoxy-resin used to anchor dowels and tie-bars in pavements shall conform to the requirements of ASTM C 881, Type I, Grade 3, Class C. Class A or B shall be used when the surface temperature of the hardened concrete is below 60 °F (16 °C).

501-2.12 MATERIAL ACCEPTANCE. Prior to use of materials, the Contractor shall submit certified test reports to the Engineer for those materials proposed for use during construction. The certification shall show the appropriate ASTM test for each material, the test results, and a statement that the material passed or failed.

The Engineer may request samples for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

MIX DESIGN

501-3.1 PROPORTIONS. Concrete shall be designed to achieve a 28-day flexural strength that meets or exceeds the acceptance criteria contained in paragraph 501-5.2 for a flexural strength of 650 psi. The mix shall be designed using the procedures contained in Chapter 9.12 of the 15th Edition of the Portland Cement Association's manual, "Design and Control of Concrete Mixtures", American Concrete Institute ACI 211.1 procedures or federal agency design guide for dense graded concrete mixes.

The Contractor shall note that to ensure that the concrete actually produced will meet or exceed the acceptance criteria for the specified strength, the mix design average strength must be higher than the specified strength. The amount of overdesign necessary to meet specification requirements depends on the producer's standard deviation of flexural test results and the accuracy that that value can be estimated from historic data for the same or similar materials.

The minimum cementitious material (cement plus flyash, or GGBFS) shall be 517 pounds per cubic yard (47 kg per cubic meter). The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall not be more than 0.5 by weight.

Prior to the start of paving operations and after approval of all material to be used in the concrete, the Contractor shall submit a mix design showing the proportions and flexural strength obtained from the concrete at 1, 3, 7, 14, and 28 days. The mix design shall include copies of test reports, including test dates, and a complete list of materials including type, brand, source, and amount of cement, flyash, ground slag, coarse aggregate, fine aggregate, water, and admixtures. The fineness modulus of the fine aggregate and the air content shall also be shown. The mix design shall be submitted to the Engineer at least 30 days prior to the start of operations. The submitted mix design shall not be more than 90 days old. Production shall not begin until the mix design is approved in writing by the Engineer.

Should a change in sources be made, or admixtures added or deleted from the mix, a new mix design must be submitted to the Engineer for approval. Previously approved mix designs for airfield paving older than 90 days shall not be used without reapproval.
Flexural strength test specimens shall be prepared in accordance with ASTM C 192 and tested in accordance with ASTM C 78. The mix determined shall be workable concrete having a slump (taken at the site of placement) for side-form concrete between 1 and 2 in (25 mm and 50 mm) as determined by ASTM C 143. For vibrated slip-form concrete, the slump shall be between \(\frac{1}{2}\) in (13 mm) and \(\frac{3}{4}\) in (19 mm) selected by the Contractor to produce in-place pavement meeting the specified tolerance for control of edge slump. The selected slump shall be applicable for both pilot and fill-in lanes.

501-3.2 CEMENTITIOUS MATERIALS.

a. Flyash. Flyash may be used in the mix design. When flyash is used as a partial replacement for cement, the minimum cement content may be met by considering Portland cement plus flyash as the total cementitious material. The replacement rate shall be determined from laboratory trials, but shall be between 20 and 30 percent by weight of the total cementitious material. If flyash is used in conjunction with ground granular blast furnace slag the maximum replacement rate shall not exceed 10 percent by weight of total cementitious material.

b. Ground Slag. Ground blast-furnace slag may be used in a mix design containing Type I or Type II cement. The slag, or slag plus flyash if both are used, may constitute between 25 to 55 percent of the total cementitious material by weight. If the concrete is to be used for slipforming operations and the air temperature is expected to be lower than 55 °F (13 °C) the percent slag shall not exceed 30 percent by weight.

501-3.3 ADMIXTURES.

a. Air-Entraining. Air-entraining admixture shall be added in such a manner that will insure uniform distribution of the agent throughout the batch. The air content of freshly mix air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be as shown below. Air content shall be determined by testing in accordance with ASTM C 231 for gravel and stone coarse aggregate and ASTM C 173 for slag and other highly porous coarse aggregate.

<table>
<thead>
<tr>
<th>Exposure Level</th>
<th>Maximum Size Aggregate</th>
<th>2&quot;</th>
<th>1(\frac{1}{2})&quot;</th>
<th>1&quot;</th>
<th>8&quot;</th>
<th>5&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td></td>
<td>2.0%</td>
<td>2.5%</td>
<td>3.0%</td>
<td>3.5%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

b. Chemical. Water-reducing, set-controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, in accordance with ASTM C 494. No admixture shall be added to the mix without trial mixes and approval by the Engineer.

501-3.4 CONCRETE MIX DESIGN LABORATORY. The Contractor's laboratory used to develop the concrete mix design shall meet the requirements of ASTM C 1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix design must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction and shall contain as a minimum:

a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.

b. A statement that the equipment used in developing the mix design is in calibration.
c. A statement that each test specified in developing the mix design is offered in the scope of the laboratory's services.

d. A copy of the laboratory's quality control system.

CONSTRUCTION METHODS

501-4.1 EQUIPMENT. Equipment necessary for handling materials and performing all parts of the work shall be approved by the engineer as to design, capacity, and mechanical conditions. The equipment shall be at the jobsite sufficiently ahead of the start of paving operations to be examined thoroughly and approved.

The Consultant will consider for review offsite Batch Plants meeting the requirements of 501-4.1. This includes “Central Plant Mixer.” Submittal(s) not having “Central Plant Mixer” meeting the specifications will be rejected.

a. Batch Plant and Equipment. If Contractor utilizes an on-site batch plant, the batch and mix plant shall be located on the project site as indicated in the drawings. The batch plant and equipment shall conform to the requirements of ASTM C 94. Contractor/bidder is responsible to define, determine capacity, determine requirements, design, permit, install, etc. any utilities or supporting elements required for the batch plant as well as any other construction system.

b. Mixers and Transportation Equipment.

(1) General. Concrete may-shall be mixed at a central plant, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

(2) Central plant mixer. Central plant mixers shall conform to the requirements of ASTM C 94. The mixer shall be capable of combining the materials into a uniform mixture and of discharging this mixture without segregation. The mixer shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 in (19 mm) or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.

(3) Truck mixers and truck agitators. Truck mixers used for mixing and hauling concrete and truck agitators used for hauling central-mixed concrete shall conform to the requirements of ASTM C94. Truck mixers and truck agitator shall not be used to transport paving concrete.

(4) Nonagitator trucks. Concrete shall be transported to the paving site in nonagitating equipment. Nonagitating hauling equipment shall conform to the requirements of ASTM C 94.

c. Finishing Equipment. The standard method of constructing concrete pavements on FAA projects for this project shall be with an approved slip-form paving equipment. The paver-finisher shall be a heavy-duty, self-propelled slip-form machine designed to spread, consolidate, screed, and float-finish the freshly placed concrete in one complete pass of the machine so a dense and homogeneous pavement is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements. It shall weigh at least 2200 lbs. per foot of paving lane width and powered by an engine having at least 6.0 horsepower per foot of lane width.

On projects requiring less than 500 sq yd of cement concrete pavement or requiring individual placement areas of less than 500 sq yd, or irregular areas at locations inaccessible to slip-form paving equipment, cement concrete pavement may be placed with approved placement and
finishing equipment using stationary side forms. Hand screeding and float finishing may only be used on small irregular areas as allowed by the Engineer.

d. Vibrators. Vibrator shall be the internal type. Operating frequency for internal vibrators shall be between 8,000 and 12,000 vibrations per minute. Average amplitude for internal vibrators shall be 0.025—0.05 in (0.06—0.13 cm). The number, spacing, and frequency shall be as necessary to provide a dense and homogeneous pavement and meet the recommendations of ACI 309, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the Engineer. As a general guideline, operating frequency for internal vibrators may be between 8,000 and 12,000 vibrations per minute, and average amplitude for internal vibrators may be 0.025—0.05 in (0.06—0.13 cm). Hand held vibrators may be used in irregular areas only, but shall meet the recommendations of ACI 309, Guide for Consolidation of Concrete.

e. Concrete Saws. The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations.

f. Side Forms. Side-form paving shall be used in accordance to paragraph 501-4.1.c Finishing Equipment. Straight side forms shall be made of steel and shall be furnished in sections not less than 10 feet (3 m) in length. Forms shall have a depth equal to the pavement thickness at the edge, and a base width equal to or greater than the depth. Flexible or curved forms of proper radius shall be used for curves of 100 ft (31 m) radius or less. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 in (3 mm) in 10 ft (3 m), and the upstanding leg shall not vary more than 1/4 in (6 mm). The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the Engineer.

g. Pavers. The paver shall be fully energized, self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement, true to grade, tolerances, and cross section. It shall be of sufficient weight and power to construct the maximum specified concrete paving lane width as shown in the plans, at adequate forward speed, without transverse, longitudinal or vertical instability or without displacement. The paver shall be equipped with electronic or hydraulic horizontal and vertical control devices. The slip-form paver shall be automatically controlled from taut wire guideline for horizontal alignment and on both sides from a taut wire guideline for vertical alignment, except that electronic control from a ski operating on a previously constructed adjoining lane shall be used where applicable for either or both sides. Automatic, electronic controls for vertical alignment shall always be used on both sides of the lane. Control from a slope-adjusted control or control operating from the underlying material shall never be used. Stringless guidance systems can be used providing it is a 3D machine control system where the target horizontal and vertical alignment is a digital terrain model. The system shall be fault tolerant in which the system cannot be affected by any electrical interference on or around the equipment. If the Contractor plans to use any type of stringless guidance system, the Contractor shall submit a detail description of the system and perform a trial field demonstration in the presence of the Engineer during the test section procedures. Approval of the systems will be based on the results of the demonstration and on continuing satisfactory operations during paving.

501-4.2 FORM SETTING. Side-form paving shall be used in accordance to paragraph 501-4.1.c Finishing Equipment. Forms shall be set sufficiently in advance of the concrete placement to
insure continuous paving operation. After the forms have been set to correct grade, the underlying surface shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place sufficiently to maintain the form in position for the method of placement.

Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/8 in (3 mm) at any joint. Forms shall be so set that they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete.

**501-4.3 CONDITIONING OF UNDERLYING SURFACE.** The compacted underlying surface on which the pavement will be placed shall be widened approximately 3 ft (1 m) to extend beyond the paving machine track to support the paver with no noticeable displacement. After the underlying surface has been placed and compacted to the required density, the areas that will support the paving machine and the area to be paved shall be trimmed or graded to the plan grade elevation and profile by means of a properly designed machine. The grade of the underlying surface shall be controlled by a positive grade control system using lasers, stringlines, or guide wires. If the density of the underlying surface is disturbed by the trimming operations, it shall be corrected by additional compaction and retested at the option of the Engineer before the concrete is placed except when stabilized subbases are being constructed. If damage occurs on a stabilized subbase, it shall be corrected full depth by the Contractor in accordance with the stabilized subbase specification. If traffic is allowed to use the prepared grade, the grade shall be checked and corrected immediately before the placement of concrete. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete. The underlying surface shall be protected so that it will be entirely free of frost when concrete is placed clean, free of dirt, debris, and other undesirable materials.

*If an asphalt subbase is used, the asphalt base shall be whitewashed. Whitewashing consists of either white-pigmented curing compound or lime slurry sprayed on the surface applied at a rate of one gallon to not more than 100 square feet. The cost of whitewashing is incidental to the cost of Portland Cement Concrete Pavement.*

**501-4.4 CONDITIONING OF UNDERLYING SURFACE, SIDE-FORM AND FILL-IN LANE CONSTRUCTION.** The prepared underlying surface shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from the concrete. Damage caused by hauling or usage of other equipment shall be corrected and retested at the option of the Engineers. If damage occurs to a stabilized subbase, it shall be corrected full depth by the Contractor. A template shall be provided and operated on the forms immediately in advance of the placing of all concrete. The template shall be propelled only by hand and not attached to a tractor or other power unit. Templates shall be adjustable so that they may be set and maintained at the correct contour of the underlying surface. The adjustment and operation of the templates shall be such as will provide an accurate retest of the grade before placing the concrete thereon. All excess material shall be removed and wasted. Low areas shall be filled and compacted to a condition similar to that of the surrounding grade. **The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily.** The underlying surface shall be protected so that it will be entirely free from frost when the concrete is placed. The use of chemicals to eliminate frost in the underlying surface shall not be permitted. **The underlying surface shall be cleaned, free of dirt, debris, and other undesirable materials.**

The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily.
501-4.5 HANDLING, MEASURING, AND BATCHING MATERIAL. The batch plant site, layout, equipment, and provisions for transporting material shall assure a continuous supply of material to the work. Stockpiles shall be constructed in such a manner that prevents segregation and intermixing of deleterious materials. **Stockpiles shall be tiered in layers not exceeding 12 feet high for one size aggregates, and shall be not more than 6 feet high for aggregate gradations that contain uniform percentages of varying size particles.**

Aggregates that have become segregated or mixed with earth or foreign material shall not be used and shall be rejected by the Engineer. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipments requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage.

Batching plants shall be equipped to proportion aggregates and bulk cement, by weight, automatically using interlocked proportioning devices of an approved type. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, such as a chute, boot, or other approved device, to prevent loss of cement. The device shall be arranged to provide positive assurance that the cement content specified is present in each batch.

501-4.6 MIXING CONCRETE. The concrete may—shall be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C 94.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in non-agitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. Retempering concrete by adding water or by other means will not be permitted.

With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified in the approved mix design is not exceeded, and approved by the Engineer.

501-4.7 LIMITATIONS ON MIXING AND PLACING. No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

a. Cold Weather. Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40 °F (4 °C) and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35 °F (2 °C). **The temperature of the mixed concrete shall not be less than 50 °F (10 °C) at the time of placement.**

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 50 °F (10 °C) at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150 °F (66 °C). The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

b. Hot Weather. During periods of hot weather when the maximum daily air temperature exceeds 85 °F (30 °C), the following precautions shall be taken.
The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90° F (35 °C). The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.

The finished surfaces of the newly laid pavement shall be kept damp by applying a water-fog or mist with approved spraying equipment until the pavement is covered by the curing medium. If necessary, wind screens shall be provided to protect the concrete from an evaporation rate in excess of 0.2 psf per hour as determined in accordance with Figure 2.1.5 in ACI 305R, Hot Weather Concreting, which takes into consideration relative humidity, wind velocity, and air temperature. For fast computation use Eq. 8 of ACI materials journal, V95, No 4 July-August 1993.

When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. Such measures shall consist of wind screens, more effective fog sprays, and similar measures commencing immediately behind the paver. If these measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

c. Temperature Management Program. Prior to the start of paving operation for each day of paving, the contractor shall provide the engineer with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. As a minimum the program shall address the following items:

1) Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

2) Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity.

3) Anticipated timing of initial sawing of joint.

d. Protecting Concrete from Rain Damage. The Contractor’s Weather Management shall include provision to protect freshly placed concrete from rain damage. If rain appears imminent, the contractor shall not place concrete. The Contractor shall keep on-site sufficient water proof material and means to rapidly place the waterproof material over all unhardened concrete surface that may be damaged by rain. Concrete shall not be placed during rain that results in any standing water on the surface of the fresh concrete surface.

The Contractor shall not attempt to remove any rainwater from the unhardened concrete surface prior to application of the waterproof material. The Contractor shall also not manually finish or texture the freshly place concrete if there is any rainwater on the concrete surface. At the end of the rainstorm, the Contractor shall remove the waterproof material, allow any standing rainwater to evaporate, and apply curing material.

Rain-damaged concrete shall be cored as directed by the Designer and depth of damage determined by petrographic examination. If the depth of damage is ¼ inch or less of the pavement thickness, the damaged area may be corrected by diamond grinding as directed by the Engineer. If the damage is greater that ¼ inch of the pavement thickness, the slab shall be considered defective and replaced in accordance with paragraph 501-4.19 REPAIR, REMOVAL, and REPLACEMENT OF SLABS.

e. Documentation of Weather Data. The Contractor shall provide a continuous and accurate record of air temperature, relative humidity, concrete temperature and wind velocity at the project site with portable weather station, adjacent to paving areas(s). The data shall be
collected and documented by the Contractor continuously for the full duration of the project. The Contractor's quality control staff shall document the weather data in the daily Quality Control Reports and use and implement the data to eliminate the potential for plastic cracking of Portland cement concrete pavement by estimation the evaporation rate from Figure 2.1.5 in ACI 305R or Eq. 8 of the ACI Materials Journal.

501-4.8 PLACING CONCRETE. The Contractor has the option of placing the concrete with either side (fixed) forms or slip-forms, except as indicated by the Engineer. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 ft (1 m). Backhoes and Grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used unless the contractor demonstrates that they can be used without contaminating the concrete and base course and it is approved by the Engineer.

Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a flexural strength of 550 psi, based on the average of four field cured specimens per 2,000 cubic yards (1,530 cubic meters) of concrete placed. Also, subgrade and subbase planers, concrete pavers, and concrete finishing equipment may be permitted to ride upon the edges of previously constructed pavement when the concrete has attained a minimum flexural strength of 400 psi. The flexural strength of the concrete shall be determined in accordance with paragraph 501-4.18 Opening to Traffic.

a. Slip-Form Construction. The concrete shall be distributed uniformly into final position by a self propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well defined edges. The sliding forms shall be rigidly held together laterally to prevent spreading of the forms.

The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 in. The spacing of internal units shall be uniform and shall not exceed 18 in.

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be within 8000 to 12000 cycles per minute or as required to adequately consolidate the concrete, and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least 1 ft. The frequency of vibration or amplitude shall vary proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible. And all operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.
b. Side-Form Construction. Side form sections shall be straight, free from warps, bends, indentations, or other defects. Defective forms shall be removed from the work. Metal side forms shall be used except at end closures and transverse construction joints where straight forms of other suitable material may be used.

Side forms may be built up by rigidly attaching a section to either top or bottom of forms. If such build-up is attached to the top of metal forms, the build-up shall also be metal.

Width of the base of all forms shall be equal to at least 80 percent of the specified pavement thickness.

Side forms shall be of sufficient rigidity, both in the form and in the interlocking connection with adjoining forms, that springing will not occur under the weight of subgrading and paving equipment or from the pressure of the concrete. The Contractor shall provide sufficient forms so that there will be no delay in placing concrete due to lack of forms.

Before placing side forms, the underlying material shall be at the proper grade. Side forms shall have full bearing upon the foundation throughout their length and width of base and shall be placed to the required grade and alignment of the finished pavement. They shall be firmly supported during the entire operation of placing, compacting, and finishing the pavement.

Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and oiled each time they are used and before concrete is placed against them.

Concrete shall be spread, screeded, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery.

Concrete for the full paving width shall be effectively consolidated by internal vibrators without causing segregation. Internal type vibrators' rate of vibration shall be not less than 7,000 cycles per minute. Amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete more than 1 ft from the vibrating element. The Contractor shall furnish a tachometer or other suitable device for measuring and indicating frequency of vibration.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete.

c. Consolidation Testing. The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete.
hardened concrete. If a lack of consolidation of the concrete is suspected by the Engineer, additional referee testing may be required. Referee testing of hardened concrete will be performed by cutting cores from the finished pavement after a minimum of 24 hours curing. Density determinations will be made based on the water content of the core as taken. ASTM C 642 shall be used for the determination of core density in the saturated-surface dry condition. Referee cores will be taken at the minimum rate of one for each 500 cubic yards of pavement, or fraction thereof.

The average density of the cores shall be at least 97 percent of the original mix design density, with no cores having a density of less than 96 percent of the original mix design density.

Failure to meet the above requirements will be considered as evidence that the minimum requirements for vibration are inadequate for the job conditions, and additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete as indicated by further referee testing shall conform to the above listed requirements.

501-4.9 STRIKE-OFF OF CONCRETE AND PLACEMENT OF REINFORCEMENT. Following the placing of the concrete, it shall be struck off to conform to the cross section shown on the plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screeded. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading. For reinforced concrete, the reinforcement shall be placed and secured on approved chairs as detailed in the drawings. The Contractor shall provide enough chairs to avoid sagging of the reinforcement during concrete placement. Reinforcement shall not be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

501-4.10 JOINTS. Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2 in (13 mm) from their designated position and shall be true to line with not more than 1/4 in (6 mm) variation in 10 ft (3 m). The surface across the joints shall be tested with a 10 ft (3 m) straightedge as the joints are finished and any irregularities in excess of 1/4 in (6 mm) shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

a. Construction. Longitudinal construction joints shall be slip-formed or formed against side forms with or without keyways, as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.
b. Contraction. Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 in (3 mm) wide and to the depth shown on the plans.

c. Expansion–Isolation. Expansion–Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface. A solid cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck off, the cap shall be carefully withdrawn leaving the space over the premolded filler. The edges of the joint shall be finished and tooled while the concrete is still plastic. Any concrete bridging the joint space shall be removed for the full width and depth of the joint.

d. Keyways. Keyways (only female keys permitted) shall be formed in the plastic concrete by means of side forms or the use of keyway liners that are inserted during the slip–form operations. The keyway shall be formed to a tolerance of 1/4 in (6 mm) in any dimension and shall be of sufficient stiffness to support the upper keyway flange without distortion or slumping of the top of the flange. The dimensions of the keyway forms shall not vary more than plus or minus 1/4 in (6 mm) from the mid–depth of the pavement. Liners that remain in place permanently and become part of the keyed joint shall be made of galvanized, copper–clad, or of similar rust–resistant material compatible with plastic and hardened concrete and shall not interfere with joint reservoir sawing and sealing.

d. Tie bars. Tie bars shall consist of deformed bars installed in joints as shown on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth. When tie bars extend into an unsaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. These bars shall not be painted, greased, or enclosed in sleeves. When slip–form operations call for tie bars, two–piece hook bolts can be installed in the female side of the keyed joint provided the installation is made without distorting the keyed dimensions or causing edge slumps. If a bent tie bar installation is used, the tie bars shall be inserted through the keyway liner only on the female side of the joint. In no case shall a bent tie–bar installation for male keyways be permitted.

ef. Dowel bars. Dowel bars or other load-transfer units of an approved type shall be placed across joints in the manner as shown on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. A metal, or other type, dowel expansion cap or sleeve shall be furnished for each dowel–bar used with expansion joints. These caps shall be substantial enough to prevent collapse and shall be placed on the ends of the dowels as shown on the plans. The caps or sleeves shall fit the dowel–bar tightly and the closed–end shall be watertight. The portion of each dowel painted with rust preventative paint, as required under paragraph 501-2.7 and shown on the plans to receive a debonding lubricant, shall be thoroughly coated with asphalt MC–70, or an approved lubricant, to prevent the concrete from bonding to that portion of the dowel. If free–sliding plastic–coated or epoxy–coated steel dowels are used, a lubrication bond breaker shall be used except when approved pullout tests indicate it is not necessary. Where butt–type joints with dowels are designated, the exposed end of the dowel shall be oiled.
Dowel bars at contraction joints may be placed in the full thickness of pavement by a mechanical device approved by the Engineer. The device shall be capable of installing dowel bars within the maximum permissible alignment tolerances. Dowels bars at longitudinal construction joints shall be bonded in drilled holes.

fg. Installation. All devices used for the installation of expansion joints shall be approved by the Engineer.

The top of an assembled joint device shall be set at the proper distance below the pavement surface and the elevation shall be checked. Such devices shall be set to the required position and line and shall be securely held in place by stakes or other means to the maximum permissible tolerances during the pouring and finishing of the concrete. The premolded joint material shall be placed and held in a vertical position; if constructed in sections, there shall be no offsets between adjacent units.

Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerances on dowel bar alignment shall be in accordance with paragraph 501-5.2e(6). During the concrete placement operation, it is advisable to place plastic concrete directly on dowel assemblies immediately prior to passage of the paver to help maintain dowel position and alignment within maximum permissible tolerances.

When concrete is placed using slip-form pavers, dowels and tie bars shall be placed in longitudinal construction joints by bonding the dowels or tie bars into holes drilled into the hardened concrete. Holes approximately 1/8 in to 1/4 in (3 to 6 mm) greater in diameter than the dowel or tie bar shall be drilled with rotary-type core drills that must be held securely in place to drill perpendicularly into the vertical face of the pavement slab. **Dowel holes may be drilled when the concrete has achieved a flexural strength of 400 psi.** The flexural strength of the concrete shall be determined in accordance with paragraph 501-4.18 Opening to Traffic. Rotary-type percussion drills may be used provided that spalling of concrete does not occur. Any damage of the concrete shall be repaired by the Contractor in a method approved by the Engineer. Dowels or tie bars shall be bonded in the drilled holes using an epoxy resin material. Installation procedures shall be adequate to insure that the area around dowels is completely filled with epoxy grout. Epoxy shall be injected into the back of the hole and displaced by the insertion of the dowel bar. Bars shall be completely inserted into the hole and shall not be withdrawn and reinserted creating air pockets in the epoxy around the bar. The Contractor shall furnish a template for checking the position and alignment of the dowels. Dowel bars shall not be less than 10 in (25 cm) from a transverse joint and shall not interfere with dowels in the transverse direction.

gh. Sawing of Joints. Joints shall be cut as shown on the plans. Equipment shall be as described in paragraph 501-4.1. The circular cutter shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/8 in (3 mm) wide and to the depth shown on the plans. The top portion of the slot shall be widened by sawing to provide adequate space for joint sealers as shown on the plans. Sawing shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs. Sawing shall be carried on both during the day and night as required. The joints shall be sawed at the required spacing, consecutively in sequence of the concrete placement or as approved by the Engineer. Curing compound, if being used as the cure type, shall be reapplied in the initial sawcut and maintained for the remaining cure period. Curing compound shall not be applied, and used as the cure method, to any final concrete face that is to receive a sealant. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing.

501-4.11 FINAL STRIKE-OFF, CONSOLIDATION, AND FINISHING.

a. Sequence. The sequence of operations shall be the strike-off, floating and removal of laitance, straightedging, and final surface finish. The addition of superficial water to the surface of the concrete to assist in finishing operations will **shall** not be permitted. **During extreme hot weather conditions,**
the Engineer may allow a light fog spray to be used to assist in finishing operations. The light fog spray shall be approved by the Engineer.

b. Finishing at Joints. The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material; it shall be firmly placed without voids or segregation under and around all load-transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated as required in paragraph 501-4.8.a. After the concrete has been placed and vibrated adjacent to the joints, the finishing machine shall be operated in a manner to avoid damage or misalignment of joints. If uninterrupted operations of the finishing machine, to, over, and beyond the joints, cause segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the screed is approximately 8 in (20 cm) from the joint. Segregated concrete shall be removed from the front of and off the joint; and the forward motion of the finishing machine shall be resumed. Thereafter, the finishing machine may be run over the joint without lifting the screed, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.

c. Machine Finishing. The concrete shall be spread as soon as it is placed, and it shall be struck-off and screeded by a finishing machine. The machine shall go over each area as many times and at such intervals as necessary to give to proper consolidation and to leave a surface of uniform texture. Excessive operation over a given area shall be avoided. Paving equipment for slip-form paving shall be in accordance with paragraph 501-4.1.c Finishing Equipment. The slip-form paver shall shape the concrete to the specified and indicated cross section, meeting all tolerances, in one pass. The slip-form paver shall finish the surface and edges so that only a very minimum isolated amount of hand finish is required. If the paving operation does not meet the above requirements and the specified tolerances, immediately stop the operation, replace or modify any equipment as necessary, modify paving procedures or modify the concrete mix in order to resolve the problem.

When side forms are used in placement areas less than 500 square yards, the tops of the forms shall be kept clean by an effective device attached to the machine, and the travel of the machine on the forms shall be maintained true without lift, wobbling, or other variation tending to affect the precision finish. During the first pass of the finishing machine, a uniform ridge of concrete shall be maintained ahead of the front-screed for its entire length. The machine shall make only one pass over each areas of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operations shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary. When in operation, the screed shall be moved forward with a combined longitudinal and transverse shearing motion, always moving in the direction in which the work is progressing, and so manipulated that neither end is raised from the side forms during the striking-off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross section, and free from porous areas.

d. Hand Finishing. Hand finishing methods will not be permitted, except under the following conditions: in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade; in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used.

The screed for the surface shall be a least 2 feet (0.6 m) longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and shall be constructed either of metal or of other suitable material covered with metal. Consolidation shall be attained by the use of suitable vibrators. A second screed shall be provided for striking off the bottom layer of concrete when reinforcement is used.

e. Floating. After the concrete has been struck off and consolidated, it shall be further smoothed and trued by means of a longitudinal float using one of the following methods:
(1) **Hand Method.** Long-handled floats shall not be less than 12 feet (3.6 m) in length and 6 in (15 cm) in width, stiffened to prevent flexibility and warping. The float shall be operated from foot bridges spanning but not touching the concrete or from the edge of the pavement. Floating shall pass gradually from one side of the pavement to the other. Forward movement along the centerline of the pavement shall be in successive advances of not more than one-half the length of the float. Any excess water or laitance in excess of 1/8 in (3 mm) thick shall be removed and wasted.

(2) **Mechanical method.** The Contractor may use a machine composed of a cutting and smoothing floats, suspended from and guided by a rigid frame and constantly in contact with, the side forms or underlying surface. If necessary, long-handled floats having blades not less than 5 feet (1.5 m) in length and 6 in (15 cm) in width may be used to smooth and fill in open-textured areas in the pavement. When the crown of the pavement will not permit the use of the mechanical float, the surface shall be floated transversely by means of a long-handed float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance in excess of 1/8 in (3 mm) thick shall be removed and wasted. Successive drags shall be lapped one-half the length of the blade.

**f. Straight-edge Testing and Surface Correction.** After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a Contractor furnished 16 ft (5 m) straightedge swung from handles 3 feet (1 m) longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 in (3 mm) thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements of paragraph 501-5.2e(3). Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

**501-4.12 SURFACE TEXTURE.** The surface of the pavement shall be finished with either a brush or broom, burlap drag, or artificial turf finish for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the Engineer.

**a. Brush or Broom Finish.** If the pavement surface texture is to be a type of brush or broom finish, it shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface, providing corrugations that are uniform in appearance and approximately 1/16 of 1 in (2 mm) in depth.

**b. Burlap Drag Finish.** If a burlap drag is used to texture the pavement surface, it shall be at least 15 ounces per square yard (555 grams per square meter). To obtain a textured surface, the transverse threads of the burlap shall be removed approximately 1 ft (0.3 m) from the trailing edge. A heavy buildup of grout on the burlap threads produces the desired wide sweeping longitudinal striations on the pavement surface. The corrugations shall be uniform in appearance and approximately 1/16 in (2 mm) in depth.

**c. Artificial Turf Finish.** If artificial turf is used to texture the surface, it shall be applied by dragging the surface of the pavement in the direction of concrete placement with an approved full-width drag made with artificial turf. The leading transverse edge of the artificial turf drag will be securely fastened to a lightweight pole on a traveling bridge. At least 2 feet of the artificial turf shall be in contact with the concrete surface during dragging operations. A variety of different types of artificial turf are available and approval of any one type will be done only after it has been demonstrated by the Contractor to provide a satisfactory texture. One type that has provided satisfactory texture consists of 7,200
approximately 0.85 inch-long polyethylene turf blades per square foot. The corrugations shall be uniform in appearance and approximately 1/16 in (2 mm) in depth.

**SKID-RESISTANT SURFACES SAW-CUT GROOVING.** If shown on the plans, skid-resistant surfaces for asphalt pavements shall be provided by construction of saw-cut grooves as shown in the plans. Saw-cut grooves must meet the requirements of Item P-621.

**501-4.14 CURING.** Immediately after finishing operations are completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-sawcut method is used to construct the contraction joint, the curing compound shall be applied to the sawcut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

a. **Impervious Membrane Method.** The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of 1 gallon (4 liters) to not more than 150 sq ft (14 sq m). The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application the compound shall be stirred continuously by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the Engineer, a double application rate shall be used to insure coverage. The curing compound shall be of such character that the film will harden within 30 minutes after application. Should the film become damaged from any cause, including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

b. **Polyethylene Films.** The top surface and sides of the pavement shall be entirely covered with polyethylene sheeting. The units shall be lapped at least 18 in (457 mm). The sheeting shall be placed and weighted to cause it to remain in contact with the surface and sides. The sheeting shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the pavement. Unless otherwise specified, the sheeting shall be maintained in place for 7 days after the concrete has been placed. This sheeting will be on site to protect fresh pavement from unanticipated rain events that could mar the surface finish.

c. **Waterproof Paper.** The top surface and sides of the pavement shall be entirely covered with waterproofed paper. The units shall be lapped at least 18 in (457 mm). The paper shall be placed and weighted to cause it to remain in contact with the surface covered. The paper shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the slab. The surface of the pavement shall be thoroughly saturated prior to placing of the paper. Unless otherwise specified, the paper shall be maintained in place for 7 days after the concrete has been placed.

cd. **White Burlap-Polyethylene Sheets.** The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the
entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for 7 days after the concrete has been placed.

(1) Curing in Cold Weather. The concrete shall be maintained at a temperature of at least 50 °F (10 °C) for a period of 72 hours after placing and at a temperature above freezing for the remainder of the curing time. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather, and any concrete injured by frost action—low temperatures shall be removed and replaced at the Contractor’s expense.

e. Water Method. The entire area shall be covered with burlap or other water-absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for 7 days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.

501-4.15 REMOVING FORMS. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently for at least 12 hours to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured as outlined in one of the methods indicated in paragraph 501-4.14. Major honeycombed areas shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-5.2(f).

501-4.16 SEALING JOINTS. The joints in the pavement shall be sealed in accordance with Item P-605.

501-4.17 PROTECTION OF PAVEMENT. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor’s employees and agents. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor’s expense. The Contractor shall have available at all times, materials for the protection of the edges and surface of the unhardened concrete. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

501-4.18 OPENING TO TRAFFIC. The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C 31 have attained a flexural strength of 550 lb / sq in (3,792 kPa) when tested in accordance with ASTM C 78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion. The pavement shall be cleaned before opening for normal operations.

501-4.19 REPAIR, REMOVAL, REPLACEMENT OF SLABS.

a. General. New pavement slabs that are broken or contain cracks shall be removed and replaced or repaired—as specified hereinafter at no cost to the Owner. Spalls along joints not exceeding 15 percent of each slab’s longitudinal joint edge shall be repaired as specified. Slabs exceeding this quantity regardless of spall size shall be removed and replaced. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The engineer—will
determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be 4 in (100 mm) in diameter, shall be drilled by the Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the walls of the hole with epoxy resin, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the owner. All epoxy resin used in this work shall conform to ASTM C 881, Type V.

b. Shrinkage Cracks. Shrinkage cracks, which do not exceed 4 in in depth, shall be cleaned and then pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. Care shall be taken to assure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the Engineer. Shrinkage cracks, which exceed 4 in in depth, shall be treated as full depth cracks in accordance with paragraphs 4.19b and 4.19e.

c. Slabs With Cracks through Interior Areas. Interior area is defined as that area more than 6 in (600 mm) from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the owner, when there are any full depth cracks, or cracks greater than 4" in depth, that extend into the interior area.

d. Cracks Close To and Parallel To Joints. All cracks essentially parallel to original joints, extending full depth of the slab, and lying wholly within 6 in either side of the joint shall be treated as specified hereinafter. Any crack extending more than 6 in (600 mm) from the joint shall be treated as specified above in subparagraph "Slabs With Cracks Through Interior Area."

(1) Full Depth Cracks Present, Original Joint Not Opened. When the original uncracked joint has not opened, the crack shall be sawed and sealed, and the original joint filled with epoxy resin as specified below. The crack shall be sawed with equipment specially designed to follow random cracks. The reservoir for joint sealant in the crack shall be formed by sawing to a depth of 3/4 in (19 mm), plus or minus 1/16 in (1.6 mm), and to a width of 5/8 in (16 mm), plus or minus 1/8 in (3.2 mm). Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent such raveling or spalling. The joint sealant shall be a liquid sealant as specified. Installation of joint seal shall be as specified for sealing joints or as directed. If the joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly tooled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. If filler type material has been used to form a weakened plane in the transverse joint, it shall be completely sawed out and the saw cut pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remained of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.

(2) Full Depth Cracks Present, Original Joint Also Cracked. At a joint, if there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced for the full lane width and length.

be. Removal and Replacement of Full Slabs. Where it is necessary to remove full slabs, unless there are keys or dowels present, all edges of the slab shall be cut full depth with a concrete saw. All saw cuts shall be perpendicular to the slab surface. If keys, dowels, or tie bars are present along any edges, these edges shall be sawed full depth 24 in (150 mm) from the edge if only keys are present, or just beyond the end of the dowels or tie bars if they are present. These joints shall then be carefully sawed on the joint line to within 1 in (25 mm) of the depth of the dowel or key.

The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed. Suitable equipment shall be used to provide a truly vertical lift, and approved safe lifting devices used for attachment to the slabs. The narrow strips along keyed or doweled edges
shall be carefully broken up and removed using light, hand-held jackhammers, 30 lb (14 kg) or less, or other approved similar equipment.

Care shall be taken to prevent damage to the dowels, tie bars, or keys or to concrete to remain in place. The joint face below keys or dowels shall be suitably trimmed so that there is not abrupt offset in any direction greater than 1/2 in (12 mm) and no gradual offset greater than 1 in (25 mm) when tested in a horizontal direction with a 12 ft (3.6 m) straightedge.

No mechanical impact breakers, other than the above hand-held equipment shall be used for any removal of slabs. If underbreak between 1-1/2 and 4 in (37 and 100 mm) deep occurs at any point along any edge, the area shall be repaired as directed before replacing the removed slab. Procedures directed will be similar to those specified for surface spalls, modified as necessary.

If underbreak over 4 in (100 mm) deep occurs, the entire slab containing the underbreak shall be removed and replaced. Where there are no dowels, tie bars, or keys on an edge, or where they have been damaged, dowels of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete using procedures as specified. Original damaged dowels or tie bars shall be cut off flush with the joint face. Protruding portions of dowels shall be painted and lightly oiled. All 4 edges of the new slab shall thus contain dowels or original keys or original tie bars.

Placement of concrete shall be as specified for original construction. Prior to placement of new concrete, the underlying material (unless it is stabilized) shall be re-compacted and shaped as specified in the appropriate SECTION of these specifications. The surfaces of all four joint faces shall be cleaned of all loose material and contaminants and coated with a double application of membrane forming curing compound as bond breaker. Care shall be taken to prevent any curing compound from contacting dowels or tie bars. The resulting joints around the new slab shall be prepared and sealed as specified for original construction.

cf. Repairing Spalls Along Joints. Where directed, spalls along joints of new slabs, and along parallel cracks used as replacement joints, Spalls along joints not exceeding 15.0 percent of each slab's longitudinal joint edge shall be repaired by first making a vertical saw cut at least 1 in (25 mm) outside the spalled area and to a depth of at least 2 in (50 mm). Saw cuts shall be straight lines forming rectangular areas. The concrete between the saw cut and the joint, or crack, shall be chipped out to remove all unsound concrete and at least 1/2 in (12 mm) of visually sound concrete. The cavity thus formed shall be thoroughly cleaned with high-pressure water jets supplemented with compressed air to remove all loose material. Immediately before filling the cavity, a prime coat of epoxy resin, Type III, Grade I, shall be applied to the dry cleaned surface of all sides and bottom of the cavity, except any joint face. The prime coat shall be applied in a thin coating and scrubbed into the surface with a stiff-bristle brush. Pooling of epoxy resin shall be avoided. The cavity shall be filled with low slump Portland cement concrete or mortar or with epoxy resin concrete or mortar. Concrete shall be used for larger spalls, generally those more than 1/2 cu. ft. (0.014 m$^3$) in size, and mortar shall be used for the smaller ones. Any spill less than 0.1 cu. ft. (0.003 m$^3$) shall be repaired only with epoxy resin mortar or a Grade III epoxy resin. Portland cement concrete and mortar mixtures shall be proportioned as directed and shall be mixed, placed, consolidated, and cured as directed. Epoxy resin mortars shall be made with Type III, Grade 1, epoxy resin, using proportions and mixing and placing procedures as recommended by the manufacturer and approved by the Engineer. The epoxy resin materials shall be placed in the cavity in layers not over 2 in (50 mm) thick. The time interval between placement of additional layers shall be such that the temperature of the epoxy resin material does not exceed 140 °F (60 °C) at any time during hardening. Mechanical vibrators and hand tampers shall be used to consolidate the concrete or mortar. Any repair material on the surrounding surfaces of the existing concrete shall be removed before it hardens. Where the spalled area abuts a joint, an insert or other bond-breaking medium shall be used to prevent bond at the joint face. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints. If
any spall penetrates half the depth of the slab or more, the entire slab shall be removed and replaced as previously specified.

501-4.20 EXISTING CONCRETE PAVEMENT REMOVAL AND REPAIR.

All operations shall be carefully controlled to prevent damage to the concrete pavement and to the underlying material to remain in place. All saw cuts shall be made perpendicular to the slab surface.

a. Removal of Existing Pavement Slab.

When it is necessary to remove existing concrete pavement and leave adjacent concrete in place, the joint between the removal area and adjoining pavement to stay in place, including dowels, tie bars or keys, shall first be cut full depth with a standard diamond-type concrete saw. If keys or dowels are present at this joint, the saw cut shall be made full depth 6 in (150 mm) from the joint if only keys are present, or just beyond the end of dowels if dowels are present. The edge shall then be carefully sawed on the joint line to within 1 in (25 mm) of the top of the dowel or key. Next, a full depth saw cut shall be made parallel to the joint at least 24 in (600 mm) from the joint and at least 12 in (300 mm) from the end of any dowels. All pavement between this last saw cut and the joint line shall be carefully broken up and removed using hand-held jackhammers, 30 lb. (14 kg) or less, or the approved light-duty equipment which will not cause stress to propagate across the joint saw cut and cause distress in the pavement which is to remain in place. Where dowels or keys are present, care shall be taken to produce an even, vertical joint face below the dowels or keys. If the Contractor is unable to produce such a joint face, or if underbreak or other distress occurs, the Contractor shall saw the dowels or keys flush with the joint. The Contractor shall then install new dowels, of the size and spacing used for other similar joints, by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph "Placing dowels. All this shall be at no additional cost to the Owner. Dowels of the size and spacing indicated shall be installed as shown on the drawings by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph "Placing Dowels". The joint face shall be sawed or otherwise trimmed so that there is no abrupt offset in any direction greater than 1/2 in (12 mm) and no gradual offset greater than 1 in (25 mm) when tested in a horizontal direction with a 12 ft. (3.6 m) straightedge.

b. Edge Repair.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Areas that are damaged during construction shall be repaired at no cost to the Owner; repair of previously existing damage areas [will be paid for as listed in the bid schedule] will be considered a subsidiary part of concrete pavement construction.

(1) Spall Repair. Spalls shall be repaired where indicated and where directed. Repair materials and procedures shall be as previously specified in subparagraph "Repairing Spalls Along Joints."

(2) Underbreak Repair. All underbreak shall be repaired. First, all delaminated and loose material shall be carefully removed. Next, the underlying material shall be recompacted, without addition of any new material. Finally, the void shall be completely filled with paving concrete, thoroughly consolidated. Care shall be taken to produce an even joint face from top to bottom. Prior to placing concrete, the underlying material shall be thoroughly moistened. After placement, the exposed surface shall be heavily coated with curing compound.

(3) Underlying Material. The underlying material adjacent to the edge of an under the existing pavement which is to remain in place shall be protected from damage or disturbance during removal operations and until placement of new concrete, and shall be shaped as shown on the drawings or as directed. Sufficient material shall be kept in place outside the joint line to prevent disturbance (or sloughing) of material under the pavement that is to remain in place. Any material under the portion of the concrete pavement to remain in place, which is disturbed or loses its compaction shall be carefully removed and replaced with concrete as specified in paragraph "Underbreak Repair."
underlying material outside the joint line shall be thoroughly compacted and moist when new concrete is placed.

501-4.21 TEST SECTION. In order to adjust the concrete mix and validate the concrete placement methods and consolidation of concrete, the Contractor shall place a concrete test section a minimum of 2 panels wide by 500 feet long minimum or more as required for the Contractor to demonstrate that production can be conducted in accordance with all requirements specified in item P-501. The location of the test section shall be determined by the Engineer. The test section shall be placed a minimum of 3 days prior to start of paving operations and must be accepted by Engineer before the Contractor proceeds with any concrete paving operations.

The various placement parameters that affect the placement of the concrete shall be recorded by the Contractor during the test section placement. Those parameters include but are not limited to speed of the machine, placement of vibrators, frequency and amplitude of the vibrators, concrete characteristics, weather, concrete beam placement and initial curing methods, coring and handling of thickness cores. Before the test section is placed, the Engineer and the Contractor shall meet to discuss the proposed test section placement and agree to all of the various parameters to be recorded. The records are to be turned over to the Engineer at the end of the placement operation.

The Contractor will not be allowed to place the test section until the Contractor Quality Control Program, showing conformance with the requirements of Paragraph 501-6.1, has been approved, in writing, by the Engineer.

A minimum of 8 cores shall be taken by the Contractor and submitted to the Engineer within three (3) days of placement. The location of the cores shall be determined by the Engineer.

If the initial test section should prove to be unacceptable, it shall be removed at the Contractor’s expense and the necessary adjustments to the job mix formula, plant operation, placing procedures, etc. shall be made. Another test section shall then be placed. Additional test sections, if required, shall be constructed and evaluated for conformance to the specifications. Any sections that are not acceptable shall be removed at the Contractor’s expense. Full production shall not begin until an acceptable section has been constructed and accepted in writing by the Engineer. Once a test section is accepted by the Engineer, the Contractor shall not deviate from the placement methods and mix design used for the test section for the concrete paving operations.

Once an acceptable test section has been placed, payment for that test section shall be made in accordance with paragraph 501-8.1.

501-4.22 CURING COMPOUND REMOVAL. In accordance with the Drawings and Engineer direction, CONTRACTOR shall use high pressure water to remove curing compound in the areas to be painted by others.

MATERIAL ACCEPTANCE

501-5.1 ACCEPTANCE SAMPLING AND TESTING. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the Engineer at no cost to the Contractor. The Contractor shall bear the cost of providing curing facilities for the strength specimens, per paragraph 501-5.1a(3), and coring and filling operations, per paragraph 501-5.1b(1).

Testing organizations performing these tests shall meet the requirements of ASTM C 1077. The laboratory accreditation must be current and listed on the accrediting authority’s website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation.
A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction.

Concrete shall be accepted for strength and thickness on a lot basis. A lot shall consist of:

4,000 square yards ([square meters]).

a. Flexural Strength.

(1) Sampling. Each lot shall be divided into four equal sublots. One sample shall be taken for each sublot from the plastic concrete delivered to the job site. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D 3665. The concrete shall be sampled in accordance with ASTM C 172.

(2) Testing. Two (2) specimens shall be made from each sample. Specimens shall be made in accordance with ASTM C 31 and the flexural strength of each specimen shall be determined in accordance with ASTM C 78. The flexural strength for each sublot shall be computed by averaging the results of the two test specimens representing that sublot.

Immediately prior to testing for flexural strength, the beam shall be weighed and measured for determination of a sample unit weight. Measurements shall be made for each dimension: height, depth, and length, at the mid-point of the specimen and reported to the nearest 1/10th in. The weight of the specimen shall be reported to the nearest 0.1 pound. The sample unit weight shall be calculated by dividing the sample weight by the calculated volume of the sample. This information shall be reported as companion information to the measured flexural strength for each specimen.

The samples will be transported while in the molds. The curing, except for the initial cure period, will be accomplished using the immersion in saturated lime water method.

Slump, air content, and temperature tests will also be conducted by the quality assurance laboratory for each set of strength test samples, per ASTM C 31.

The Contractor shall make, cure and deliver all required beams to Owner's Q/A testing organization lab curing room within 48 hours of casting the beams. All beams shall be transported per ASTM/ACI methods approved by the Engineer. The Contractor shall observe all tests. All broken and/or unused test specimens and beams shall become the property of the Contractor and shall be removed off of airport property.

(3) Curing. The Contractor shall provide adequate facilities for the initial curing of beams. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60 ° to 80 °F (16 ° to 27 °C), and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather, or in heavyweight closed plastic bags, or using other suitable methods, provided the temperature and moisture loss requirements are met.

(4) Acceptance. Acceptance of pavement for flexural strength will be determined by the Engineer in accordance with paragraph 501-5.2b.

b. Pavement Thickness.

(1) Sampling. Each lot shall be divided into four equal sublots and one core shall be taken by the Contractor for each sublot. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D 3665. Areas, such as thickened edges, with planned variable thickness, shall be excluded from sample locations.
Cores shall be neatly cut with a core drill. The Contractor shall furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes shall be filled by the Contractor with a non-shrink grout approved by the Engineer within one day after sampling.

(2) Testing. The thickness of the cores shall be determined by the Engineer by the average caliper measurement in accordance with ASTM C 174.

(3) Acceptance. Acceptance of pavement for thickness shall be determined by the Engineer in accordance with paragraph 501-5.2c.

c. Partial Lots. When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot, or when the Contractor and Engineer agree in writing to allow overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they shall constitute a lot. Where one or two sublots have been produced, they shall be incorporated into the next lot or the previous lot and the total number of sublots shall be used in the acceptance criteria calculation, that is, n=5 or n=6.

d. Outliers. All individual flexural strength tests within a lot shall be checked for an outlier (test criterion) in accordance with ASTM E 178, at a significance level of 5 percent. Outliers shall be discarded, and the PWL shall be determined using the remaining test values.

501-5.2 ACCEPTANCE CRITERIA.

a. General. Acceptance will be based on the following characteristics of the completed pavement:

   (1) Flexural strength

   (2) Thickness

   (3) Smoothness

   (4) Grade

   (5) Edge slump

   (6) Dowel bar alignment

Flexural strength and thickness shall be evaluated for acceptance on a lot basis using the method of estimating percentage of material within specification limits (PWL). Acceptance using PWL considers the variability (standard deviation) of the material and the testing procedures, as well as the average (mean) value of the test results to calculate the percentage of material that is above the lower specification tolerance limit (L).

Acceptance for flexural strength will be based on the criteria contained in accordance with paragraph 501-5.2e(1). Acceptance for thickness will be based on the criteria contained in paragraph 501-5.2e(2). Acceptance for smoothness will be based on the criteria contained in paragraph 501-5.2e(3). Acceptance for grade will be based on the criteria contained in paragraph 501-5.2e(4).

The Engineer may at any time, not withstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and if it can be demonstrated in the laboratory, in the presence
of the Engineer, that such material was erroneously rejected, payment will be made for the material at
the contract unit price.

b. Flexural Strength. Acceptance of each lot of in-place pavement for flexural strength shall be
based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

c. Pavement Thickness. Acceptance of each lot of in-place pavement shall be based on PWL. The
Contractor shall target production quality to achieve 90 PWL or higher.

d. Percentage of Material Within Limits (PWL). The percentage of material within limits (PWL) shall be
determined in accordance with procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for flexural strength and thickness shall be:

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<tr>
<th>Lower Specification Tolerance Limit (L)</th>
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<tr>
<td>Flexural Strength</td>
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<td>Thickness</td>
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e. Acceptance Criteria.

(1) Flexural Strength. If the PWL of the lot equals or exceeds 90 percent, the lot shall be
acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph
501-8.1.

(2) Thickness. If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable.
Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

(3) Smoothness. As soon as the concrete has hardened sufficiently, the pavement surface shall be
tested in the transverse direction with a 16 ft straightedge or other specified device. Surface smoothness
deviations shall not exceed 1/4 in from a 16 ft straightedge at any location, including placement along
and spanning any pavement joint or edge.

Areas in the slab showing high spots of more than 1/4 in but not exceeding 1/2 in in 16 feet shall be
marked and immediately ground down with an approved grinding machine to an elevation that falls
within the tolerance of 1/4 in or less. Where the departure from the correct cross section exceeds 1/2 in,
the pavement shall be removed and replaced at the expense of the Contractor when so directed by the
Engineer.

In addition to the 16 ft straight edge, the Contractor shall furnish a 25' wheel base California type
profilograph and competent operator to be used to measure longitudinal pavement surface deviations.
The profilograph shall be operated under the supervision of the Engineer and in accordance with the
manufacturer's instructions. The profilograph shall be operated at a speed no greater than a normal
walk. Original profilograms for the appropriate locations interpreted in accordance with ASTM E 1274
shall be furnished to the Engineer. The profilograms shall be recorded on a scale of 1 in equal to 25 feet
longitudinally and 1 in equal to 1 in or full scale vertically. Records shall be maintained showing all
smoothness measurements.

a. The surface of Runway and Taxiway pavements of continuous placement of 50 feet or more shall be
tested and evaluated as described herein. Two passes shall be made in each paving lane greater than
20 feet in width; each pass shall be six feet from and parallel with the centerline of the paving lane.
The average of the two passes shall be considered as the profilograph result for the paving lane. For
paving lanes less than 20 feet in width, one pass along the centerline shall be required. Tests shall be
run the next working day following concrete placement. Each trace shall be completely labeled to show paving lane, wheel pass, and stationing.

b. The Contractor shall furnish paving equipment and employ methods that produce a riding surface for each section of pavement having an average profile index meeting the requirements of paragraph 501-8.1c. A typical subsection will be considered to be the width of the paving lane and 1/10 mile long. The profile index will be determined in accordance with ASTM E 1274 using a 0.2 in blanking band. Within each 1/10th mile subsection, all areas represented by high points having a deviation in excess of 0.4 in in 25 feet or less shall be removed by the contractor using an approved grinding device or a device consisting of multiple diamond blades. The use of a bush hammer or other impact devices will not be permitted. After removing all individual deviations in excess of 0.4 in, additional corrective work shall be performed if necessary to achieve the required ride quality. All corrective work shall be completed prior to determination of pavement thickness.

c. On those pavement subsections where corrections were necessary, second profilograph runs will be performed to verify that the corrections have produced an average profile index of 15 in per mile or less. If the initial average profile index was less than 15, only those areas representing greater than 0.4 in deviation will be re-profiled for correction verification.

d. When the average profile index does not exceed 7 inches per mile, payment will be made for that section at the contract unit price for the completed pavement. When the average profile index exceeds 7 inches per mile, but does not exceed 15 in per mile, the Contractor may elect to accept a contract unit price adjustment in lieu of reducing the profile index.

e. Individual sections shorter than 50 feet and the last 15 feet of any section where the contractor is not responsible for the adjoining section, shall be straightedged in accordance with Section 501.5.2.e.(3).

f. If there is a section of 250 feet or less, the profilogram for that section shall be included in the evaluation of the previous section. If there is an independently placed section of 50 to 250 feet in length, a profilogram shall be made for that section and the pay adjustment factors for short sections of paragraph 8.1c shall apply.

g. Any corrective work required shall be performed prior to joint sealing and grooving operations.

h. All cost necessary to provide the profilograph and related to furnishing the appropriate profilograms as required in this provision are incidental to concrete pavement construction and no direct compensation will be made therefore.

(4) Grade. An evaluation of the surface grade shall be made by the Engineer for compliance to the tolerances contained below. The finish grade will be determined by running levels at intervals of 50 ft (15.2 m) or less longitudinally and all breaks in grade transversely (not to exceed 50 ft) all slab corners and center slab to determine the elevation of the completed pavement. The Contractor shall pay the costs of surveying the level runs, and this work shall be performed by a licensed surveyor. The documentation, stamped and signed by a licensed surveyor, shall be provided by the Contractor to the Engineer.

Lateral Deviation. Lateral deviation from established alignment of the pavement edge shall not exceed plus or minus 0.10 ft (30 mm) in any lane.

Vertical Deviation. Vertical deviation from established grade shall not exceed plus or minus 0.04 ft (12 mm) at any point.

(5) Edge Slump. When slip-form paving is used, not more than 15 percent of the total free edge of each 500 ft (150 m) segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 in (6 mm), and none of the free edge of the pavement shall have an edge slump exceeding 3/8 in
(10 mm). (The total free edge of 500 feet (150 m) of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet (150 m) of paving lane originally constructed as a separate lane will have 1,000 feet (300 m) of free edge, 500 feet (150 m) of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 in (457 mm) from the edge. Excessive edge slump may be corrected during production prior to concrete harding by removing the affected area, placing edge forms and a new concrete mix added to the removed area. Production shall be halted to assess the excessive edge slump problem. When excessive edge slump cannot be corrected before the concrete has hardened, the area—slab or slabs with excessive edge slump shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

(6) Dowel Bar Alignment. Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerance on dowel bar alignment in each plane, horizontal and vertical, shall not exceed 2 percent or 1/4 in per ft (20 mm per meter) of a dowel bar. Vertical alignment of dowels shall be measured parallel to the designed top surface of the pavement, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes, shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge.

f. Removal and Replacement of Concrete. Any area or section of concrete that is removed and replaced shall be removed and replaced back to planned joints. The Contractor shall replace damaged dowels and the requirements for doweled longitudinal construction joints in paragraph 501-4.10 shall apply to all contraction joints exposed by concrete removal. Removal and replacement shall be in accordance with paragraph 501-4.19 of this specification.

CONTRACTOR QUALITY CONTROL

501-6.1 QUALITY CONTROL PROGRAM. The Contractor shall develop a Quality Control Program in accordance with Section 100 of the General Provisions. The program shall address all elements that affect the quality of the pavement including but not limited to:

a. Mix Design
b. Aggregate Gradation
c. Quality of Materials
d. Stockpile Management
e. Proportioning
f. Mixing and Transportation
g. Placing and Consolidation
h. Joints
i. Dowel Placement and Alignment
j. Flexural or Compressive Strength
k. Finishing and Curing
l. Surface Smoothness
501-6.2 QUALITY CONTROL TESTING. The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to this specification and as set forth in the Quality Control Program. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content.

A Quality Control Testing Plan shall be developed as part of the Quality Control Program.


(1) Gradation. A sieve analysis for each individual aggregate size shall be made at least twice daily in accordance with ASTM C 136 from randomly sampled material taken from the discharge gate of storage bins, or from the conveyor belt, or from the stockpile. If samples are taken from the stockpile, it shall be taken from the bucket of a front-end loader removed vertically from bottom to top of the stockpile.

(2) Moisture Content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C 70 or ASTM C 566.

b. Coarse Aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C 136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture Content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C 566.

c. Slump. Four slump tests shall be performed for each lot of material produced in accordance with the lot size defined in Section 501-5.1. One test shall be made for each sublot. Slump tests shall be performed in accordance with ASTM C 143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C 172.

d. Air Content. Four air content tests, shall be performed for each lot of material produced in accordance with the lot size defined in Section 501-5.1. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C 231 for gravel and stone coarse aggregate and ASTM C 173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C 172.

de. Four unit weight and yield tests shall be made in accordance with ASTM C 138. The samples shall be taken in accordance with ASTM C 172 and at the same time as the air content tests.

501-6.3 CONTROL CHARTS. The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, combined aggregate WF and CF values, slump, and air content. Control charts shall be posted in a location satisfactory to the Engineer and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor’s test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor’s projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the Engineer may halt production or acceptance of the material.
a. Fine- and Coarse Combined Aggregate Gradation. The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Specification limits contained in Tables 1 and 2 shall be superimposed on the Control Chart for job control. The Individual gradations shall be mathematically combined and used to monitor each day's batch weights to provide the target combined gradation. The workability and coarseness factor shall be calculated and plot on the Aggregate Constructability Chart of Figure 1. The combined gradation using the batch tickets percentages shall be plus or minus 3 points for the Workability Factor and plus or minus 5 points for the Coarseness Factor for the Workability and Coarseness Factors established for the approved concrete mixture.

b. Slump and Air Content. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

### Control Chart Limits

<table>
<thead>
<tr>
<th>Control Parameter</th>
<th>Slump</th>
<th>Air Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action Limit</td>
<td>Suspension Limit</td>
</tr>
<tr>
<td></td>
<td>Range Limit</td>
<td>Suspension Limit</td>
</tr>
<tr>
<td>Slip Form:</td>
<td>+/- 0.5 in (13-25 mm)</td>
<td>+/- 1.2%</td>
</tr>
<tr>
<td></td>
<td>+/- 1.5 in (38 mm)</td>
<td>+/- 1.2%</td>
</tr>
<tr>
<td>Air Content</td>
<td>+/- 1.8%</td>
<td>+/- 1.8%</td>
</tr>
<tr>
<td>Fixed Form:</td>
<td>+/- 1.5 in (38 mm)</td>
<td>+/- 2.5%</td>
</tr>
<tr>
<td>Air Content</td>
<td>+/- 1.8%</td>
<td>+/- 2.5%</td>
</tr>
</tbody>
</table>

The individual measurement control charts shall use the mix design target values as indicators of central tendency.

501-6.4 CORRECTIVE ACTION. The Contractor Quality Control Program shall indicate that appropriate action shall be taken when the process is believed to be out of control. The Contractor Quality Control Program shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control if any one of the following conditions exists.

a. Fine- and Coarse Combined Aggregate Gradation. When two consecutive averages of five tests are outside of the Table 1 and Table 2 specification limits, immediate steps, including a halt to production, shall be taken to correct the grading. When proportioning can solve the problem, adjustments to weights shall be conducted. If proportioning adjustments do not correct the problem production shall be halted and new stockpile aggregates shall be used.

b. Fine and Coarse Aggregate Moisture Content. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5 percent, the scale settings for the aggregate batcher and water batcher shall be adjusted.

c. Slump. The Contractor shall halt production and make appropriate adjustments whenever:

1. one point falls outside the Suspension Limit line for individual measurements or range OR
2. two points in a row fall outside the Action Limit line for individual measurements.

d. Air Content. The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:

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(1) one point falls outside the Suspension Limit line for individual measurements or range

OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

Whenever a point falls outside the Action Limits line, the air-entraining admixture dispenser shall be calibrated to ensure that it is operating correctly and with good reproducibility.

**METHOD OF MEASUREMENT**

**501-7.1** Portland cement concrete pavement shall be measured by the number of square yards of either plain or reinforced pavement as specified in-place, completed and accepted. Saw-cut grooving shall be measured by the number of square yards (square meters) of saw-cut-grooving as specified in-place, completed and accepted.

**BASIS OF PAYMENT**

**501-8.1** PAYMENT. Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-5.2 Acceptance Criteria shall be based on results of smoothness, strength and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness and 501-8.1c for smoothness, subject to the limitation that: The total project payment for concrete pavement shall not exceed 100 percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under Table 3).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings. No additional payment over the unit contract bid price shall be made for any pavement which has an average thickness in excess of that shown on the plans. No additional payments will be made for reinforced panels or for thickened edges.

a. Basis of Adjusted Payment. The pay factor for each individual lot shall be calculated in accordance with Table 3. A pay factor shall be calculated for both flexural strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both flexural strength and thickness are 100 percent or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either flexural strength or thickness is 100 percent or higher. The lot pay factor shall be the lower of the two values when calculations for both flexural strength and thickness are less than 100 percent.

### Table 3. Price Adjustment Schedule

<table>
<thead>
<tr>
<th>Percentage of Materials Within Specification Limits (PWL)</th>
<th>Lot Pay Factor (Percent of Contract Unit Price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>96 – 100</td>
<td>106</td>
</tr>
<tr>
<td>90 – 95</td>
<td>PWL + 10</td>
</tr>
<tr>
<td>75 – 90</td>
<td>0.5 PWL + 55</td>
</tr>
<tr>
<td>55 – 74</td>
<td>1.4 PWL – 12</td>
</tr>
<tr>
<td>Below 55</td>
<td>Reject</td>
</tr>
</tbody>
</table>

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Although it is theoretically possible to achieve a pay factor of 106 percent for each lot, actual payment in excess of 100 percent shall be subject to the total project payment limitation specified in paragraph 501-8.1.

The lot shall be removed and replaced. However, the Engineer may decide to allow the rejected lot to remain. In that case, if the Engineer and contractor agree in writing that the lot shall not be removed, it shall be paid for at 50 percent of the contract unit price and the total project payment limitation shall be reduced by the amount withheld for the rejected lot.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 501-8.1. Payment in excess of 100 percent for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100 percent.

b. Payment. Payment shall be made under:

Item P-501-8.1 Portland Cement Concrete Pavement (15.5" Thick) -- Per Square Yard

c. Basis of adjusted payment for Smoothness. Price adjustment for pavement smoothness will apply to the total area of concrete within a section of pavement and shall be applied in accordance with the following equation and schedule:

\[
(Sq \text{ yd in section}) \times (\text{original unit price per sq yd}) \times PFm = \text{reduction in payment for area within section}
\]

<table>
<thead>
<tr>
<th>Pavement Strength Rating</th>
<th>Average Profile Index (Inches Per Mile)</th>
<th>Contract Unit Price Adjustment (PFm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 30,000 lb</td>
<td>0 - 7</td>
<td>0.00</td>
</tr>
<tr>
<td>30,000 lb or Less</td>
<td>0 - 10</td>
<td>0.02</td>
</tr>
<tr>
<td>0 - 15</td>
<td>15.1 - 16</td>
<td>0.04</td>
</tr>
<tr>
<td>7.1 - 9</td>
<td>10.1 - 11</td>
<td>0.06</td>
</tr>
<tr>
<td>9.1 - 11</td>
<td>11.1 - 12</td>
<td>0.08</td>
</tr>
<tr>
<td>11.1 - 13</td>
<td>12.1 - 13</td>
<td>0.10</td>
</tr>
<tr>
<td>13.1 - 14</td>
<td>13.1 - 14</td>
<td>Corrective work required</td>
</tr>
<tr>
<td>14.1 - 15</td>
<td>14.1 - 15</td>
<td>Corrective work required</td>
</tr>
<tr>
<td>15.1 and up</td>
<td>15.1 and up</td>
<td>Corrective work required</td>
</tr>
<tr>
<td>15.1 and up</td>
<td>22.1 and up</td>
<td>Corrective work required</td>
</tr>
</tbody>
</table>

TESTING REQUIREMENTS

ASTM C 31 Making and Curing Concrete Test Specimens in the Field

ASTM C 39 Compressive Strength of Cylindrical Concrete Specimens ASTM C 70 Surface Moisture in Fine Aggregate

ASTM C 78 Test for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)

ASTM C 88 Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C 131 Test for Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
<table>
<thead>
<tr>
<th>ASTM Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM C 136</td>
<td>Sieve Analysis of Fine and Coarse Aggregates</td>
</tr>
<tr>
<td>ASTM C 138</td>
<td>Test for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete</td>
</tr>
<tr>
<td>ASTM C 143</td>
<td>Test for Slump of Hydraulic Cement Concrete</td>
</tr>
<tr>
<td>ASTM C 172</td>
<td>Sampling Freshly Mixed Concrete</td>
</tr>
<tr>
<td>ASTM C 173</td>
<td>Test for Air Content of Freshly Mixed Concrete by the Volumetric Method</td>
</tr>
<tr>
<td>ASTM C 174</td>
<td>Measuring Thickness of Concrete Elements Using Drilled Concrete Cores</td>
</tr>
<tr>
<td>ASTM C 227</td>
<td>Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)</td>
</tr>
<tr>
<td>ASTM C 231</td>
<td>Test for Air Content of Freshly Mixed Concrete by the Pressure Method</td>
</tr>
<tr>
<td>ASTM C 289</td>
<td>Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)</td>
</tr>
<tr>
<td>ASTM C 295</td>
<td>Petrographic Examination of Aggregates for Concrete</td>
</tr>
<tr>
<td>ASTM C 114</td>
<td>Chemical Analysis of Hydraulic Cement</td>
</tr>
<tr>
<td>ASTM C 535</td>
<td>Test for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine</td>
</tr>
<tr>
<td>ASTM C 566</td>
<td>Total Evaporable Moisture Content of Aggregates by Drying</td>
</tr>
<tr>
<td>ASTM C 642</td>
<td>Test for Density, Absorption, and Voids in Hardened Concrete</td>
</tr>
<tr>
<td>ASTM C 666</td>
<td>Resistance of Concrete to Rapid Freezing and Thawing</td>
</tr>
<tr>
<td>ASTM C 1077</td>
<td>Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction And Criteria for Laboratory Evaluation</td>
</tr>
<tr>
<td>ASTM C 1260</td>
<td>Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)</td>
</tr>
<tr>
<td>ASTM D 3665</td>
<td>Random Sampling of Paving Materials</td>
</tr>
<tr>
<td>ASTM D 4791</td>
<td>Test Method for Flat or Elongated Particles in Coarse Aggregate</td>
</tr>
<tr>
<td>ASTM E 178</td>
<td>Dealing With Outlying Observations</td>
</tr>
<tr>
<td>ASTM E 1274</td>
<td>Test for Measuring Pavement Roughness Using a Profilograph</td>
</tr>
</tbody>
</table>
AASHTO T 26  Quality of Water to be Used in Concrete

**MATERIAL REQUIREMENTS**

ASTM A 184  Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement

ASTM A 185  Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement

ASTM A 497  Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement

ASTM A 615  Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

ASTM A 704  Specification for Welded Steel Plain Bar or Rod Mats  for Concrete Reinforcement

ASTM A 714  Specification for High-Strength Low-Alloy Welded and Seamless Steel Pipe

ASTM A 996  Specification for Rail-Steel and Axle Steel Deformed Bars for Concrete Reinforcement

ASTM C 33  Specification for Concrete Aggregates

ASTM C 94  Specification for Ready-Mixed Concrete

ASTM C 150  Specification for Portland Cement

ASTM C 171  Specification for Sheet Materials for Curing Concrete

ASTM C 260  Specification for Air-Entraining Admixtures for Concrete

ASTM C 309  Specification for Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C 494  Specification for Chemical Admixtures for Concrete

ASTM C 595  Specification for Blended Hydraulic Cements

ASTM C 618  Specification for Coal Flyash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete

ASTM C 881  Specification for Epoxy-Resin Base Bonding System for Concrete

ASTM C 989  Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

ASTM D 1751  Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)

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ASTM D 1752 Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving And Structural Construction

ACI 305R Hot Weather Concreting

ACI 306R Cold Weather Concreting

ACI 309 Guide for Consolidation of Concrete

Department of Defense MIL-DTL-4441/20a (1999) Paint, Epoxy-Polyamide, Green Primer, Formula 150, Type III

END ITEM P-501
ADDENDUM NO. 3

Solicitation No.: Z1145017C1
Solicitation Title: Terminal 4 Apron Expansion

Date Of Addendum: July 26, 2013

Attention all potential bidders:

Must Addendum: Read carefully and follow all instructions. Information included in this Addendum will have a material impact on the submittal for this solicitation. All "MUST" addenda are considered a matter of responsiveness. "MUST" addenda must be returned with your Bid Submittal or acknowledged on the Bid Tender Form. Failure of a Submitter to acknowledge the addendum shall be cause for rejection of the bid.

Return Addendum with Bid Submittal or Acknowledge on the Bid Tender Form

To all prospective bidders, please note the following changes and clarifications:

Words in strikethrough type are deletions from existing text. Words in bold underlined type are additions to existing text.

1. The Bid Opening Date has been revised as follows: August 7, 2013 at 2:00 p.m. Location remains the same.

   In accordance with the Instructions to Bidders, there shall be no obligation on the part of the County to respond to questions received less than 14 calendar days prior to bid opening. In order to maintain the project schedule, further Requests for Information will not be addressed.

2. Some of the following Request for Information (RFI) questions have been condensed for clarity.

3. Question: Bid item 28 "Unsuitable Excavation" – further clarification of the area in question (in any given location within the former dump/site/landfill area (east edge of project). If we are able to excavate to subgrade, without encountering any unsuitable material, and then achieve the appropriate density requirements, will that be considered an acceptable situation? Will we only be directed to remove any unsuitable material when it is encountered or at any time will we be directed to remove any "anticipated" unsuitable material (that which may be reflected on the soil borings which would be separated by an unspecified layer of good (suitable) material)? If we are directed to remove any "anticipated" unsuitable material, which is below subgrade and separated by a layer of good (suitable) material, how will we be compensated for the excavation of the good (suitable) material volume prior to reaching the unsuitable material? Related to the previous question: Please clarify how both the replacement of the unsuitable material (disposed of) and the replacement of that layer of good (suitable) material (removed and stockpiled in order to access the unsuitable material) will be compensated?

   Answer: All anticipated unsuitable material as shown in the provided geotechnical borings shall be
removed. Removal of this material shall be compensated under Item P-152-4.2 Unsuitable Excavation. Removal and replacement of suitable material which is encountered in removing the unsuitable material may be stock piled and will be compensated for under Item P-152-4.1 Unclassified Excavation. No payment shall be made for double handling of suitable material paid for under P-152-4.1, this price shall be full compensation for removal, stockpile, and reuse on site or removal from the site. Replacement on the unsuitable material which cannot be accomplished utilizing stockpiled on-site unclassified excavation shall be paid for under Item P-152-4.3 Borrow Excavation.

4. **Question:** There is a 10.5" Limerock Base thickness reflected in the typical sections (HMA Pavement Section (Temp) & Type BT – Buried Transition Joint). Will you be providing an additional bid line item for this?

**Answer:** Refer to Addendum No. 2 Item Nos. 2 and 3.

5. **Question:** Bid Item 33 “Contaminated Soil Disposal” – The technical specification section P-159-4 addresses the removal and disposal of the material. If required and necessary how will the replacement of that material be compensated?

**Answer:** Replacement of the removed contaminated soil which cannot be accomplished utilizing stockpiled on-site P-152-4.1 Unclassified Excavation shall be paid for under Item P-152-4.3 Borrow Excavation.

6. **Question:** In addendum #1 the answer to question #26 regarding the restriction of non slip form paving to less than 500 square yards affirms the owner/engineer have determined it is in their best interest to keep that restriction in place. In further reviewing the contents of addendum #1, more specifically the DBE Goal Methodology Statement (GMS), the logic for the 22% DBE goal is detailed. On the second page, the bottom paragraph entitled STEP 2 BASE GOAL ADJUSTMENT, therein is described the adjustments due to the specialized nature of portions of the work. Therein are listed "Bonds and Mobilization, Allowance Accounts, and Concrete Paving & Base Course"...do not provide subcontracting opportunities. In addition, the copes for Maintenance of Traffic and Grading, Excavation lack DBE availability..." "Although weighted availability for all scopes is 51.28%, this number is not representative..." "The exclusion of the four (4) scopes of work results in a total DBE subcontracting potential of 29.06%." This is not mathematically correct based upon the numbers contained in "Table 1". Bonds and Mobilization has a weighted value of 0.17%, Concrete Paving & Base Course a weighted value of 35.04%, Maintenance of Traffic a weighted value of 0.08%, Grading and Excavation a weighted value of 5.29%, and there is no calculation for the $4,866,750 for the Allowance Accounts. Subtracting the aforementioned weighted values from the 51.28% total weighted availability, results in a total DBE subcontracting potential of 10.7% not the "total subcontracting potential of 29.06%" calculated. If the same logic is continued, using the 75% factor due to FAA grant funding, the end result is an 8.025% DBE goal for the project. Please make the requisite corrections to the DBE goal for the project.

**Answer:** The calculations made in establishing the 22% DBE goal are mathematically correct. The calculations shown in the bidder’s RFI are not reflective of the methodology used in setting the DBE goal. The adjusted percentages in the scopes of work available for subcontracting total 29.06%; modified by the expected federal contribution of 75%, this number is adjusted to 21.80% and rounded to 22%. The assigned 22% DBE goal applies to the entire value of the award amount, including allowances. The DBE goal for this solicitation will not be modified.

7. **Question:** In addendum #1 the answer to question #24 regarding unsuitable excavation is to refer to the soil borings indicating construction debris, peat, etc. specifically Soil Boring TB-AP-43 as an example. Per the specifications section 152-1.3 included herein "152-1.3 Unsuitable Excavation. Any
material containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction and disposed of offsite. Material, when approved by the Engineer as suitable to support vegetation, may be used on the embankment slope." This specification clearly does not include debris. As previously stated the soil borings clearly show the existence of a dump site, not unsuitable excavation as per the specifications. Additionally the bid quantity stated is 100,000 cy. As stated in addendum #1 "To ensure competitiveness, bidders are to utilize the quantities identified in the electronic bid sheets included in the solicitation." Provide a revised bid quantity for this item.

Answer: ADD to Specification Section P-152-1.3 the bold underlined text:

Unsuitable Excavation. Any material containing vegetable or organic matter, such as muck, peat, organic silt, debris or sod shall be considered unsuitable for use in embankment construction and disposed of offsite. Material, when approved by the Engineer as suitable to support vegetation, may be used on the embankment slope.

Contractor may re-use stockpiled on-site suitable material paid for under Item P-152-4.1 Unclassified Excavation or P-152-4.3 Borrow Material to backfill removed unsuitable material as needed to meet final grades as shown in the design plans. No change to the bid quantity.

8. **Question:** In addendum #1 the answer to question #25 regarding unsuitable subsurface materials is "An estimated quantity of unsuitable materials is included in Bid Item No. 28 based on existing boring logs contained in the contract documents. It is the contractor's responsibility to excavate and dispose of unsuitable materials as indicated in specifications section P-159-2.1." First, as shown above the unsuitable excavation specification does not include debris. Second, specification section P-159 deals with contaminated soil. Is the engineer stating that the existing dump site is contaminated? If that is the engineer's speculation then provide the laboratory analytical results of the soil samples collected. Either this dump site is contaminated or it contains unsuitable subsurface material (debris) that will need to be excavated and disposed of. Provide a bid item with revised quantities for unsuitable subsurface material.

**Answer:** The only known contaminated soil is located at the South Terminal Site as shown in the Terminal 4 Apron Expansion Volume 3 (East Sheets) ENV Series plan sheets. No change to bid items or quantities.

9. **Question:** In addendum #1 the answer to question #28 regarding remediation activities location is to refer to the east sheets ENV 01.00. Plan sheet ENV 01.00 shows a number of irregular dotted, dashed, dotted and dashed and solid lines which appear to be within FLL only by inclusion in the contract documents. The question asked was for the engineer to provide the location of the area to be remediated. Provide the actual location based upon the coordinate data that the rest of the project is based on. As to performing this work during phase E, the limits of phase E will need to be extended to include this area.

**Answer:** The limits of anticipated contamination are provided based on the results from sampling events associated with the preparation and acceptance of the Remedial Action Plan. As stated on Sheet ENV01.02 Note 1 Prior to remediation activities, the contractor is required to present a summary of current monitoring well data. Bid shall be based on approximate limits of contamination as shown.

10. **Question:** In addendum #1 the answer to question #21 regarding the proposed schedule for construction of Terminal 4 is that a schedule is not available. At the pre-bid conference a statement was made that a schedule would be available. The terms and conditions state that the time stops after phase A-2 and E are substantial complete and will resume no earlier than April 1, 2015. After the resumption date there are numerous milestones and durations which compiled in total shows an
earliest final completion date of December 2017. Without a schedule for Terminal 4 which is directly related to the resumption date shown in the terms and conditions there isn't any way to anticipate when this project will finally be completed. Provide an accurate date of resumption or provide a means for cost escalation if the resumption date is not met.

**Answer:** Construction Contract Documents Section 2 – Summary of Terms and Conditions outlines the Project Milestones, Milestone Durations, and applicable Liquidated Damages.

11. **Question:** In addendum #1 the answer to question #17 regarding providing a bid item for 24" Compacted Subgrade as shown in the pavement details is to utilize Bid Item Nos. 30 and 31. The answer to question 31 regarding subgrade preparation is "For bid item 30 - the contractor shall create 24" of subgrade using existing limerock to achieve a CBR of 13.2 or better. Bid Item 31 includes areas where limerock is not present and the 24" of subgrade will need to meet CBR 13.2 by blending rock with native materials if acceptable or import CBR 13.2 materials for the 24". Basically it appears that the engineer intends for the bidder to prepare a 24" subgrade achieving a CBR of 13.2 or better. Is this correct? The terminology "Subgrade Preparation With Surface Compaction and Subgrade Preparation With 24" Deep Compaction" first and only appeared during the bidding process for WP-304, WP-305 which is the runway project. These new bid items were conceived to address the areas of the runway where the subgrade has been placed by others. Reference the plan details that clearly show 24" Compacted 100% Max Density P-152 Spec. Reference P-152 Specification section 152-1.4 SUBGRADE PREPARATION. Subgrade preparation shall consist of compacting the subgrade under paved areas to meet the compaction requirements outlined within this specification and depicted on the typical plan sections. This item will include the removal and recompaction of the in-place subgrade material to meet the density requirements in the top 24-inches of subgrade under the pavement section. This item does not include the placement of any subbase or base material. Furthermore the P-152 Specification section 152-3.4 The quantity for Subgrade Preparation with Surface Compaction to be paid for shall be the number of square yards of existing subgrade not requiring additional compaction effort to meet the density requirements as specified after testing (by the Contractor) in cut areas in accordance with P-152-2.11. Testing in cut areas by the Contractor is incidental to this work. The above answer to question 31 contradicts P-152 Specification section 152-3.4. Is the engineer's intention that the bidder provides a 24" subgrade which is defined as the top 24" of material immediately under the proposed pavement section as shown in the documents and that this section shall consist of a homogenous blend of materials achieving a CBR of 13.2 or better? If that is the case provide a bid item for 24" Compacted Subgrade or delete the typical section shown on the plan sheets. Will the FAA accept surface testing as representative of a 24" subgrade and pay accordingly.

**Answer:** The Engineer's intent is to provide a 24" compacted subgrade under all proposed pavement that achieves a minimum CBR of 13.2 and meets the required density. As can be seen in the Contract Documents, a majority of the proposed paving work will be performed over existing pavement surface. It is anticipated that the areas under existing pavement cut areas will meet these requirements, thus not requiring further compaction. For areas unders existing pavement where the existing subgrade does not meet these requirements, required improvements to the subgrade (i.e. subgrade preparation) as required to provide a 24" compacted subgrade with a minimum CBR of 13.2 and the required density will be compensated for under Item P-152-4.5. Any fill areas shall be compensated under P-152-4.1 Unclassified Excavation utilizing on-site stockpile suitable material if available or P-152-4.3 Borrow Excavation. For both Items P-152-4.1 Unclassified Excavation and P-152-4.3 Borrow Excavation subgrade preparation is consider incidental.
12. **Question:** Please clarify whether or not the concrete needs to be produced in a central mix plant and delivered in non-agitating trucks, according to section 501-1.1.

   **Answer:** Refer to Addendum No. 2 Item No. 6.

13. **Question:** Please clarify the joint width on detail 7&8 on page C11.33.

   **Answer:** Joint width for Detail 7 Contraction Joint and Detail 8 Construction Joint on Volume 2 Terminal 4 Apron Expansion (West Sheets) and Volume 3 Terminal 4 Apron Expansion (East Sheets) C11.33 shall be 3/8" +/- 1/16". Sheet C11.33 has been revised accordingly.

14. **Question:** There is a discrepancy between the dowels on C11.33. Detail 2&4 state a ¾" diameter x 20" long x 15" center. The chart at the bottom of the page states 1-1/2" diameter dowel x 20" length x 18" Spacing. Please clarify the dowel size and spacing.

   **Answer:** Dowel size and spacing shall be as shown in the table. Volume 2 Terminal 4 Apron Expansion (West Sheets) and Volume 3 Terminal 4 Apron Expansion (East Sheets) C11.33 has been revised accordingly.

15. **Question:** Do the fittings for water, sewer and the pump station have to be Buy America?

   **Answer:** Steel and manufactured goods shall meet Buy America standards. In addition, water, sewer and pump station goods shall meet Broward County Water and Wastewater Services standards. Refer to www.dot.gov/highlights/buyamerica.com for more information on Buy America.

16. **Question:** Where do we get paid for installing the 2" water service and fitting?

   **Answer:** Include in Bid Item No. 136 15060-55 Lift Station 31-NEW.

17. **Question:** Is an on-site batch plant required or can we purchase from a ready mix plant close by?

   **Answer:** Refer to Addendum No. 2 Item No. 6.

18. **Question:** Plan sheet East C05.01 shows 2" K Copper, 2" Gate Valve & Box, 2" 90. Which pay item will this work be measured and paid?

   **Answer:** Include in Bid Item No. 136 15060-55 Lift Station 31-NEW.

19. **Question:** Detail 1/C11.32 (P-160) 12" Stabilized Subgrade. Specifications show P-160 as Ground Water Control Procedures and Requirements. What is the correct Specification for P-160?

   **Answer:** Refer to Addendum No. 1 Item Nos. 10 and 13.

20. **Question:** Bid Item # 68 Cleaning of Existing 84"/96" RCP start and end points for proposed cleaning are not clear. Can start and end points for proposed cleaning be provided?

    **Answer:** Existing 84"/96" RCP shall be cleaned within the project work area as indicated by Specification Section D-751-6 Cleaning Out of New and Existing Structures, Paragraph 751-3.14.

21. **Question:** Bid Item # 71 Repairs to 84"/96" Joints- locations of joints to be repaired are not clear. Can repair joint locations be provided?

    **Answer:** Joint information was provided in the Industrial Divers Inspection Report (Appendix A) included with the Bid Documents.

22. **Question:** No detail for capping the abandoned jet fuel lines are provided when and if conflicts require section removal. Can capping detail be provided if required?

    **Answer:** The existing fuel lines will be abandoned by others as indicated by Note No. 3 on Volume 2 Terminal 4 Apron Expansion (West Sheets) C02.21 through C02.25 and Note No. 2 on Volume 3...
Terminal 4 Apron Expansion (East Sheets) C02.22 through C02.26 by grout filling. Capping of the lines shall not be required by the Apron Expansion Contractor. Contractor shall remove the abandoned fuel line, when encountered, as indicated by the Legend on Volume 2 Terminal 4 Apron Expansion (West Sheets) and Volume 3 Terminal 4 Apron Expansion (East Sheets) Utility Demolition Plan.

23. **Question:** Sheets C13.01 through C13.05 in Volume II and sheets C13.01 through C13.06 in Volume III contain the drawings for "Pavement Marking and Signage Plans"; however, temporary markings are not noted in the plans. Preformed thermoplastic pavement markings are not shown in the plans either. Can drawings with both temporary markings and preformed thermoplastic pavement markings specified be provided?

**Answer:** These bid items are provided in the event temporary markings and/or thermoplastic pavement markings are required due to final airfield phasing and MOT Plans developed by the Contractor.

24. **Question:** The Lift Station information is not clear. Does the "existing lift station to be removed" shown on sheet C 02.33 (East set) need to have any equipment salvaged? Can this lift station be filled and abandoned in keeping with the other utilities in the area?

**Answer:** Specification Section 02750 Paragraph 1.02-B states that "Unless specifically shown to be salvaged, or at the request of the CPM, all pipe, valves, fittings, and appurtenances associated with the portions of the existing water and wastewater utilities which are to be removed shall be disposed of off-site by the Contractor. Disposal shall be in accordance with all applicable local, State and Federal regulations. The cost of disposal shall be borne by the Contractor." The lift station shall be removed in its entirety.

25. **Question:** The DBE Methodological Statement posted in Addendum 1 identifies concrete paving as the largest potential contributor toward meeting the project goals and ninety-eight (98) local firms qualified to perform the work. The instruction to bidders Section 3, Paragraph 2-"The Prime Contractor shall have a work experience history of at least three (3) airfield concrete pavement construction projects with airfield electrical components, having placed approximately 20,000 square yards of Portland Cement Concrete (P-501) for Runway, Taxiway, or Apron Construction. The project must have been completed within the last ten (10) years or must be in the substantially complete phase. Work must have been performed at a large or medium hub airport as defined by the USDOT Air Traffic Hubs 2011." Being that the minimum Concrete Paving Experience is cited in the specifications. Do any of these ninety-eight (98) firms have the qualifications to utilize a centrally batch concrete, delivery by non-agitated trucks to slip form paving equipment for an airport operations area paving program such as those required in the Contract Documents?

**Answer:** The DBE Methodological Statement clearly identifies the scope of work for Concrete Paving & Base Course as having been excluded from consideration for purposes of establishing the DBE goal. The DBE goal for this solicitation will not be modified. All respondents are required to comply with the OESBD requirements as set forth in Addendum No. 1 to the solicitation document. It is the responsibility of the respondents to check the qualifications of the selected DBE firms for the scope of work to be performed.

26. **Question:** The pay item number 24 "Abandonment/Removal of existing monitoring wells" has a bid quantity of 47, it appears that a plan sheet is missing that shows the additional wells that are to be abandoned/removed. Sheet ENV 01.02 shows 24 monitoring wells. Are the Recovery wells to be abandoned/removed as also? Only the 4 wells indicated on sheet ENV 01.05 need to replaced? Can the size and depth of the existing monitoring wells be provided?

**Answer:** The remaining monitoring wells are located within the National Car Rental Site to be

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demolished as shown on Volume 3 Terminal 4 Apron Expansion (East Sheets) C02.23. Wells to be replaced as shown on the Contract Documents. Size and depth of wells are unknown.

27. **Question:** The Combined project drawings show a legend with AOA Fence and Yodock Barrier (see detail sheet C02.15), The West project drawings show a legend with low profile barricade and the East project drawings show a legend with proposed Yodock Barrier with AOA Fence. The Yodock Barrier reference detail sheet C02.15 does not exist. Yodock Barrier detail is shown on sheet C02.14. Is the C02.14 the detail to be used for Yodock Barrier? The combined sheets differ from the West and East sheets for type of devices. Which sheets should be used for MOT devices? The West drawings legend shows low profile barrier and detail sheet C02.14 show Low Profile Barrier detail, but no Low Profile Barrier is shown on these plans. Is Low Profile Barrier required? The East legend shows proposed Yodock Barrier with AOA Fence, but no detail is provided for Yodock Barrier with AOA Fence. Can a detail for Yodock Barrier with AOA Fence be provided? The Combine drawings legend shows AOA Fence, but no detail is provided for AOA Fence. Can a detail for AOA Fence be provided?

**Answer:** The Construction Phasing Plans in the Volume 1 Terminal 4 Apron Expansion (Combined Sheets) shall govern for MOT devices. See Note 11 on Sheets C02.01 and C02.02 and Note 5 on Sheet C02.03, C02.06 and C02.07 in Volume 1 Terminal 4 Apron Expansion (Combined Sheets) for locations of proposed Low Profile Barrier. Detail for Low Profile Barrier is provided on Volume 2 Terminal 4 Apron Expansion (West Sheets) C02.14 and Volume 3 Terminal 4 Apron Expansion (East Sheets) C02.16. The detail for the Temporary AOA Fence installed on barrier is provided on Volume 3 Terminal 4 Apron Expansion (East Sheets) C02.16. Temporary AOA Fence shall be installed on a FDOT 415 Temporary Concrete Barrier and not on a Yodock Barrier.

28. **Question:** An existing AOA Fence by others runs thru Phase E construction limits for this project. This fence appears on the combine drawing C02.01 and C02.02. How do we access and construct our work with this fence in the way? Are we required to relocate the AOA Fence by others?

**Answer:** The existing AOA Fence shown along the south end of Phase E is a Temporary AOA Fence installed by others. The AOA Construction Access Gate 504 is located north of the Temporary AOA Fence and will serve as the entrance and exit point to all construction activities required airside. To access Phase E, Contractor will utilize the Canal Crossing Landside Access Point which is also used to access Gate 504, however, as noted on Sheet C02.01 and C02.02 in the Terminal 4 Apron Expansion Volume 1 Combined Sheets, Contractor shall maintain vehicular access to AOA Construction Access Gate 504 at all times.

29. **Question:** East plan sheet C17.02 and C17.03 show a paved road to access the slide gate that has water filled barricades, striping, a porta potty, guard house (plan sheet C17.14) and a concrete island. In what Bid Item does the roadway base, asphalt, striping, water filled barricade, porta potty, guard house and concrete island get paid?

**Answer:** The access roadway to the Vehicular Access Gate shall be striped directly onto the existing parking lot pavement. Striping and Water Filled Barricades for the access roadway shall be paid for under Bid Item No. 11, Specification Section G-101-4.1 Maintenance of Traffic. The Porta Potty, Guard House, and Concrete Island shall be paid for under Bid Item No. 75, Specification Section F-162-5.3 Temporary Construction Electric Slide Gate w/ Access Controller.
30. **Question:** Page GTA3-A0.02, "NOTE: PROPOSED (3) CANOPY STRUCTURES AT MEDIAN ARE PART OF BID ALTERNATE 1;" What is the location of Bid Alternate 1 in the bid documents/bid submittal forms? Are there other items in Bid Alternate 1?

**Answer:** All canopies shown on GTA3-A0.02 shall be paid under Bid Item No. 145 GTA3-A0.02-1 Canopy, with an Estimated Quantity of six (6) EA. REVISE Note to read: Proposed Canopy Structure. There are no bid alternates for this solicitation. No changes to the Electronic Bid Sheets.

31. **Question:** Page GTA3-A0.02, "TRASH RECEPTACLES (TYP OF 7). LANDSCAPE FORMS METRO40-COLLECT, PETOSKEY, OR APPROVED EQUAL." In which bid item are the cost of trash receptacles paid?

**Answer:** Landscape Forms Trash Receptacles shall be paid under Bid Item No. 146 GTA3-LP-2.1 Landscape Modifications, LS.

32. **Question:** On Sheet E.07.03 East thru E07.05 East and Detail 4W2" on Sheet E07.07 East indicates and requires a 4W2" ductbank. There is no pay item for a 4W2" ductbank. What pay item does this work go under?

**Answer:** The 4W2" ductbank between the Recheck Facility and the Security Gate Service Pedestal shall be a 4W4" ductbank and be paid for under Bid Item No. 161 16001-1. The 4W2" Concrete Encased Ductbank in Earth/New Paved Shoulder detail shown on sheet E07.07 (east) shall be relabeled as a 4W4" Concrete Encased Ductbank in Earth/New Paved Shoulder.

All other terms, conditions and specifications remain unchanged for this bid.

NAME OF COMPANY: ____________________________________

Addendum Form 3 (rev 08/2012)

A Service of the Broward County Board of County Commissioners


Addendum No. 3
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NOTES:
1. ALL JOINT CONSTRUCTION AND MATERIALS AS WELL AS ALL CONCRETE Pavement METHODS AND MATERIALS SHALL BE IN ACCORDANCE WITH SPECIFICATION P-501, OR AS NOTED.
2. ALL MATERIALS AND WORK REQUIRED FOR JOINTS, INCLUDING JOINT SEALING, ARE INCIDENTAL TO PAVEMENT CONSTRUCTION.
3. THE MATERIALS AND METHODS SHOWN ON THIS SHEET ARE THE MINIMUM REQUIREMENTS. OTHER MATERIALS AND METHODS MAY BE USED IF APPROVED BY THE ENGINEER.
4. ALL JOINTS SHALL BE SEALED IN ACCORDANCE WITH SPECIFICATION P-605.
5. PLANS AND SPECIFICATIONS APPLY TO MOST RECENT VERSION OF FEDERAL AVIATION ADMINISTRATION POLAR CONSTRUCTION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS AND PAVEMENT DESIGN EVALUATION.
6. FOR ALL JOINTS FORMED BRICKS WILL NOT BE ALLOWED.
7. A TRANVERSE DOWELED CONSTRUCTION JOINT SHALL BE INSTALLED AT A PLANED JOINT WHEN PAVING OPERATIONS ARE INTERRUPTED FOR MORE THAN 15 MINUTES.
8. DOWEL BARS SHALL BE EPOXY COATED.
9. ALL JOINTS SHALL BE CENTERED ON THE JOINT UNLESS OTHERWISE NOTED.
10. DOWELS SHALL BE HELD FIRMLY IN THE ABOVE WELDED ASSEMBLY.

TYPICAL UNREINFORCED SLAB DETAIL

1. FOR SLAB DEEPER THAN 2 SHORT HOURS FROM THE TOP SLAB EDGE, SIZES SHALL BE DEFEATED TO SHORT HOURS FROM THE TOP SLAB EDGE.
2. DOWELS SHALL BE INSTALLED AT LEAST 2 SHORT HOURS FROM ANY SLAB CORNER.

TYPICAL TERRA INRIGULAR SLAB DETAIL

1. ALL JOINT CONSTRUCTION AND MATERIALS AS WELL AS ALL CONCRETE Pavement METHODS AND MATERIALS SHALL BE IN ACCORDANCE WITH SPECIFICATION P-501, OR AS NOTED.
2. ALL MATERIALS AND WORK REQUIRED FOR JOINTS, INCLUDING JOINT SEALING, ARE INCIDENTAL TO PAVEMENT CONSTRUCTION.
3. THE MATERIALS AND METHODS SHOWN ON THIS SHEET ARE THE MINIMUM REQUIREMENTS. OTHER MATERIALS AND METHODS MAY BE USED IF APPROVED BY THE ENGINEER.
4. ALL JOINTS SHALL BE SEALED IN ACCORDANCE WITH SPECIFICATION P-605.
5. PLANS AND SPECIFICATIONS APPLY TO MOST RECENT VERSION OF FEDERAL AVIATION ADMINISTRATION POLAR CONSTRUCTION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS AND PAVEMENT DESIGN EVALUATION.
6. FOR ALL JOINTS FORMED BRICKS WILL NOT BE ALLOWED.
7. A TRANVERSE DOWELED CONSTRUCTION JOINT SHALL BE INSTALLED AT A PLANED JOINT WHEN PAVING OPERATIONS ARE INTERRUPTED FOR MORE THAN 15 MINUTES.
8. DOWEL BARS SHALL BE EPOXY COATED.
1. All joint construction and materials as well as all concerns for joints, including joint sealing, are incidental to pavement construction.

2. All materials and methods shown on this sheet are the minimum requirements. Other materials and methods may be used if approved by the engineer.

3. Plans and specifications shown on this sheet are the minimum requirements. Other materials and methods may be used if approved by the engineer.

4. All joints shall be sealed in accordance with specification 13-20.

5. Planar and surface treatment shown in this sheet are the minimum requirements. Other materials and methods may be used if approved by the engineer.

6. All joints, formed before, will not be allowed.

7. A transverse dowelled construction joint shall be installed at a planned joint when paving operations are interrupted for more than 10 minutes. When paving operations are interrupted for more than 30 minutes, the joint shall be expanded at least 2 inches.

8. Sections 3250 and 3260 shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints.

9. Joints between sections 3250 and 3260 shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints.

10. All details shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints. Expansion joints shall be securely supported by expansion joints.
CONSTRUCTION CONTRACT DOCUMENTS
FOR THE FOLLOWING PROJECT:

TERMINAL 4 APRON EXPANSION
FOR THE
AVIATION DEPARTMENT

BROWARD COUNTY
through its
BOARD OF COUNTY COMMISSIONERS
of
BROWARD COUNTY, FLORIDA

BID/CONTRACT NO.: Z1145017C1
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| C 02.31 | UTILITY DEMOLITION PLAN |
| C 02.32 | UTILITY DEMOLITION PLAN |
| C 02.34 | UTILITY DEMOLITION PLAN |
| C 02.35 | UTILITY DEMOLITION PLAN |</p>
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<tr>
<th>Section</th>
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<td>SITE</td>
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<td>E 07.04</td>
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<td>C 09.04</td>
<td>DRAINAGE PLAN</td>
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**E 08 SERIES WAS COMBINED WITH E 12 SERIES**
| 09.05 | DRAINAGE PLAN |
| 09.10 | EXISTING DRAINAGE BASINS |
| 09.11 | PROPOSED DRAINAGE BASINS |
| 09.12 | EXISTING DRAINAGE STRUCTURE TABLES |
| 09.13 | PROPOSED DRAINAGE STRUCTURE TABLES |
| 09.14 | DRAINAGE PROFILES |
| 09.15 | DRAINAGE PROFILES |
| 09.16 | DRAINAGE PROFILES |
| 09.17 | OIL/WATER SEPARATOR SECTIONS |
| 09.18 | OIL/WATER SEPARATOR DETAILS |
| 09.19 | DRAINAGE STRUCTURE SECTIONS |
| 09.20 | DRAINAGE STRUCTURE DETAILS |
| 09.21 | DRAINAGE STRUCTURE TYPICAL DETAILS |

**GRADING**

| 10.00 | GRADING PLAN KEY SHEET |
| 10.01 | GRADING PLAN |
| 10.02 | GRADING PLAN |
| 10.04 | GRADING PLAN |
| 10.05 | GRADING PLAN |

| 10.10 | EARTHWORK CROSS SECTIONS KEY SHEET |
| 10.11 | EARTHWORK CROSS SECTIONS AND NOTES |
| 10.12 | EARTHWORK CROSS SECTIONS AND NOTES |
| 10.13 | EARTHWORK CROSS SECTIONS AND NOTES |
| 10.14 | EARTHWORK CROSS SECTIONS AND NOTES |
| 10.15 | EARTHWORK CROSS SECTIONS AND NOTES |
| 10.16 | EARTHWORK CROSS SECTIONS AND NOTES |

**PAVEMENT**

| 11.00 | AIRFIELD PAVEMENT PLAN KEY SHEET |
| 11.01 | AIRFIELD PAVEMENT PHASING PHASE A-1 |
| 11.02 | AIRFIELD PAVEMENT PHASING PHASE A-2 |
| 11.03 | AIRFIELD PAVEMENT PHASING PHASE B |
| 11.05 | AIRFIELD PAVEMENT PANEL IDENTIFICATION |
| 11.06 | AIRFIELD PAVEMENT PANEL IDENTIFICATION |

| 11.10 | AIRFIELD PAVEMENT JOINT ELEVATION PLAN KEY SHEET |
| 11.11 | AIRFIELD PAVEMENT JOINT ELEVATION PLAN |
| 11.14 | AIRFIELD PAVEMENT JOINT ELEVATION PLAN |
| 11.15 | AIRFIELD PAVEMENT JOINT ELEVATION PLAN |

| 11.20 | AIRFIELD PAVEMENT JOINT LAYOUT PLAN KEY SHEET |
| 11.21 | AIRFIELD PAVEMENT JOINT LAYOUT PLAN |
| 11.24 | AIRFIELD PAVEMENT JOINT LAYOUT PLAN |
| 11.25 | AIRFIELD PAVEMENT JOINT LAYOUT PLAN |

| 11.31 | PAVEMENT DETAILS |
| 11.32 | PAVEMENT DETAILS AND NOTES |
C 11.33 PAVEMENT DETAILS AND NOTES
C 11.34 PAVEMENT DETAILS AND NOTES
C 11.35 TYPICAL PAVEMENT CROSS-SECTIONS

LIGHTING
E 12.01 ELECTRICAL GENERAL NOTES
E 12.02 AIRFIELD LIGHTING LEGEND
E 12.03 ELECTRICAL KEY MAP
E 12.04 ELECTRICAL DEMOLITION PLAN
E 12.05 ELECTRICAL DEMOLITION PLAN
E 12.06 ELECTRICAL LIGHTING LAYOUT PLAN
E 12.07 ELECTRICAL LIGHTING LAYOUT PLAN
E 12.08 ELECTRICAL LIGHTING LAYOUT PLAN
E 12.09 ELECTRICAL LIGHTING LAYOUT PLAN
E 12.10 ELECTRICAL LIGHTING CIRCUITRY PLAN
E 12.11 ELECTRICAL LIGHTING CIRCUITRY PLAN
E 12.12 ELECTRICAL LIGHTING CIRCUITRY PLAN
E 12.13 ELECTRICAL LIGHTING CIRCUITRY PLAN
E 12.14 ELECTRICAL LIGHTING DETAIL
E 12.15 ELECTRICAL LIGHTING DETAIL
E 12.16 ELECTRICAL LIGHTING DETAIL
E 12.17 SIGNAGE DETAILS AND NOTES
E 12.18 SIGNAGE LEGEND, DETAILS AND NOTES

SIGNAGE AND PAVEMENT MARKING
C 13.00 PAVEMENT MARKING AND SIGNAGE KEY SHEET
C 13.01 PAVEMENT MARKING AND SIGNAGE PLAN
C 13.02 PAVEMENT MARKING AND SIGNAGE PLAN
C 13.04 PAVEMENT MARKING AND SIGNAGE PLAN
C 13.05 PAVEMENT MARKING AND SIGNAGE PLAN
C 13.11 PAVEMENT MARKING AND SIGNAGE DETAILS AND NOTES
C 13.12 PAVEMENT MARKING AND SIGNAGE DETAILS AND NOTES
C 13.13 PAVEMENT MARKING AND SIGNAGE DETAILS AND NOTES
C 13.14 PAVEMENT MARKING AND SIGNAGE DETAILS AND NOTES

JET BLAST DEFLECTOR
C 14.01 JET BLAST DEFLECTOR PLAN
C 14.21 JET BLAST DEFLECTOR FOUNDATION DETAILS

GTA-3 AREA EXPANSION
A0.00 COVER PAGE
GTA3 - A0.01 SITE MAPS, INDEX AND NOTES
GTA3 - A0.02 PROPOSED SITE PLAN AND CANOPY LOCATIONS
GTA3 -1 SURVEY
GTA3 - CS1.01 CONSTRUCTABILITY/MOT PLAN PHASE 1
GTA3 - CS1.02 CONSTRUCTABILITY/MOT PLAN PHASE 2
GTA3 - CS1.03 CONSTRUCTABILITY/MOT PLAN PHASE 3
GTA3 - CS1.04  CONSTRUCTABILITY/MOT SIGNAGE
GTA3 - C1    DEMOLITION PLAN
GTA3 - C2    ENGINEERING PLAN
GTA3 - C3    SPECIFICATIONS AND NOTES
GTA3 - C4    DETAILS
GTA3 - C5    PAVEMENT MARKING AND SIGNAGE PLAN
GTA3 - C6.00 WATER, ELECTRICAL AND COMMUNICATIONS DUCT BANK SITE PLAN
GTA3 - C6.01 ELECTRICAL DUCT BANK PROFILE I
GTA3 - C6.02 COMMUNICATIONS DUCT BANK PROFILE II
GTA3 - C7.00 GRADING PLAN
GTA3 - C8.00 DRAINAGE PLAN
GTA3 - LD1   LANDSCAPE DEMOLITION PLAN
GTA3 - LI1   IRRIGATION PLAN
GTA3 - LI2   IRRIGATION PLAN PUMP LOCATION
GTA3 - LP1   LANDSCAPE GRADING AND RELOCATION PLAN
GTA3 - LP2   LANDSCAPE PLAN
GTA3 - S1.01 STRUCTURAL NOTES, LOCATION PLAN, AND SECTIONS
GTA3 - E1.01 ELECTRICAL DEMO PLAN, INDEX, AND NOTES
GTA3 - E1.02 ELECTRICAL SITE PLAN
SECTION 1 - CONTRACT EXECUTION

CONTRACTOR hereby agrees to furnish all of the labor, materials, equipment, services, and incidentals necessary to perform all of the Work described in the Contract Documents for the Project for the Contract Base Amount and within the Contract Time.

IN WITNESS WHEREOF, the parties hereto have made and executed this Contract on the respective dates under each signature: Broward County, Florida through its Board of County Commissioners, signing by and through its Mayor or Vice-Mayor, authorized to execute same by Board action on the 10th day of September, 2013, and CONTRACTOR, signing by and through its authorized representative, duly authorized to execute same.

COUNTY ADMINISTRATOR ATTEST:
County Administrator and Ex-Officio Clerk of the Board of County Commissioners

Date

COUNTY MAYOR or VICE-MAYOR:
Mayor or Vice-Mayor

Date

COUNTY RISK MANAGER:
Approved as to surety company qualifications, insurance requirements and insurance documentation.

Date

COUNTY ATTORNEY:
Approved as to form by
Joni Armstrong Coffey
Broward County Attorney
Aviation Office
2200 SW 44th Street, Suite 101
Dania Beach, Florida 33312
Telephone: (954) 359-5103
Telexer: (954) 359-1292

Date

CORPORATE SECRETARY ATTEST:
(Affix Corporate Seal or 2 Witnesses below)

Date

CONTRACTOR:

Date

Print Name

Name of Contractor

Signature

Print Name and Title of Signer

11th Day of September, 2013
## SECTION 2 - SUMMARY OF TERMS AND CONDITIONS

Note: The Terms and Conditions listed below are part of the Contract and are intended to be read together with the Articles referenced, however in the case of a discrepancy, the Summary of Terms and Conditions shall govern.

<table>
<thead>
<tr>
<th>Article</th>
<th>Description</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2.1</td>
<td>Preconstruction Work Completion</td>
<td>Mobilization &amp; Preconstruction Work complete – 30 calendar days from 1st Notice-to-Proceed (NTP)</td>
</tr>
<tr>
<td>5.3.2</td>
<td>Project Substantial Completion</td>
<td>1210 calendar days from the Project Initiation Date as defined in the 2nd NTP; Excluding days between Suspension of Work after Substantial Completion of Phase A-2 and Phase E and Notification of Resumption of Work for Phase B.</td>
</tr>
<tr>
<td>5.3.4</td>
<td>Project Final Completion</td>
<td>1300 calendar days from the Project Initiation Date as defined in the 2nd NTP; Excluding days between Suspension of Work after Substantial Completion of Phase A-2 and Phase E and Notification of Resumption of Work for Phase B.</td>
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<tr>
<td>5.2.1</td>
<td>Liquidated Damages for each calendar day after time specified in 1st NTP</td>
<td>$ (None) per calendar day</td>
</tr>
<tr>
<td>5.3.3</td>
<td>Liquidated Damages for each calendar day after time specified for Project Substantial Completion</td>
<td>$19,600 per calendar day</td>
</tr>
<tr>
<td>5.3.4</td>
<td>Liquidated Damages for each calendar day after time specified for Project Final Completion</td>
<td>$9,800 per calendar day</td>
</tr>
<tr>
<td>5.3.5</td>
<td>Liquidated Damages for each calendar day after time specified for Interim and Final Milestones:</td>
<td>Milestone No. 1 – Substantial Completion of Phase A-1 (Taxiway Delta Operational) $0 per calendar day / 120 calendar days from Project Initiation Date defined in the 2nd NTP Milestone No. 2 – Substantial Completion of Phase A-2 (Taxi lane Tango Operational) and Substantial Completion of Phase E (Eastern Hardstands Operational) $19,600 per calendar day / 340 calendar days from Project Initiation Date in the 2nd NTP Milestone No. 3 – Substantial Completion of Phase B (Concourse G Gates G10 &amp; G11 Operational) $19,600 per calendar day / 170 calendar days from Project Resumption Date in Construction Project Manager Notification Milestone No. 4 – Substantial Completion of Phase F (Concourse G Gates G1 through G6 Operational) $19,600 per calendar day / 490 calendar days from Project Resumption Date in Construction Project Manager Notification Milestone No. 5 – Substantial Completion of Phase G1 (Concourse G Gate G9 Operational) $19,600 per calendar day / 610 calendar days from Project Resumption Date in Construction Project Manager Notification Milestone No. 6 – Substantial Completion of Phase G2 (Northern Parallel Taxi lane Tango Operational) $0 per calendar day / 740 calendar days from Project Resumption</td>
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</table>

Note 1: Liquidated Damages are NOT cumulative. Note 2: Work area Phase B will be released to the awarded Contractor no earlier than April 1, 2015.
<table>
<thead>
<tr>
<th>Milestone No.</th>
<th>Description</th>
<th>Date in Construction Project Manager Notification</th>
<th>Milestone No.</th>
<th>Description</th>
<th>Date in Construction Project Manager Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Substantial Completion of Phase C53 (Southern Parallel Taxilane Tango-8 Operational)</td>
<td>$19,600 per calendar day / 870 calendar days from Project Resumption Date in Construction Project Manager Notification</td>
<td>8</td>
<td>Final Completion of All Work in WP 404/408</td>
<td>$9,800 per calendar day / 960 calendar days from Project Resumption Date in Construction Project Manager Notification</td>
</tr>
</tbody>
</table>

| 20.6 | Contractor self-performing percent of Contract Price | 25% |
| 27.5 | Compensable Delay for each calendar day of Compensable Excusable Delay beyond the Contract Time | $4,700 per calendar day |

For County:
Broward County Aviation Department
AV Director AEP, Steven Wiesner
2200 SW 45 St, Suite 101
Dania Beach, FL 33312

For Contractor:
Tutter Perini Corporation
Kevin J. Woods
1000 Main St
New Rochelle, NY 10801

47 | The parties designate the following as the respective places for giving of notice: |

SP-1B | Disadvantaged Business Enterprise (DBE) goals | At bid 22% As awarded 22.09% |

ITB, Form 2: Schedule of Prices Bid | Contract Base Amount | $ See Bidder’s Response |


Notice of Award | Contract Price (To be determined at Notice of Award) | $37,194,000 |
SECTION 3 - GENERAL CONDITIONS

Article 1: Contract Definitions

For purposes of this Contract, reference to one gender shall include the other, use of the plural shall include the singular, and use of the singular shall include the plural. The following definitions and identifications set forth below apply unless the context in which the word or phrase is used requires a different definition. Whenever the following terms or pronouns in place of them appear in the Contract Documents, the intent and meaning shall be interpreted as follows:

1.1. Allowance Account: Account(s) in which stated dollar amount(s) are included in the Contract for the purpose of funding portions of the Work for specific tasks which were not included at the time of execution of the Contract, or for permitting costs, extra Work due to unforeseen conditions, construction changes, adjustments of quantities, dispute avoidance and resolution, Work deemed desirable by the COUNTY to be incorporated into the Contract, and other items and tasks as specified in the Contract Documents. Performance of work, if any, under Allowance Account(s) will be authorized by written CPEAM(s).

1.2. Beneficial Occupancy: Occupancy by the COUNTY in its sole discretion of any portion of the Work prior to Substantial Completion of the Work. Such occupancy will not relieve the CONTRACTOR of its obligation to fully complete the Work in accordance with the Contract Documents.

1.3. Change Order: A written document ordering a change in the Contract Price, Contract Time, or a material change in the Work, issued in accordance with Broward County procurement procedures.

1.4. Claim: A request for additional compensation or time which has been rejected by the COUNTY and resubmitted by the CONTRACTOR for evaluation in accordance with the Contract Documents.

1.5. Consultant: Architect, Engineer, Program Manager, or Project Manager which has contracted with COUNTY, or COUNTY employee designated to perform professional services, on this Project. COUNTY will identify the Project Consultant(s) at the Preconstruction Meeting, or during the progress of the Work.

1.6. Contract Base Amount: That portion of the Contract Price which excludes unexpended portions of Allowance Accounts. The Contract Base Amount may be increased or decreased by the issuance of a CPEAM or a Change Order.

1.7. Contract Documents or Contract: The official documents setting forth the requirements and contractual obligations for the Project, including the Summary of Terms and Conditions, General Conditions, Special Provisions, Plans, Technical Specifications through the end, Invitation to Bid, Addenda, Approved Shop Drawings, Bid Sheets, Bonds, Notice of Award, Notices(s) to Proceed, representations and certifications submitted prior to award and accepted by the COUNTY, Project Forms, Change Order(s), CPEAMs, Field Orders, and any additional documents required by this Project.
1.8. Contract Price: The original amount established in the award by COUNTY, inclusive of Allowance Accounts, as may be amended by Change Order.


1.10. Contract Time: The original time between the Project Initiation Date in the Second Notice to Proceed and Substantial Completion including any Milestone dates established in this Contract, as may be amended by Change Order or CPEAM. Contract obligations may survive Contract Time.

1.11. CONTRACTOR: The entity with whom Broward County has contracted and which is responsible for the acceptable performance of the Work and for the payment of all legal debts pertaining to the Work. All references in the Contract Documents to third parties under contract or control of CONTRACTOR shall be deemed to be a reference to CONTRACTOR. CONTRACTOR is an independent contractor, and neither CONTRACTOR nor its agents are employees or agents of the COUNTY. This Contract shall not create a partnership or joint venture.

1.12. Cost of Work: Where no lump sum or unit price is provided within the Contract Documents, work may be authorized by Change Order or CPEAM to be performed by the CONTRACTOR with payment to be made for material, equipment, and labor furnished, plus the contractually-established fee for Overhead and Profit, up to the maximum amount established in the Change Order or CPEAM.

1.13. COUNTY or Owner: Broward County, Florida; provided however, in the event COUNTY exercises its regulatory authority as a governmental body, the exercise of such regulatory authority and the enforcement of any rules, regulations, laws and ordinances shall be deemed to have occurred pursuant to COUNTY's regulatory authority as a governmental body and shall not be attributable in any manner to COUNTY as a party to this Contract.

1.14. COUNTY Representative: An authorized representative of the COUNTY identified in a written notice to CONTRACTOR.

1.15. Day(s): Shall mean a calendar day.

1.16. Delay: An event which extends the Contract Time. A delay to a task which does not extend the Contract Time is not considered a Delay event.

1.17. Drawings: The official graphic representations of this Project which are a part of the Contract Documents.

1.18. Field Order: A written order which orders clarifications or minor changes in the Work which does not involve a change in the Contract Base Amount or Contract Time.

1.19. Final Completion: The date upon which all conditions and requirements of the Contract Documents, permits and regulatory agencies have been satisfied; any documents required by the Contract Documents have been received by COUNTY; any other documents required to be provided by CONTRACTOR have been received by...
COUNTY; and the Work has been fully completed in accordance with the Contract Documents.

1.20. First Notice to Proceed (First NTP): The written notice to CONTRACTOR authorizing preconstruction Work, which includes submission of applications for construction permits to applicable permitting authorities and completion of all other documents or activities required for permitting; submission of a project schedule, schedule of values, submittals, submittal schedule, topographical or physical features surveys, and all warranty forms; and performance of Work that does not require permits.

1.21. LEED (Leadership in Energy and Environmental Design): The rating system for green building practices created by the United States Green Building Council (USGBC).

1.22. Materials: Materials incorporated in this Project.

1.23. Milestone: An element of the Work as described in the Contract Documents with associated Liquidated Damages.

1.24. Notice(s) to Proceed (NTP): Written notice to CONTRACTOR authorizing the commencement of the activities identified in the notice or as described in the Contract Documents.

1.25. Overhead and Profit: All CONTRACTOR's costs associated with insurance premiums, supervision, coordination, superintendents, foremen, consultants, schedulers, estimators, cost controllers, accountants, office administrative personnel, time keepers, clerks, secretaries, watch persons, small tools, equipment or machinery, utilities, office rent, storage rental costs, telephones, facsimile machines, computers, printers, plotters, computer software, all expendable items, job site and general office expenses, profit, extended jobsite general conditions, interest on monies retained by the COUNTY, escalated costs of materials and labor, home office expenses or any cost incurred that may be allocated from offices of the CONTRACTOR or any of its Subcontractors, loss of any anticipated profits, loss of bonding capacity or capability losses, loss of business opportunities, loss of productivity on this or any other project, loss of interest income on funds not paid, inefficiencies, costs to prepare a bid, cost to prepare a quote for a change in the Work, costs to prepare, negotiate or prosecute claims, costs of legal and accounting work, costs spent to achieve compliance with applicable laws and ordinances, loss of projects not bid upon, and all other expenses not specifically identified as Cost of Work.

1.26. Project: The construction project described in the Contract Documents, including the Work described therein.

1.27. Project Initiation Date: The date upon which the Contract Time commences, as established by Second NTP.

1.28. Public Art: Artwork created under The Public Art and Design Program ("Public Art Program") established and codified in Section 1-88 of the Broward County Code of Ordinances, as amended.

1.29. Second Notice to Proceed: The written notice of CONTRACTOR authorizing commencement of construction Work. Except for the reimbursement of permit
application fees as may be provided in the Contract Documents, CONTRACTOR shall not be entitled to compensation of any kind until issuance of the Second Notice to Proceed. The Contract Time shall commence on the Project Initiation Date stipulated in the Second Notice to Proceed. Delivery of all items, and completion of all activities required by the First Notice to Proceed shall be a condition precedent to the issuance of the Second Notice to Proceed.

1.30. Subcontractor: A person, firm or corporation having a direct contract with CONTRACTOR to perform a portion of the Work, including any persons, firms or corporations having a direct contract with any Subcontractor at any tier, and including their employees.

1.31. Substantial Completion: That date, as certified in writing by Consultant and as finally determined by COUNTY in its sole discretion, the Work is at a level of completion in substantial compliance with the Contract Documents such that all conditions of permits and regulatory agencies have been satisfied and the COUNTY can use or operate the Project for its intended purpose. A Final Certificate of Completion or other permit closures by the authority having jurisdiction must be issued for Substantial Completion to be achieved; however, the issuance of a Final Certificate of Completion does not determine Substantial Completion.

1.32. Surety: The entity which is bound by the performance bond and payment bond with and for CONTRACTOR in accordance with Section 255.05, Florida Statutes.

1.33. Work: The construction and services required by the Contract Documents, including all labor, materials, equipment and services provided or to be provided by CONTRACTOR to fulfill CONTRACTOR's obligations. The Work may constitute the whole or a part of the Project.

Article 2: Intention of COUNTY

It is the intent of COUNTY to describe in the Contract Documents a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents and in accordance with all codes and regulations governing construction of the Project. Any work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied by CONTRACTOR whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials or equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals, or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of bids and CONTRACTOR shall comply therewith unless otherwise provided in the Contract Documents. COUNTY shall have no duties other than those duties and obligations expressly set forth within the Contract Documents.

Article 3: Separate Contracts

3.1. COUNTY reserves the right to let other contracts in connection with or adjacent to this Project. CONTRACTOR shall afford other contractors reasonable access to the site for the execution of their work. CONTRACTOR shall conduct its work so as not to interfere
with or hinder the progress of completion of the construction performed by other Contractors. Contractors working on the same Project shall cooperate with each other as directed by the COUNTY Representative. Coordination with other contractors shall not be grounds for excusable delay.

3.2. If any part of CONTRACTOR’s Work depends upon the work of others, CONTRACTOR shall inspect and promptly report to COUNTY any defects in such Work that render it unsuitable. CONTRACTOR’s failure to report defects shall constitute a waiver of those defects, except as to latent defects.

Article 4: Interpretation of the Contract

4.1. The Contract is made up solely of the Contract Documents. The Contract Documents must be read as a whole, and anything in one such document must be read as included in all other documents, unless the context requires otherwise.

4.2. Where there is a conflict between any provision in the Contract Documents and a more stringent state or federal provision that is applicable to this Project, the more stringent state or federal provision shall prevail.

Article 5: Contract Time

5.1. CONTRACTOR shall be instructed to commence the Work by written instruction in the form of a Purchase Order issued by the COUNTY and two or more Notices to Proceed issued by the COUNTY. The First Notice to Proceed and Purchase Order will not be issued until CONTRACTOR’s submission to COUNTY of all required documents and after execution of the Contract by both parties.

5.2. First Notice to Proceed.

5.2.1. Preconstruction Work shall be commenced within ten (10) calendar days after the issuance of the First Notice to Proceed. CONTRACTOR shall have ten (10) days after receipt of signed and sealed Contract drawings to apply for all construction permits to the applicable permitting authority. Failure to complete the tasks authorized by the First Notice to Proceed within the time specified in these Contract Documents shall be grounds to terminate the Contract for cause. Alternatively, COUNTY may assess Liquidated Damages. The liquidated amount is set forth in the Summary of Terms and Conditions.

5.2.2. After issuance of the First Notice to Proceed, and before the COUNTY issues a Second Notice to Proceed, CONTRACTOR shall submit to COUNTY all of the following items for OWNER’s approval:

5.2.2.1. A project schedule in compliance with the requirements of Division 1.

5.2.2.2. A preliminary schedule of Shop Drawing submissions;

5.2.2.3. A preliminary schedule of values in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.
5.2.2.4. Utility coordination schedule: CONTRACTOR shall meet with all utility owners and secure from them a schedule of utility relocation. COUNTY shall not be responsible for the nonperformance by the utility owners.

5.2.2.5. All permits required by authorities having jurisdiction for all portions of the Work, unless otherwise provided by the Contract Documents.

5.2.3. Preconstruction Meeting: After receipt of all items identified above, a Preconstruction Meeting will be held to discuss procedures for conducting the Work, including but not limited to designating individuals to receive communications; for required submissions, inspections and approvals; for processing Applications for Payment; and to establish a working understanding among the parties as to the Work.

5.3. Second Notice to Proceed.

5.3.1. After the Preconstruction Meeting, CONTRACTOR may begin to perform the balance of the Work on the Project Initiation Date specified in the Second Notice to Proceed.

5.3.2. Time is of the essence throughout this Contract. The Work shall be substantially completed within the time set forth in the Summary of Terms and Conditions, specified in the Second Notice to Proceed.

5.3.3. Upon failure of CONTRACTOR to substantially complete the Contract within the specified period of time, plus approved time extensions, COUNTY shall deduct from monies otherwise due the CONTRACTOR a liquidated amount assessed daily until Substantial Completion. The liquidated amount is set forth in the Summary of Terms and Conditions.

5.3.4. After Substantial Completion, should CONTRACTOR fail to complete the remaining Work within the time specified for Final Completion, COUNTY shall deduct from monies otherwise due the CONTRACTOR a liquidated amount assessed daily until Final Completion. The liquidated amount is set forth in the Summary of Terms and Conditions.

5.3.5. Failure to meet interim Milestones shall also be cause for the COUNTY to deduct from monies otherwise due the CONTRACTOR a liquidated amount assessed daily as set forth in the Summary of Terms and Conditions.

5.4. The liquidated amounts are not penalties but are Liquidated Damages to COUNTY for costs incurred due to CONTRACTOR's untimely performance. Liquidated Damages are hereby fixed and agreed upon between the parties, recognizing the impossibility of precisely ascertaining the amount of damages that will be sustained by COUNTY as a consequence of such delay, and both parties desiring to obviate any question of dispute concerning the amount of said damages and the cost and effect of the failure of CONTRACTOR to complete the Contract on time. By submitting a bid, CONTRACTOR acknowledges that the amounts established for Liquidated Damages for preconstruction Work, Substantial Completion, Final Completion, and any intermediate Milestones are fair and reasonable. Such Liquidated Damages shall
apply separately to each portion of the Project for which a time for completion is
given. CONTRACTOR waives any and all challenges and legal defenses to the
validity of any Liquidated Damages established in the Contract Documents, including
that the Liquidated Damages are void as penalties or are not reasonably related to the
actual damages sustained by the COUNTY as a result of CONTRACTOR’s untimely
performance.

5.5. Liquidated Damages shall be deducted from monies otherwise due CONTRACTOR
until Final Completion, whether or not the COUNTY terminates CONTRACTOR for
cause and whether or not Surety completes the project after a default by
CONTRACTOR.

5.6. CONTRACTOR, in addition to reimbursing COUNTY for Liquidated Damages for
untimely performance, shall reimburse COUNTY for all costs incurred by COUNTY to
repair, restore, or complete the Work. All such costs shall be deducted from the
monies otherwise due CONTRACTOR for performance of Work under this Contract
by means of unilateral credit Change Orders issued by COUNTY.

Article 6: Contract Documents

6.1. The Contract Documents shall be followed in strict accordance as to work, performance,
material, and dimensions.

6.2. Dimensions given in figures are to hold preference over scaled measurements from the
drawings; however, all discrepancies shall be resolved by Consultant. CONTRACTOR
shall not proceed when in doubt as to any dimension or measurement, but shall seek
clarification from Consultant.

6.3. CONTRACTOR shall be furnished, free of charge, the number of copies of the Contract
Documents established in Division 1, two (2) of which shall be preserved and always
kept accessible to Consultant and Consultant’s authorized representatives on the Project
site. Additional copies of the Contract Documents may be obtained from COUNTY at the
cost of reproduction.

6.4. CONTRACTOR shall maintain in a safe place at the Project site one record copy of all
Drawings and other Contract Documents. These record documents, together
with all approved samples and a counterpart of all approved Shop Drawings, shall be
available at all times to COUNTY for reference. Upon Final Completion of the Project
and prior to Final Payment, these record documents, samples and Shop Drawings shall
be delivered to the COUNTY.

6.5. This Contract incorporates, includes, and supersedes all prior negotiations,
correspondence, conversations, agreements, and understandings, and there are no
commitments, agreements or understandings that are not contained in this Contract.
This Contract is the entire agreement between the parties, and no deviation from the
terms hereof shall be predicated upon any prior representations or agreements, whether
oral or written.

Article 7: CONTRACTOR to Check Plans, Specifications, and Data

CONTRACTOR shall inspect conditions under which Work is to be performed and verify all
dimensions, quantities and details shown on the plans, specifications or other data received
from COUNTY, and shall notify COUNTY of all errors, omissions and discrepancies found therein prior to the COUNTY's issuance of the Second Notice to Proceed. Failure to notify County of reasonably identifiable errors, omissions, or discrepancies prior to issuance of the Second Notice to Proceed shall preclude Claims for Compensable Excusable Delay associated with such items. The Contract Base Amount shall be deemed to include the most expensive or comprehensive material or system so as to deliver a complete and functional facility.

Article 8: Prosecution of the Work

8.1. The CONTRACTOR shall furnish sufficient forces, offices, facilities and equipment, and shall work such hours, including night shift and overtime operations, as necessary to ensure the prosecution of the Work in accordance with the current monthly updated progress schedule. If, in the opinion of the COUNTY Representative, the CONTRACTOR, due to its own action, falls behind in meeting the baseline schedule as presented in the current monthly updated progress schedule, the CONTRACTOR shall take such steps as may be necessary to improve its progress, and the COUNTY Representative may require the CONTRACTOR to increase the hours of work, the number of shifts, the amount of supervision, overtime operations or the amount of construction equipment without additional cost to the COUNTY.

8.2. CONTRACTOR shall be responsible for coordination of Work. All architectural, civil, structural, mechanical, electrical and other subcontractors shall be responsible for coordination of their portions of the Work with CONTRACTOR and with each affected trade.

Article 9: Supervision

9.1. CONTRACTOR shall employ on the Project during its progress a full-time competent English speaking superintendent satisfactory to COUNTY. The superintendent shall not be changed except with the written consent of COUNTY, unless the superintendent proves to be unsatisfactory to CONTRACTOR and ceases to be in its employ.

9.2. CONTRACTOR shall supervise the Work, using best practices and industry standards. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.

9.3. If CONTRACTOR finds any discrepancy between the Contract Documents and the physical conditions of the locality, or any errors, omissions, or discrepancies in the Contract Documents, CONTRACTOR shall immediately inform COUNTY, in writing.

Article 10: Labor and Materials

10.1. Unless otherwise provided in the Contract Documents, CONTRACTOR shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

10.2. CONTRACTOR shall at all times enforce strict discipline and good order among its employees and subcontractors at the Project site and shall not employ on the Project any unfit person or anyone not skilled in the Work to which they are assigned.
Article 11: Temporary Offsite Facilities

CONTRACTOR shall provide, at CONTRACTOR's own expense and without liability to COUNTY, any additional land or facilities that may be required for temporary construction facilities, or for storage of materials.

Article 12: Maintenance of Traffic

CONTRACTOR shall conduct its operations so as not to close any thoroughfare, nor interfere in any way with pedestrian, vehicular, marine or air traffic without the written consent of the proper authorities.

Article 13: Location and Damage to Existing Utilities

13.1. COUNTY does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities or structures that may be shown on the Drawings or encountered in the Work. CONTRACTOR shall identify and locate all underground and overhead utility lines, facilities, structures, or equipment affecting or affected by the Project. Any inaccuracy or omission in such information will not relieve the CONTRACTOR of its responsibility to protect such existing features.

13.2. The CONTRACTOR shall notify each utility, facility, structure, or equipment company involved at least thirty (30) days prior to the start of construction to arrange for positive underground location, relocation or support of its utility, facility, structure, or equipment which may be in conflict with or endangered by the proposed construction. Relocation of water mains or other utilities for the convenience of the CONTRACTOR shall be paid by the CONTRACTOR. All charges by companies for temporary support of their utilities, facility, structure, or equipment shall be paid for by the CONTRACTOR. All costs of permanent relocation to avoid conflict shall be the responsibility of the company involved. All relocations are to be approved by the respective owner prior to backfilling.

13.3. The CONTRACTOR shall schedule the Work in such a manner that the Work is not delayed by the utility, facility, structure, or equipment owners' relocation or support of their utilities. The CONTRACTOR shall coordinate its activities with any and all public and private owners occupying the Project site. No compensation will be paid to the CONTRACTOR for any loss of time or delay caused by private utility owners.

13.4. All overhead, surface or underground structures and utilities encountered are to be carefully protected from injury or displacement. Should the CONTRACTOR damage or interrupt the operation of a utility service or facility, CONTRACTOR shall immediately notify the proper utility service or facility owner and the COUNTY Representative. CONTRACTOR shall take all reasonable measures to prevent further damage or interruption of service.

13.5. The CONTRACTOR shall immediately repair all utilities, cables and other facilities that are damaged by its workers, equipment, or Work at its own expense with appropriate new material by skilled workers. Prior approval of the appropriate utility service and/or facility owner shall be obtained from the COUNTY Representative for the materials, workers, time of day or night, method of repairs, and any temporary or permanent repairs the CONTRACTOR may propose to any cables or utility service damaged by the
CONTRACTOR during the course of the Work. The COUNTY may remedy such damage by ordering outside parties to make repairs at the expense of the CONTRACTOR. All damaged utilities must be replaced or fully repaired to the satisfaction of the utility or facility owner. The CONTRACTOR, in such events, shall cooperate with the utility service or facility owner and the COUNTY Representative continuously until such damage has been repaired and service restored to the satisfaction of the utility service or facility.

Article 14: Safety and Protection

14.1. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Project.

14.2. CONTRACTOR shall protect the Work against all loss or damage sustained until Beneficial Occupancy by COUNTY or Substantial Completion, whichever comes first, and shall promptly repair any damage.

14.3. The CONTRACTOR shall not be responsible for normal wear resulting from the COUNTY's use of the Work after Beneficial Occupancy or Substantial Completion. However, any defect in the Work not attributable to normal wear resulting from the COUNTY's use shall be repaired by the CONTRACTOR at no additional cost to the COUNTY.

14.4. CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the Work may affect them. All damage, injury or loss to any property referred to herein, caused directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR.

14.5. CONTRACTOR shall designate a responsible member of its organization at the Work site whose duty shall be the prevention of unsafe activities or practices which may lead to accidents.

14.6. In the event of an emergency constituting an immediate hazard to the health or safety of employees, property, lessees, or the general public, the COUNTY may undertake, at the CONTRACTOR's expense without prior notice, all work necessary to correct such hazardous condition when it was caused by work of the CONTRACTOR not being in accordance with the requirements of this Contract.

Article 15: Substitutions

15.1. CONTRACTOR may request substitution of materials, articles, pieces of equipment or any changes that reduce the Contract Price by making such request to COUNTY in writing. No substitute will be allowed without a Change Order or CPEAM that adjusts the Contract Price or Contract Time. CONTRACTOR agrees to pay all COUNTY's expenses related to COUNTY's review of the request for substitution. Any substitution submitted by CONTRACTOR must meet the form, fit, function and life cycle criteria of the item proposed to be replaced and there must be a net dollar savings including COUNTY expenses for review. COUNTY may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute approved after award of the Contract.
15.2. Requests for substitutions of products will be considered prior to the COUNTY's issuance of the Second Notice To Proceed. Subsequent requests will only be considered upon submittal of substantiated evidence of product unavailability, or that there is some unreasonable difficulty in obtaining it.

15.3. Substitutions will not be considered when indicated on shop drawings or product data submittals without a separate formal request, when requested directly by Subcontractor or supplier, or when acceptance will require substantial revision of the Contract Documents.

15.4. Substitute products shall not be installed without prior written approval of COUNTY.

15.5. The COUNTY shall limit selections to products with warranties that comply with requirements of the Contract Documents.

15.6. Requests For Substitutions

15.6.1. Submit separate request for each substitution. Document each request with complete data substantiating compliance of proposed substitution with requirements of Contract Documents.

15.6.2. Identify product by Specifications section and Article numbers. Provide manufacturer's name and address, trade name of product, and model or catalog number. List fabricators and suppliers as appropriate.

15.6.3. List similar projects using product, dates of installation, and names of the owner and consultant.

15.6.4. Give itemized comparison of proposed substitution with specified product, listing variations, and reference to Specifications section and Article numbers.

15.6.5. Substitutions will not be approved if the cost to provide and install the substitutions causes the Contract Price to be exceeded.

15.6.6. List availability of maintenance services and replacement materials.

15.6.7. State effects of substitution on construction schedule, and changes required in other work or products.

15.7. CONTRACTOR Representations

15.7.1. Request for substitution constitutes a representation that the CONTRACTOR has investigated proposed product and has determined that it is equal to or superior in all respects to specified product.

15.7.2. CONTRACTOR will provide the same warranty or better for substitution as for specified product.

15.7.3. CONTRACTOR will coordinate installation of approved substitute, including making such changes as may be required for Work to be complete in all respects.
15.7.4. CONTRACTOR certifies that cost data presented is complete and includes all related costs under this Contract.

15.7.5. CONTRACTOR waives claims for additional costs related to substitution, which may later become apparent.

Article 16: Shop Drawings

16.1. CONTRACTOR shall submit Shop Drawings as required by the Contract Documents. The purpose of the Shop Drawings is to show the suitability, efficiency, technique of manufacture, installation requirements, details of the item and evidence of its compliance or noncompliance with the Contract Documents.

16.2. By the date specified in the First Notice to Proceed, CONTRACTOR shall submit to COUNTY a complete list of preliminary data on items for which Shop Drawings are to be submitted and shall identify the critical items. Approval of this list shall not relieve CONTRACTOR from submitting complete Shop Drawings, in accordance with the Contract Documents.

16.3. CONTRACTOR shall promptly request Shop Drawings from the various manufacturers, fabricators, and suppliers.

16.4. CONTRACTOR shall thoroughly review and check the Shop Drawings and each copy shall show this approval.

16.5. If the Shop Drawings show or indicate departures from the Contract requirements, CONTRACTOR shall make specific mention thereof in its letter of transmittal. Failure to point out such departures shall not relieve CONTRACTOR from its responsibility to comply with the Contract Documents.

16.6. COUNTY's review of Shop Drawings will be general and shall not relieve CONTRACTOR of responsibility for the accuracy of such Drawings, nor for the proper fitting and construction of the Work, nor for the furnishing of materials or Work required by the Contract Documents and not indicated on the Drawings. No Work called for by Shop Drawings shall be performed until the said Drawings have been reviewed.

16.7. No review will be given to partial submittals of Shop Drawings for items which interconnect and/or are interdependent where necessary to properly evaluate the design. It is CONTRACTOR's responsibility to assemble the Shop Drawings for all such interconnecting and/or interdependent items, check them and then make one submittal to COUNTY along with its comments as to compliance, noncompliance, or features requiring special attention.

16.8. If catalog sheets or prints of manufacturers' standard drawings are submitted as Shop Drawings, any additional information or changes on such drawings shall be noted.

16.9. CONTRACTOR shall submit the number of copies required by the Contract Documents. Resubmissions of Shop Drawings shall be made in the same quantity.

16.10. CONTRACTOR shall keep one set of approved Shop Drawings at the job site at all times.
Article 17: Field Layout of the Work

CONTRACTOR shall maintain lines and grades in the field. CONTRACTOR shall maintain accurate records of the location and elevation of all foundations, slabs, pipe lines, conduits, structures, maintenance access structures, handholes, fittings and the like, and shall prepare "as-built" drawings of the same which are sealed by a surveyor registered by the State of Florida. CONTRACTOR shall deliver these records in good order to COUNTY as the Work is completed. The cost of all such field layout and recording work is included in the prices bid for the appropriate items. All "as-built" drawings shall be made on electronic format and shall be submitted with each monthly pay application; once "as-builts" are completed and accepted, no further submittals will be required.

Article 18: Project Records

All Project records are public records pursuant to Florida law. CONTRACTOR and its subcontractors shall maintain all books and records and accounts, whether financial or otherwise, which relate to the Project and to any claim for additional compensation made by CONTRACTOR, including, without limitation, complete and correct records of payments to each of its Subcontractors. For each Subcontractor, the books and records and accounts shall reflect each payment to the Subcontractor and the cumulative total of the payments made to the Subcontractor. COUNTY shall have the right to inspect and copy, at COUNTY's expense, the books and records and accounts of CONTRACTOR and its Subcontractors which relate in any way to the Project, and to any claim for additional compensation made by CONTRACTOR, and to conduct an audit of the financial and accounting records of CONTRACTOR and its Subcontractors which relate to the Project and to any claim for additional compensation made by CONTRACTOR. CONTRACTOR and its subcontractors shall retain and make available to COUNTY all such books and records and accounts, whether financial or otherwise, which relate to the Project and to any claim for a period of three (3) years following Final Completion of the Project. During the Project and the three (3) year period following Final Completion of the Project, CONTRACTOR shall provide COUNTY access to its books and records and accounts upon seventy-two (72) hours' written notice. CONTRACTOR shall protect plans, blueprints and schematics from disclosure as required by Chapter 119, Florida Statutes.

Article 19: Assignment and Performance

Neither this Contract nor any interest herein shall be assigned, transferred, or encumbered by CONTRACTOR without prior written approval of COUNTY.

Article 20: Subcontracts

20.1. CONTRACTOR shall have a continuing obligation to notify COUNTY of any change in Subcontractors.

20.2. Each Subcontractor must possess certificates of competency and licenses required by law.

20.3. CONTRACTOR shall not employ any Subcontractor debarred under COUNTY procedures.
20.4. CONTRACTOR shall be fully responsible for all acts or omissions of Subcontractors in connection with the Work. Nothing in the Contract Documents shall create any contractual relationship between any Subcontractor and COUNTY, or any obligation on the part of COUNTY to pay any Subcontractor.

20.5. CONTRACTOR agrees to bind every Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of COUNTY.

20.6. CONTRACTOR shall perform the Work with its own organization, amounting to not less than the percent shown on in the Summary of Terms and Conditions.

20.7 Third-Party Beneficiaries: Except as otherwise expressly provided by these Contract Documents, neither CONTRACTOR nor COUNTY intends to directly or substantially benefit a third party by this Contract.

Article 21: Progress Payments

21.1. CONTRACTOR may submit applications for payment not more frequently than monthly for Work completed. No payment will be made in advance of work being completed. CONTRACTOR's application shall show a complete breakdown of the Project components, the quantities completed and the amount due, together with such supporting evidence as may be required by COUNTY Representative.

21.2. Each application for payment shall include but not be limited to the following documents:

21.2.1. An updated progress schedule acceptable to COUNTY as required by the Contract Documents;

21.2.2. A Certification of Payments to Subcontractors Form accompanied by a copy of the notification sent to each Subcontractor, explaining the good cause why payment has not been made;

21.2.3. A release of claims from each Subcontractor and from CONTRACTOR relative to the Work which was the subject of previous pay applications;

21.2.4. A Consent of Surety form relative to Work which is the subject of the pending pay application;

21.2.5. A completed Statement of Wage Compliance Form;

21.2.6. A Monthly Utilization Report Form;

21.2.7. Updated as-built information for Work performed during the payment period;

21.2.8. Certified payroll records as required by the Contract Documents;

21.2.9. If this Project has been assigned a LEED category, a LEED certification status report; and

21.2.10. If this Project has been assigned a LEED category, documentation of compliance with specifications for Work items that have been designated as
intended to support the COUNTY's application for LEED certification.

21.3. Applications for Payment shall be subject to approval by COUNTY. Failure to furnish supporting evidence for amounts invoiced shall result in a reduction of the amount otherwise due to CONTRACTOR. Incomplete pay applications will not be processed.

21.4. Retainage

The COUNTY shall withhold ten percent (10%) retainage from each progress payment to the CONTRACTOR until fifty percent (50%) of the Work has been completed. Thereafter, the COUNTY shall reduce to five percent (5%) the amount of retainage withheld from each subsequent progress payment made to the CONTRACTOR. Any reduction in retainage below five percent (5%) shall be at the sole discretion of the COUNTY after written request by CONTRACTOR. After Substantial Completion and after completion of all items on the punch list, the CONTRACTOR may submit a payment request for all remaining retainage. It shall be the COUNTY’s sole determination as to whether any of the items have been completed. For items deemed not to have been completed, the COUNTY may withhold retainage up to one and one-half times the total cost to complete such items. Any interest earned on retainage shall accrue to the benefit of COUNTY.

21.5. COUNTY may withhold, in whole or in part, payment to such extent as may be necessary to protect itself from loss on account of:

21.5.1. Defective work not remedied.

21.5.2. Claims filed or reasonable evidence indicating probable filing of claims by other parties against CONTRACTOR or COUNTY because of CONTRACTOR’s performance.

21.5.3. Failure of CONTRACTOR to make payments properly to Subcontractors or for materials or labor.

21.5.4. Damage to another contractor not remedied or damage to other COUNTY property not remedied.

21.5.5. Liquidated Damages and costs incurred by COUNTY for extended construction administration.

21.5.6. Failure of CONTRACTOR to provide any and all documents required by the Contract Documents.

21.5.7. Failure to perform Contract requirements.

21.6. Stored Materials and Equipment (on site):

CONTRACTOR may store materials and equipment at the Project site only on locations designated on the plans. Payment shall be made only for installed materials.
Article 22: Changes in the Work or Terms of Contract Documents

22.1. COUNTY may increase, decrease or otherwise modify the character or quantity of the Work or Contract Time. Any extra or additional Work or time within the scope of this Project must be accomplished by means of Change Orders or CPEAMs.

22.2. No modification, amendment, revision or alteration to the terms or conditions of this Contract shall be effective unless contained in a written document executed with the same formality as this Contract, or pursuant to the terms herein, or as expressly authorized in the Procurement Code.

22.3. Prior to the COUNTY’s issuance of either a Change Order or a CPEAM for extra Work or time, CONTRACTOR shall disclose any ownership relationships with any Subcontractors proposed to be doing the extra Work.

22.4. COUNTY may propose a change in the Work or may ask Contractor for a price for a potential change in the Work. Such requests are informational and are not authorizations or instructions to execute the changes or stop the Work in progress.

22.5. CONTRACTOR shall submit an estimate within 14 calendar days after receipt of the proposal request. CONTRACTOR shall provide sufficient documentation to allow evaluation of the estimate, as well as a time impact analysis for any estimate that includes a proposed extension of the Contract Time. At a minimum, CONTRACTOR shall provide data in connection with the items included in "Cost of Work" in the Article, “Value of Changed Work.”

22.6. The CONTRACTOR shall maintain its price quote for acceptance by the COUNTY for a minimum of 120 calendar days after submittal. The cost or credit to the COUNTY for any change in the work shall be determined in accordance with the provisions of the Contract Documents. The CONTRACTOR shall not be compensated for efforts expended in preparing and submitting price quotes.

Article 23: Field Orders

The COUNTY may issue Field Orders setting forth written interpretations of the intent of the Contract Documents and ordering minor changes in Work execution, providing the Field Order involves no change to the Contract Base Amount or to the Contract Time.

Article 24: Allowance Accounts

24.1. Certain portions of Work which may be required to be performed by the CONTRACTOR under this Contract are either unforeseeable or have not yet been designed, and the value of such work, if any, is included in the Contract as a specific line item(s) entitled "Allowance Account(s)."

24.1.1. Allowance Accounts shall be used to reimburse the CONTRACTOR for the actual costs of permit fees, license fees, impact fees and inspection fees paid to any governmental entity in connection with the construction of the Project; for furnishing all labor, materials, equipment and services necessary for modifications or extra Work required to complete the Project because of unforeseeable conditions; for performing minor construction changes required
to resolve or address oversight in design, COUNTY oversight, unforeseen conditions, revised regulations, technological and product development, operational changes, schedule requirements, program interface, emergencies and delays, and dispute avoidance and resolution; and for making final adjustments to estimated quantities shown on the Schedule of Prices Bid in the Bid Form to conform to actual quantities installed.

24.1.2. Other Allowance Account(s) may be used as specified in the Contract Documents.

24.1.3. The values for Allowance Accounts, if any, are included in the awarded Contract Price, but are not chargeable against the Contract Price unless and until the CONTRACTOR is directed to perform work contemplated in the Allowance Account(s) by a written CPEAM(s) issued by the COUNTY.

24.1.4. CPEAMs shall require the same documented support as Change Orders.

24.2. At such time as Work is to be performed under the Allowance Account(s), the Work shall be incorporated into the Construction Schedule and the Schedule of Values, and shall in all respects be integrated into the construction as a part of the Contract as awarded.

24.3. The CPEAM for the required Work will be issued by the COUNTY upon receipt from the CONTRACTOR of a satisfactory proposal for performance of the Work, and the acceptance thereof by the COUNTY.

24.4. COUNTY may require the CONTRACTOR to solicit competitive bids from appropriate Subcontractors and materials suppliers for performance of the Work.

24.5. The amount of an Allowance Account may be increased by a Change Order. No CPEAMs shall be issued against an Allowance Account if such CPEAMs, in the aggregate, exceed the authorized amount of that Allowance Account, until that excess has been authorized by appropriate Change Order.

24.6. In the event that COUNTY and CONTRACTOR cannot agree on a price or time adjustment for proposed Work, a CPEAM may be issued using the undisputed value or time, and the CONTRACTOR may reserve a claim for the disputed amount and time. Any reserved claim must identify the scope of Work, the maximum amount to be claimed, and the maximum number of days claimed for each item of Work. Any claim not expressly reserved in this manner is waived. Any amount reserved by the CONTRACTOR will encumber the remaining balance in the Allowance Account until the claim is resolved. Any proposed Work item having a reserved claim that exceeds the remaining balance in an Allowance Account cannot be authorized by CPEAM, but must be authorized by Change Order.

24.7. At Final Acceptance, the Contract Price shall be decreased by Change Order to credit unexpended amounts under the Allowance Accounts.
Article 25: Change Orders and CPEAMs

25.1. Changes in the Contract Price shall be authorized only by Change Orders approved in advance and issued in accordance with the provisions of the Broward County Procurement Code, as amended from time to time.

25.2. Changes in the quantity or character of the Work within the scope of the Project, including all changes resulting in changes in the Contract Base Amount, or changes in the Contract Time, may be authorized by Change Orders or CPEAMs approved in advance.

25.3. CONTRACTOR shall not start work on any changes requiring an increase in the Contract Base Amount, Contract Price or the Contract Time until a Change Order or CPEAM setting forth the adjustments is approved by the COUNTY. Upon receipt of a Change Order or CPEAM approved by COUNTY, CONTRACTOR shall promptly proceed with the change in the Work involved.

25.4. No Change Order shall take effect until CONTRACTOR delivers a Consent of Surety increasing the Payment and Performance Bonds by the amount of the Change Order.

25.5. Under circumstances determined necessary by COUNTY, Change Orders may be issued unilaterally by COUNTY when approved by the Board of County Commissioners.

Article 26: Value of Changed Work

26.1. The value of any changed Work covered by a Change Order or CPEAM shall be determined in one of the following ways:

26.1.1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of items involved. Unit prices are understood to include a component for overhead and profit.

26.1.2. By mutual acceptance of a lump sum which CONTRACTOR and COUNTY acknowledge contains a component for overhead and profit.

26.1.3. On the basis of the "Cost of Work," plus the CONTRACTOR's fee for Overhead and Profit.

26.2. Unit Price Calculation:

26.2.1. When unit prices are included in the Contract, COUNTY shall pay to CONTRACTOR the amounts determined for the total number of each of the units of work completed at the unit price stated in the Schedule of Prices Bid. The number of units contained in the bid is an estimate only, and final payment shall be made for the actual number of units incorporated in or made necessary by the Contract Documents, as may be amended by Change Order or CPEAM. Unit prices shall be full compensation for all costs, including overhead and profit, associated with completion of the Unit in full conformity with the requirements as stated in the Contract Documents.
26.2.2. Unit prices shall be those described in the Contract Documents. To be compensable, units must be measured daily by the CONTRACTOR and approved in writing by the COUNTY.

26.2.3. In no event shall the CONTRACTOR be entitled to compensation greater than the aggregate amount of the unit price times the original bid quantity of Work shown in the Bid Form unless authorized by Change Order or CPEAM.

26.2.4. The CONTRACTOR shall not be entitled to any additional compensation if actual quantities of Work performed are less than the estimated quantities shown in the Bid Form.

26.2.5. All final measurements for unit price work shall be performed by the COUNTY which shall afford the CONTRACTOR an opportunity to witness or to participate in the calculation of measurements and to review all calculations relating to final measurements.

26.3. Lump Sum Calculation:

Lump sum price Change Orders or CPEAMs shall be based on the COUNTY's proposal request, CONTRACTOR's responsive estimate, and mutual agreement between the COUNTY and the CONTRACTOR. In cases where the COUNTY and the CONTRACTOR cannot mutually agree, the extra Work will be performed on a "Cost of Work" basis.

26.4. Cost of Work Calculation:

26.4.1. The term "Cost of the Work" shall mean the sum of those allowed direct costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work described in the Change Order or CPEAM. Except as otherwise may be agreed to in writing by COUNTY, such costs shall include only the following items:

26.4.1.1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work described in the Change Order or CPEAM; payroll costs for employees not employed full time on the changed Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include salaries or wages at straight or overtime rates plus the cost of applicable fringe benefits which shall include social security contributions, unemployment and payroll taxes, workers' compensation, health and retirement benefits, sick leave, vacation and holiday pay. Employees shall not include superintendents and forepersons at the site. Overtime shall be included in the above only to the extent previously authorized by COUNTY in writing.

26.4.1.2. Cost of all materials and equipment furnished and incorporated in the changed Work including costs of transportation and storage. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment, shall accrue to COUNTY.
26.4.1.3. The rental cost of any equipment used exclusively for the changed Work, if the equipment is not used for any other part of the Work.

26.4.1.4. Payments made by CONTRACTOR to Subcontractors for work performed by Subcontractors. COUNTY may direct CONTRACTOR to obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to COUNTY.

26.4.1.5. Sales and use taxes related to the Work, and for which CONTRACTOR is liable, imposed by any governmental authority.

26.4.1.6. Royalty payments and fees for permits and licenses for changed Work when the permit or license is issued in the name of COUNTY.

26.4.1.7. Cost of premiums for additional bonds required because of changes in the Work, provided that no markup or fee will be paid on these costs.

26.4.2. The term "Cost of Work" shall not include Overhead and Profit or any of the following:

26.4.2.1. Costs due to the negligence or neglect of CONTRACTOR, any Subcontractors, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable.

26.4.2.2. Costs to correct defective Work, disposal of materials or equipment wrongly supplied, and restoring any damage to property.

26.4.2.3. Cost of special consultants, including, but not limited to, engineers, architects, testing laboratories, and surveyors employed for services specifically related to the performance of the changed Work.

26.4.2.4. Cost of materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools, which are consumed in the performance of the Work.

26.4.2.5. The cost of additional utilities, fuel and sanitary facilities at the site.

26.4.2.6. Cost of any item not expressly included in paragraph 26.4.1.

26.5. CONTRACTOR's fee for Cost of Work Overhead and Profit shall be as follows:

26.5.1. For allowed costs when the Work is performed by the CONTRACTOR's own forces, CONTRACTOR's fee shall be ten percent (10%) of the direct Cost of the Work excluding the cost of additional insurance and bonds.

26.5.2. For allowed costs incurred when the Work is performed by Subcontractors, CONTRACTOR's fee shall be seven and one half percent (7.5%) of the direct Cost of the Work excluding the cost of additional insurance and bonds. If a
subcontract is on the basis of cost of the work plus a fee, the maximum allowable to the Subcontractor as a fee for overhead and profit shall not exceed ten percent (10%). This fee shall be the maximum Overhead and Profit recoverable for changed Work by the CONTRACTOR and its Subcontractors, Sub-Subcontractors and suppliers at all tiers.

26.5.3. No fee shall be payable on items included in Overhead and Profit.

26.6. CONTRACTOR must support its request for payment under this section on a form acceptable to COUNTY with an itemized cost breakdown, and supporting data documenting payments. CONTRACTOR and the Subcontractor(s), as appropriate, shall maintain itemized daily records of costs, quantities and labor. Copies of such records, maintained as follows, shall be furnished to the COUNTY daily for approval, subject to audit.

26.6.1. Labor. On a daily basis, the CONTRACTOR and its Subcontractor(s) of any tier performing the Work shall submit records of the cost of labor attributed to changed Work. The record shall include the name, classification, date, daily hours, total hours, rate and the extension for each laborer, tradesperson, and foreperson.

26.6.2. Materials and Equipment. CONTRACTOR shall maintain records on a daily basis for equipment and materials utilized in the changed Work as follows:

26.6.2.1. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of special machinery and equipment.

26.6.2.2. Quantities of materials, prices, and extensions.

26.6.2.3. Transportation of materials.

26.7. Each Change Order and CPEAM must state whether each item of changed Work is based upon unit price, negotiated lump sum, or "Cost of Work."

26.8. Each Change Order or CPEAM amount shall include all costs for the time associated with the changed Work, when the CONTRACTOR is entitled to Compensable Excusable Delay. No separate payment shall be made for delay or extensions to the Contract Time for changed Work, and no reservation of claims for additional time by the CONTRACTOR shall be valid unless the reservation includes the number of days reserved and the scope of Work associated with those days.
Article 27: Non-Excusable And Excusable Delays

27.1. The CONTRACTOR shall document its Claim for any Contract Time extension in accordance with the requirements of the Contract Documents. Failure of the CONTRACTOR to comply with all requirements as to any particular event of Project Delay shall be deemed conclusively to constitute a waiver, abandonment or relinquishment of any and all Claims resulting from that particular event of Project delay.

27.2. Non-Excusable Delay. Any Delay which extends the completion of the Work or portion of the Work beyond the Contract Time and which is caused by the act, fault or omission of the CONTRACTOR or any Subcontractor, materialman, supplier or vendor to the CONTRACTOR. Delays in obtaining permits caused by the CONTRACTOR's actions or lack of actions are Non-Excusable Delays. A Non-Excusable Delay shall not be cause for granting a Contract Time extension and shall subject the CONTRACTOR to Liquidated Damages.

27.3. Excusable Delay. An Excusable Delay may be compensable or non-compensable. The CONTRACTOR shall be entitled to Liquidated indirect costs for Compensable Excusable Delay, in accordance with the Contract Documents.

27.4. When the Work is extended beyond the Contract Time due to an Excusable Delay, a Change Order or a CPEAM must authorize an extension of the Contract Time. When the Excusable Delay is caused by authorized changed Work, the cost of the changed Work and the Excusable Delay shall be included in the same Change Order or CPEAM.

27.5. Compensable Excusable Delay:

27.5.1. The Delay is caused by circumstances beyond the control of the CONTRACTOR or its Subcontractors, materialmen, suppliers or vendors, and

27.5.2. The Delay is caused by an act or omission of the COUNTY, or of the CONSULTANT; provided however, Delays caused by permitting agencies are Non-Compensable Excusable Delays to the extent that such Delays were not caused by the CONTRACTOR; permitting Delays caused by the CONTRACTOR are Non-Excusable Delays, and

27.5.3. The Delay is not concurrent with a Non-Compensable Delay, and

27.5.4. The Delay is not the result of the performance of unit price Work, and

27.5.5. Except as provided in this Section, CONTRACTOR shall not be entitled to any damages for Delay.

27.6. Non-Compensable Excusable Delay:

27.6.1. The CONTRACTOR shall be entitled only to a time extension and no further compensation for Non-Compensable Excusable Delay.

27.6.2. Non-Compensable Excusable Delay may be caused by circumstances beyond the control of the CONTRACTOR, its Subcontractors, materialmen, suppliers and vendors, and is also caused by circumstances beyond the control of the
COUNTY and the CONSULTANT, such as delay(s) caused by the permitting agencies, to the extent that such delays were not caused by the CONTRACTOR, or

27.6.3. Non-Compensable Excusable Delay may be caused jointly or concurrently by the CONTRACTOR or its Subcontractors, materialmen, suppliers or vendors and by the COUNTY or the CONSULTANT, or

27.6.4. Non-Compensable Excusable Delay may be caused by performance of additional unit price Work that extends the Contract Time.

27.7. Weather may be grounds for Non-compensable Excusable Delay when rains or other inclement weather conditions or related adverse soil conditions result in CONTRACTOR being unable to work at least fifty percent (50%) of the normal workday on controlling items of work identified on the accepted updated progress schedule.

27.8. In no event shall the CONTRACTOR be excused for interim Delays which do not extend the Contract Time or Milestones.

27.9. Nothing in this Contract shall be construed as waiving COUNTY’s right to Liquidated Damages for delays due to failure of Surety, Delays as a result of the CONTRACTOR’s failure to carry out the instructions of the COUNTY, or for any other Delays not specifically deemed to be Excusable Delay.

Article 28: Severe Weather

28.1. During such periods of time as are designated by the United States Weather Bureau as being a tropical storm watch or warning or a hurricane watch or warning, the CONTRACTOR, at no cost to the COUNTY, shall take all precautions necessary to secure the Project site in response to all threatened storm events, regardless of whether the COUNTY has given notice of same.

28.2. Compliance with any specific tropical storm or hurricane watch or warning precautions will not constitute additional Work.

Article 29: Notification and Claim for Change of Contract Time or Contract Base Amount

29.1. Any request for additional time or compensation shall be made by written notice to the COUNTY within two (2) days of the commencement of the event giving rise to the request. Within fourteen (14) days of the commencement of the event, or such longer period of time as authorized by the COUNTY in writing, CONTRACTOR shall submit all documentation supporting the request for additional cost or time. If the COUNTY and CONTRACTOR cannot resolve a request within sixty (60) days after submission, CONTRACTOR may re-submit the request as a Claim in accordance with the Contract Documents. The Claim shall include CONTRACTOR’s written notarized certification of the Claim in accordance with the False Claims Ordinance, Sections 1-276, et seq., Broward County Code of Ordinances.
29.2. All requests and Claims for increases to the Contract Time or Contract Base Amount shall be waived if not submitted in strict accordance with the requirements of the Contract Documents, the satisfaction of which shall be conditions precedent to entitlement.

29.3. Submission of Claims.

29.3.1. If the project has a Dispute Avoidance Panel, the CONTRACTOR must discuss the disputed issue at a Dispute Avoidance Panel meeting before the CONTRACTOR may submit a Claim. Failure to discuss a disputed matter at a Dispute Avoidance Panel meeting shall constitute a waiver of any Claim arising from that matter; and

29.3.2. Each Claim must be submitted within ninety (90) days of the submission of the request for an adjustment to the Contract Time or Contract Base Amount.

29.3.3. Each Claim must include a description of the disputed work, the amount sought by the CONTRACTOR and the number of days of Delay sought by the CONTRACTOR. The Claim must be accompanied by all job records supporting entitlement and the amounts and time sought. A time impact analysis shall be provided to support any claim for additional time. The COUNTY shall be entitled to review additional job records to evaluate the submitted claim.

29.4. Reservation of Claim Amounts and Time.

29.4.1. The CONTRACTOR may reserve a timely-submitted Claim by executing a conditional release in a CPEAM or Change Order, which states the amount and time sought in the Claim and identifies the Scope of Work giving rise to the Claim. Unquantified amounts or time claimed will not preserve a Claim or a right to a Claim.

29.4.2. If the COUNTY agrees to pay a portion of a Claim, the CONTRACTOR may reserve the remaining portion of the Claim by executing a conditional release in a CPEAM or Change Order, which states the remaining amount and time sought in the Claim and identifies the Scope of Work giving rise to the Claim. Unquantified amounts or time claimed will not preserve a Claim or a right to a Claim.

29.4.3. CONTRACTOR may not refuse to complete work that is the subject of a dispute or a Claim.

29.4.4. Each Change Order shall contain a release and waiver of all claims as of the date the CONTRACTOR signs the Change Order, except as specifically included in a reservation of claims within the Change Order. The reservation of Claims shall, as to each reserved individual Claim, state the amount and time sought in the Claim and identify the Scope of Work giving rise to the Claim. Any Claim not included in the reservation of Claims is waived and abandoned; and unquantified amounts or time are also waived and abandoned.

29.4.5. If any Claims remain unresolved at Substantial Completion, the parties shall participate in mediation within sixty (60) days. The mediation shall be
confidential to the same extent as Court-ordered mediation under Florida law. The Mediator shall be mutually agreed upon by the parties. Should any Claim not be resolved in mediation, the parties retain all their rights and remedies under Florida law. Participation in mediation within the prescribed sixty (60) day period is a condition precedent to file a lawsuit in connection with the Project. If a party which has not satisfied this condition precedent files a lawsuit in connection with this Contract, the party filing the lawsuit shall pay the other party’s reasonable attorneys’ fee and court costs.

Article 30: Inspection and Testing

30.1. COUNTY shall at all times have access to the Work, and CONTRACTOR shall provide proper facilities for such access and for inspecting, measuring and testing.

30.2. Field instructions shall not be effective to authorize deviations from the Contract Documents.

30.3. Should the Contract Documents, any laws, ordinances, or any public authority require any of the Work to be specially tested or approved, CONTRACTOR shall give COUNTY timely notice of readiness of the Work for testing. If the testing or approval is to be made by an authority other than COUNTY, at least three (3) days’ notice must be given prior to each test. Testing shall be made promptly, and, where practicable, at the source of supply. Work covered without approval of COUNTY must, if required by COUNTY, be uncovered for examination and properly restored at CONTRACTOR’s expense.

30.4. COUNTY may order reexamination of any of the Work and, if so ordered, the Work must be uncovered by CONTRACTOR. If such Work is found to be in accordance with the Contract Documents, COUNTY shall pay the cost of reexamination and replacement. If such Work is not in accordance with the Contract Documents, CONTRACTOR shall pay such cost.

30.5. CONTRACTOR shall perform its own quality control testing, at its own expense.

30.6. Except when otherwise specified in the Contract Documents, the expense of all tests requested by COUNTY shall be borne by COUNTY and performed by a testing firm chosen by COUNTY. The cost of any required test which CONTRACTOR fails shall be paid for by CONTRACTOR. COUNTY’s test results will determine compliance with the Contract Documents.

30.7. For road construction projects, the procedure for making tests required by Consultant will be in conformance with the most recent edition of the State of Florida, Department of Transportation Standard Specifications for Road and Bridge Construction.

Article 31: Defective Work and Non-Conforming Work

31.1. COUNTY shall reject defective Work. All materials and equipment furnished will be new unless otherwise specified and all of the Work will be of good quality, free from faults and defects, and in conformance with the Contract Documents. All Work not conforming to these requirements, including substitutions not authorized, may be considered defective.
31.2. CONTRACTOR shall promptly either correct all defective Work or remove such defective Work and replace it with non-defective Work. CONTRACTOR shall bear all direct, indirect and consequential costs of such removal or corrections including the cost of testing laboratories and personnel.

31.3. Should CONTRACTOR fail or refuse to remove or correct any defective Work in accordance with the requirements of the Contract Documents within the time indicated in writing by COUNTY, COUNTY may cause the defective Work to be removed or corrected at CONTRACTOR’s expense. Any expense incurred by COUNTY in making such removals, corrections or repairs shall be paid for out of any monies due or which may become due to CONTRACTOR, or may be charged against the Performance Bond. Additionally, COUNTY may terminate CONTRACTOR for cause.

31.4. If, within one (1) year after Substantial Completion or such longer period of time as may be prescribed by the Contract Documents, any of the Work is found to be not in accordance with the Contract Documents, CONTRACTOR, within ten (10) days after written notice from COUNTY, shall correct such defective or nonconforming Work without cost to COUNTY, or shall provide a plan acceptable to the COUNTY for the prompt correction of such defective or nonconforming Work. If CONTRACTOR fails to correct defective or nonconforming Work timely, COUNTY may charge CONTRACTOR for the cost of correction. Nothing contained herein shall be construed to establish a period of limitation with respect to any other obligation which CONTRACTOR might have under the Contract Documents.

31.5. Failure to reject any defective Work or material shall not in any way prevent later rejection when such defect is discovered, or obligate COUNTY to Final Acceptance, or waive COUNTY’s rights with regard to latent defects.

31.6. Within 10 days after written notice from COUNTY, CONTRACTOR will correct all latent defects discovered within ten (10) years of Substantial Completion. CONTRACTOR will restore any Work disturbed in connection with the correction of defective work at no cost to the COUNTY.

31.7. The provisions of Florida Statutes Chapter 558 shall not apply to this Contract.

Article 32: Beneficial Occupancy

32.1. Beneficial Occupancy shall occur when the COUNTY in its sole discretion determines that a portion of the Work may be occupied prior to Substantial Completion.

32.2. Beneficial Occupancy shall not constitute Substantial or Final Acceptance of the Work, nor shall it relieve the CONTRACTOR of any responsibility for the correction of Work or for the performance of Work not complete at the time of Beneficial Occupancy.

32.3. Prior to Beneficial Occupancy, the CONTRACTOR shall obtain a Certificate of Occupancy or Completion from the appropriate Authority Having Jurisdiction.

32.4. Prior to the anticipated date of Beneficial Occupancy, the CONTRACTOR shall instruct COUNTY personnel as necessary for the proper operation and maintenance of all equipment and machinery that will serve the portion of the Work being occupied.
32.5. After Beneficial Occupancy and as conditions of Substantial Completion, the CONTRACTOR shall deliver to the COUNTY complete as-built drawings, all approved Shop Drawings, maintenance manuals, pamphlets, charts, parts lists and specified spare parts, operating instructions and other necessary documents required for all installed materials, equipment, or machinery, all applicable warranties and guaranties, and the appropriate Certificate of Occupancy or Completion that are related to the portion of the Work being occupied.

32.6. CONTRACTOR's insurance on the unoccupied or unused portion or portions shall not be canceled or lapsed on account of such Beneficial Occupancy.

32.7. CONTRACTOR shall be responsible to maintain all utility services to areas occupied by the COUNTY until Final Acceptance.

Article 33: Partial Substantial Completion

Partial Substantial Completion of the Work shall occur when the COUNTY determines that a portion of the Work, as defined by logical boundaries, is Substantially Complete, in accordance with the Contract Documents. COUNTY shall have the right at its sole option to designate such portions of the Work as Substantially Complete. Partial Substantial Completion shall not constitute Final Acceptance of the Work, nor shall it relieve the CONTRACTOR of any responsibility for the correction of Work or for the performance of Work not complete at the time of Partial Substantial Completion.

Article 34: Substantial Completion

34.1. When it is determined that the Work is substantially complete in accordance with the Contract Documents, a Certificate of Substantial Completion will be issued in the form included in these Contract Documents. As a condition of Substantial Completion, all of the following shall occur:

34.1.1. The COUNTY shall develop, and the CONTRACTOR shall review, the list of items of Work to be completed or corrected by CONTRACTOR to satisfy the requirements of the Contract Documents for Final Completion. The failure to include any items of corrective Work on such list does not alter the responsibility of CONTRACTOR to complete all of the Work in accordance with the Contract Documents.

34.1.2. CONTRACTOR shall deliver all executed warranties.

34.1.3. CONTRACTOR shall deliver all as-built drawings.

34.1.4. CONTRACTOR shall deliver operation and maintenance manuals.

34.1.5. CONTRACTOR shall deliver evidence that all permits have been satisfied and closed, and that a final certificate of completion or certificate of occupancy has been issued.

34.1.6. The Project can be used for its intended purpose.
34.1.7. CONTRACTOR shall satisfy all other requirements of the Contract Documents.

34.2. After Substantial Completion is established, CONTRACTOR may invoice for retainage provided that COUNTY will retain up to 150% of the value of the items to be corrected or completed by CONTRACTOR.

Article 35: Guarantees And Warranties

35.1. Guarantees and Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work unless otherwise provided and will be for a period of one (1) year unless otherwise provided in the Contract Documents.

35.2. The CONTRACTOR will correct all defects discovered within one (1) year (or longer period if provided in the Contract Documents) of the date of Substantial Completion. CONTRACTOR will commence repairs within ten (10) days after being notified by the COUNTY of the need for the repairs and will prosecute the repairs diligently until completed.

35.3. If the CONTRACTOR fails to act within ten (10) days, the COUNTY may have the repairs performed by others at the expense of the CONTRACTOR.

35.4. Written warranties furnished to the COUNTY are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law or the Contract Documents.

35.5. The CONTRACTOR shall also furnish any special guarantee or warranty called for in the Contract Documents.

Article 36: Clean Up

CONTRACTOR shall at all times keep the Project premises free from accumulation of waste materials or rubbish. At the completion of the Project, CONTRACTOR shall remove all of its waste materials and rubbish from and about the Project, as well as its tools, construction equipment, machinery and surplus materials. COUNTY may clean up and charge the cost to CONTRACTOR.

Article 37: Final Acceptance and Final Payment

37.1. CONTRACTOR shall notify COUNTY when the Work is ready for final inspection. COUNTY shall confirm that all punchlist items have been completed, final quantities of unit price items have been reconciled, the requisite documents have been submitted, the requirements of the Contract Documents have been fully satisfied, all credits due COUNTY are reconciled, and all conditions of the permits and regulatory agencies have been met.

37.2. Before requesting final payment, CONTRACTOR shall deliver to COUNTY: (i) a complete release of all Claims arising out of this Contract conditioned only upon receipt of Final Payment, (ii) an affidavit certifying that all suppliers and Subcontractors have been paid in full and that all other indebtedness connected with the Work has been paid, and (iii) a consent of the surety to Final Payment. The final payment package is to include the certification document titled, “FINAL LIST OF CERTIFIED (CBE or DBE)
AND NONCERTIFIED SUBCONTRACTORS AND SUPPLIERS."

37.3. Final payment shall be made only after the COUNTY has reviewed and approved the Final payment package. CONTRACTOR's acceptance of final payment shall constitute a waiver of all claims by CONTRACTOR.

Article 38: Performance Bond and Payment Bond

Within fifteen (15) calendar days of being notified of the conditional award, and prior to issuance of the First Notice to Proceed, CONTRACTOR shall furnish a Performance Bond and a Payment Bond in the form included in the Contract Documents.

38.1. Each Bond shall be maintained in the amount of one hundred percent (100%) of the Contract. Each Bond shall be increased in the amount of any change to the Contract Price.

38.2. Each Bond shall continue in effect for one (1) year after Final Completion of the Work.

38.3. Qualification of Surety for Bonds over Five Hundred Thousand Dollars ($500,000.00):

38.3.1. Each bond must be executed by a surety company in good standing with the Florida Office of Insurance Regulation and adequate rating from A.M. Best indicated in these Contract Documents, authorized to do business in the State of Florida as surety, having a resident agent in the State of Florida and having been in business with a record of successful continuous operation for at least five (5) years.

38.3.2. The surety company shall hold a current certificate of authority as acceptable surety on federal bonds in accordance with United States Department of Treasury Circular 570, Current Revisions. If the amount of the Bond exceeds the underwriting limitation set forth in the circular, in order to qualify, the net retention of the surety company shall not exceed the underwriting limitation in the circular, and the excess risks must be protected by coinsurance, reinsurance, or other methods in accordance with Treasury Circular 297, revised September 1, 1978 (31 CFR Section 223.10, Section 223.11.) Further, the surety company shall provide COUNTY with evidence satisfactory to COUNTY, that such excess risk has been protected in an acceptable manner.

38.3.3. The COUNTY will accept a surety bond from a company in accordance with the requirements set forth below; provided however, that if any surety company appears on the watch list that is published quarterly by Intercom of the Office of the Florida Insurance Commissioner, the COUNTY shall review and either accept or reject the surety company based on the financial information available to the COUNTY. A surety company that is rejected by the COUNTY may be substituted by the Bidder or proposer with a surety company acceptable to the COUNTY, only if the bid amount does not increase. The following sets forth, in general, the acceptable parameters for bonds:
Policy- Financial holder's Size

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<th>Amount of Bond</th>
<th>Ratings</th>
<th>Category</th>
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<td>Class I</td>
</tr>
<tr>
<td>$1,000,001 to $2,000,000</td>
<td>A-</td>
<td>Class II</td>
</tr>
<tr>
<td>$2,000,001 to $5,000,000</td>
<td>A</td>
<td>Class III</td>
</tr>
<tr>
<td>$5,000,000 to $10,000,000</td>
<td>A</td>
<td>Class IV</td>
</tr>
<tr>
<td>$10,000,001 to $25,000,000</td>
<td>A</td>
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</tr>
<tr>
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<td>Class VI</td>
</tr>
<tr>
<td>$50,000,001 or more</td>
<td>A</td>
<td>Class VII</td>
</tr>
</tbody>
</table>

38.3.4. For projects of Five Hundred Thousand Dollars ($500,000.00) or less, COUNTY may accept a Bid Bond, Performance Bond and Payment Bond from a surety company which has twice the minimum surplus and capital required by the Florida Insurance Code at the time the invitation to bid is issued, if the surety company is otherwise in compliance with the provisions of the Florida Insurance Code, and if the surety company holds a currently valid certificate of authority issued by the United States Department of the Treasury under Section 9304 to 9308 of Title 31 of the United States Code, as may be amended from time to time. The Certificate and Affidavit form so certifying should be submitted with the Bid Bond and also with the Performance Bond and Payment Bond.

38.3.5. More stringent requirements may be specified in Division 1.

Article 39: Indemnification

39.1. CONTRACTOR shall indemnify and hold harmless COUNTY, its officers and employees from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentionally wrongful misconduct of CONTRACTOR and persons employed or utilized by CONTRACTOR in the performance of this Contract. These indemnifications shall survive the term of this Contract.

39.2. Sums otherwise due CONTRACTOR under this Contract may be retained by COUNTY until all of COUNTY's claims for indemnification pursuant to this Contract have been settled or otherwise resolved, and any amount withheld shall not be subject to payment of interest by COUNTY.
Article 40: Suspension of Work

40.1. The COUNTY has the right to suspend the Work wholly, or in part, for such period or periods it may deem necessary. COUNTY shall notify the CONTRACTOR in writing that it is suspending the Work and the effective date of such suspension.

40.2. If the COUNTY suspends the Work, the CONTRACTOR shall store all materials in such a manner that they will not become an obstruction, nor become damaged in any way, and it shall take every precaution to prevent damage or deterioration of the Work performed. The CONTRACTOR shall construct temporary structures where necessary to provide for traffic on, to, or from the Project location.

40.3. If the period of such suspension delays the Contract Time, such Delay may be considered a Compensable Excusable Delay.

Article 41: Termination

41.1. Termination for Cause by COUNTY

If CONTRACTOR breaches any provision of the Contract Documents, COUNTY may give written notice of the breach to CONTRACTOR and its Surety, allowing CONTRACTOR to cure the breach within ten (10) days. If CONTRACTOR fails to cure the breach within the ten (10) day period, COUNTY may terminate CONTRACTOR for cause and exclude CONTRACTOR from the Project site. At the end of the ten (10) day period, all materials and equipment left on the site are deemed abandoned by the CONTRACTOR. CONTRACTOR shall not be entitled to receive any further payment.

41.1.1. COUNTY may make demand on the Surety to complete the Work without further agreement (including but not limited to any takeover agreement). Alternatively, in its sole discretion, COUNTY may complete the Project, or any portion of the Project. All damages, costs, credits, and charges incurred by COUNTY, together with the costs of completing the Project, shall be deducted from any monies due or which may become due to CONTRACTOR or Surety. In case the damages and expenses so incurred by COUNTY exceed the unpaid balance, then CONTRACTOR and Surety shall be jointly and severally liable and shall pay to COUNTY the amount of said excess. Termination for cause shall not extend the Contract Time. If a termination for cause shall be found by a court to be improper, then the termination shall be deemed to be a termination for convenience.

41.1.2. Without limiting the COUNTY's right to terminate for cause stated in this Article, COUNTY may terminate CONTRACTOR for cause upon the occurrence of any of the following:

41.1.2.1. Disqualification of CONTRACTOR as a CBE/DBE firm by the COUNTY if CONTRACTOR's status as CBE/DBE firm was a factor in the award of this Contract; or

41.1.2.2. Fraud, misrepresentation, or material misstatement by CONTRACTOR in the course of obtaining this Contract or attempting to meet the CBE/DBE contractual obligations.
41.1.3. Materiality and Non-Waiver of Breach: Each requirement, duty, and obligation in the Contract Documents is material. COUNTY's failure to enforce any provision of this Contract shall not be deemed a waiver of such provision or modification of this Contract. A waiver shall not be effective unless it is in writing and approved by the County Commission or its designee. A waiver of any breach of a provision of this Contract shall not be deemed a waiver of any subsequent breach.

41.2. Termination for Convenience by COUNTY

This Contract may be terminated for convenience in writing by COUNTY upon at least ten (10) days' written notice to CONTRACTOR of intent to terminate on the date specified in the written notice, as follows:

41.2.1. CONTRACTOR shall be paid for all Work executed and actual expenses incurred prior to termination in addition to termination costs reasonably incurred by CONTRACTOR relating to commitments which had become firm prior to the termination. All expenses incurred shall be verified to the satisfaction of the COUNTY. No payment shall be made for Work not performed or for profit related to Work/services which have not been performed.

41.2.2. Upon receipt of Notice of Termination, CONTRACTOR shall promptly discontinue all affected Work unless the Notice of Termination directs otherwise and deliver or otherwise make available to COUNTY all data, drawings, specifications, reports, estimates, summaries and such other information as may have been required by the Contract Documents whether completed or in process. In addition, CONTRACTOR shall promptly remove any part or all of CONTRACTOR's equipment and supplies from the property of COUNTY, failing which COUNTY shall have the right to remove such equipment and supplies at the expense of CONTRACTOR.

Article 42: Compliance With Laws

42.1. The CONTRACTOR shall at all times observe and comply with all laws, ordinances, codes, rules, regulations, orders, and decrees of any public body having jurisdiction in performing its duties, responsibilities, and obligations related to the Contract Documents.

42.2. CONTRACTOR shall pay all applicable taxes required by law.

Article 43: Permits and Fees

43.1. CONTRACTOR shall secure all permits required for the Work and arrange for all inspections and similar procedural items as required by the authorities having jurisdiction. CONTRACTOR shall be reimbursed only for the actual amount of fees levied, as evidenced by a paid receipt or other acceptable documentation. Reimbursement to CONTRACTOR shall not include Overhead and Profit of CONTRACTOR.
43.2. CONTRACTOR shall maintain appropriate Certificate(s) of Competency, valid for the Work to be performed and valid for the jurisdiction in which the Work is to be performed for all persons and Subcontractors working on the Project for whom a Certificate of Competency is required.

43.3. Impact fees levied by any authority having jurisdiction over the Work shall be paid by COUNTY. CONTRACTOR shall be reimbursed only for the actual amount of the impact fee as evidenced by a paid receipt or other acceptable documentation issued by the authority having jurisdiction. Reimbursement to CONTRACTOR shall not include Overhead and Profit of CONTRACTOR.

43.4. CONTRACTOR shall obtain all necessary permits prior to commencing Work (unless otherwise provided by the Contract Documents), and shall maintain and comply with all permits during the progress of the Work.

Article 44: Royalties and Patents

All fees, royalties, and costs for any invention or patent that may be used in connection with the Work are included in the Contract Price.

Article 45: Applicable Law, Jurisdiction, Venue, and Waiver of Jury Trial

This Contract shall be governed by the laws of the State of Florida. Any action shall be brought in a Court of appropriate jurisdiction in Broward County, Florida, and venue shall be in Broward County Florida.

45.1. CONTRACTOR AND COUNTY EXPRESSLY WAIVE ANY RIGHTS EITHER PARTY MAY HAVE TO A TRIAL BY JURY OF ANY LITIGATION RELATED TO THIS CONTRACT. CONTRACTOR SHALL SPECIFICALLY BIND ALL SUBCONTRACTORS TO THE PROVISIONS OF THIS CONTRACT. If any party demands a jury trial in a lawsuit arising out of this agreement, that party shall pay the other party's reasonable attorney's fees and court costs incurred in contesting the demand.

45.2. Severance: In the event a portion of this Contract is found by a court of competent jurisdiction to be invalid, the remaining provisions shall continue to be effective.

Article 46: EEO and OESBD Compliance

46.1. No party to this Contract may discriminate on the basis of race, color, sex, religion, national origin, disability, age, marital status, political affiliation, sexual orientation, pregnancy, or gender identity and expression in the performance of this contract. CONTRACTOR shall comply with all requirements of the CBE/DBE Program, as applicable, in the award and administration of this Agreement. Failure by CONTRACTOR to carry out any of these requirements shall constitute a material breach of this Contract, which shall permit COUNTY to terminate this Contract or to exercise any other remedy provided under this Contract, under the Broward County Code of Ordinances, or Administrative Code, or under applicable law, with all of such remedies being cumulative.

46.2. CONTRACTOR shall include the foregoing or similar language in its contracts with any subcontractors or suppliers, except that any project assisted by the U.S. Department of
Transportation funds shall comply with the non-discrimination requirements in 49 C.F.R. Parts 23 and 26, as amended. Failure to comply with the foregoing requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as COUNTY deems appropriate.

46.3. CONTRACTOR shall not unlawfully discriminate against any person in its operations and activities or in its use or expenditure of funds in fulfilling its obligations under this Contract and shall not otherwise unlawfully discriminate in violation of the Broward County Code, Chapter 16½, as may be amended from time to time. CONTRACTOR shall affirmatively comply with all applicable provisions of the Americans with Disabilities Act (ADA) in the course of providing any services funded by COUNTY, including Titles I and II of the ADA (regarding nondiscrimination on the basis of disability), and all applicable regulations, guidelines, and standards. In addition, CONTRACTOR shall take affirmative steps to ensure nondiscrimination in employment against disabled persons.

46.4. By execution of this Agreement, CONTRACTOR represents that it has not been placed on the discriminatory vendor list (as provided in Section 287.134, Florida Statutes, as may be amended from time to time). COUNTY hereby materially relies on such representation in entering into this Contract. An untrue representation of the foregoing shall entitle COUNTY to terminate this Contract and recover from CONTRACTOR all monies paid by COUNTY pursuant to this Contract, and may result in debarment from COUNTY's competitive procurement activities.

Article 47: Notices

Whenever either party desires to give notice to the other, such notice shall be by email and must be followed by a written hard copy sent by certified United States Mail, postage prepaid, return receipt requested, or sent by commercial express carrier with acknowledgment of delivery, or by hand-delivery with a request for a written receipt of acknowledgment of delivery, addressed to the party for whom it is intended at the place last specified. The place for giving notice shall remain the same as shown in the Summary of Terms and Conditions until changed in writing in the manner provided in this Article.
SECTION 4 - SPECIAL PROVISIONS

Special Provisions begin on the next page.
SPECIAL PROVISION 1A: COUNTY BUSINESS ENTERPRISE (CBE) COMPLIANCE

NOT USED
SPECIAL PROVISION 1B: DISADVANTAGED BUSINESS ENTERPRISE (DBE) COMPLIANCE

1. Project Funding: This Project will be funded in part by one or more grants from the Federal Aviation Department (FAA) Airport Improvement Program (AIP) and this project must comply with the FAA and United States Department of Transportation Rule 49 C.F.R. Part 26 pertaining to compliance with DBE requirements.

Projects receiving such funding must comply with USDOT Code of Federal Regulations 49 C.F.R. Part 26, the implementing rules of the above-noted agency, and with Broward County's Disadvantaged Business Enterprise Plan and the Broward County Business Opportunity Act of 2012, Ordinance 2012-33, as may be amended from time to time.

The CONTRACTOR agrees that it shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The CONTRACTOR shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the CONTRACTOR to carry out these requirements is a material breach of this Contract, which may result in the termination of this CONTRACTOR or such other remedy as the COUNTY may deem appropriate.

Since this project is funded at least in part using FAA funds, it is the policy of COUNTY to ensure that Disadvantaged Business Enterprises (DBEs), as defined in 49 CFR Part 26, can compete fairly for opportunities to participate as Subcontractors and suppliers on all contracts awarded by the COUNTY to ensure a level playing field. Broward County fully supports the federal government's Disadvantaged Business Enterprises Program.

The CONTRACTOR has committed to _________ percent (%) DBE Participation.

2. Prior approval of OESBD must be obtained to add or change a DBE subcontractor

3. COUNTY shall review each proposed modification to this Agreement that, by itself or aggregated with previous modifications, increases the Total Contract Price by ten percent (10%) or more of the initial Total Contract Price, for opportunities to include or increase participation of DBE already involved in the Contract. The CONTRACTOR shall demonstrate that it makes good faith efforts to include DBE participation in work resulting from any such modification, and shall report such efforts to the OESBD.

4. On-site reviews to monitor the CONTRACTOR's progress in achieving and maintaining contractual DBE obligations will be carried out by the Contract Administrator in conjunction with the OESBD.

5. Nothing herein shall be construed to require the CONTRACTOR to award a subcontract to a DBE if the DBE did not submit the lowest responsive bid.

6. Contract Assurances. The following clauses pertaining to compliance with 49 CFR Part
26 shall become a part of your Contract with Broward County upon award and shall be incorporated into the terms of your solicitations, subcontracts, material supply contracts and purchase orders. In the event the following clauses conflict with any other terms or provisions of these Contract Documents, the clauses set forth in this Section shall control.

6.1 Compliance monitoring will be conducted to determine if the CONTRACTOR and its Subcontractors are complying with the requirements of the DBE Program. Failure of the CONTRACTOR to comply with this provision may result in the County imposing penalties or sanctions pursuant to the provisions of the DBE regulation, 49 CFR Part 26 and the County’s Business Opportunity Act of 2012, Ordinance 2012-33, as may be amended from time to time. Contract compliance will encompass monitoring for contract dollar achievement and DBE utilization. The OESBD shall have the authority to audit and monitor all contracts and contract related documents pertaining to Broward County projects.

6.2 The CONTRACTOR shall be responsible for ensuring proper documentation with regard to its utilization and payment of DBE Subcontractors.

6.3 The CONTRACTOR agrees to submit a Monthly DBE Utilization Report to the Contract Administrator with a copy to the OESBD, on DBE participation, which shall contain a record of payments made to its DBE Subcontractors.

6.4 The CONTRACTOR agrees to submit a Final DBE Utilization Report containing the total amount paid to its DBE Subcontractors. This report must be submitted with the CONTRACTOR’s request for final payment and release of retainage.

6.5 Nondiscrimination – The CONTRACTOR, sub recipient, or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The CONTRACTOR shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT-assisted contracts. Failure by the CONTRACTOR to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as the recipient deems appropriate.

6.6 Prompt Payment – The CONTRACTOR hereby agrees to pay its subcontractors and suppliers within ten (10) calendar days following receipt of payment from the County for work satisfactorily completed by the Subcontractors that is not disputed by the CONTRACTOR. The CONTRACTOR further agrees, if the CONTRACTOR has withheld retainage from its Subcontractors, to release such retainage upon satisfactory completion of all work to be performed by DBE Subcontractors. All retainage held for such completed work shall be paid by the CONTRACTOR to such Subcontractors within 30 days of the date work was satisfactorily completed, and pay same within ten (10) calendar days following receipt of payment of retained amounts from the COUNTY. A finding of nonpayment to Subcontractors and suppliers is a material breach of this contract.
SPECIAL PROVISION 2A: PREVAILING WAGE RATES

NOT USED
SPECIAL PROVISION 2B: DAVIS-BACON WAGE RATES

Federal Grant Projects

1. By virtue of the fact that the funding of this Project may be delivered in full or in part from the United States government through Broward County Aviation Department (BCAD) and (Federal Agency) referred to as Federal Aviation Administration (FAA), Federal assurances must follow the grant application in addition to any and all supervening assurances set forth in Rules and Regulations published in Federal Register or CFR.

2. Clauses, terms, or conditions required by federal grantor agency are hereby attached and made a part of the Contract Documents.
SPECIAL PROVISION 3: DOMESTIC PARTNERSHIP REQUIREMENT

NOT USED
NOT USED
SPECIAL PROVISION 48: INSURANCE REQUIREMENTS - OCIP

1. COUNTY Provided Insurance. COUNTY will provide an Owner Controlled Insurance Program ("OCIP") for the Project. The OCIP will be administered by Aon Risk Services of Florida, Inc. The OCIP is more fully described in the insurance manual (the "Insurance Manual") for the Project, which is hereby incorporated into this Contract by this reference and attached hereto as Exhibit. Parties performing labor or services at the Project site are eligible to enroll in the OCIP, unless they are Excluded Parties (as defined below). The OCIP will provide to Enrolled Parties (as defined below) Workers’ Compensation and Employer’s Liability insurance, Commercial General Liability insurance, Excess Liability insurance, Builder’s Risk insurance, and Pollution Liability insurance as summarily described below, in connection with the performance of the Work ("OCIP Coverages").

1.1. Enrolled Parties and Their Insurance Obligations. OCIP Coverages shall cover Enrolled Parties. Enrolled Parties are: the COUNTY, the OCIP Administrator, CONTRACTOR and eligible Subcontractors of all tiers that enroll in the OCIP, and such other persons or entities as COUNTY may designate, in its sole discretion (each party insured under the OCIP is an "Enrolled Party.") Enrolled Parties shall obtain and maintain, and shall require each of its or their Subcontractors to obtain and maintain, the insurance coverage specified in Section 1.2, below, and in the Insurance Manual.

1.2. Excluded Parties and Their Insurance Obligations. The OCIP Coverages do not cover the following “Excluded Parties”:

(a) Hazardous materials remediation, removal and/or transport companies and their consultants;

(b) Architects, surveyors, engineers, and soil testing engineers, and their consultants;

(c) Vendors, suppliers, fabricators, material dealers, truckers, haulers, drivers and others who merely transport, pick up, deliver, or carry materials, personnel, parts or equipment, or any other items or persons to or from the Project site;

(d) CONTRACTOR and each of its or their respective Subcontractors of all tiers that do not perform any actual labor on the Project site; and

(e) Any parties or entities excluded by COUNTY in its sole discretion, even if they are otherwise eligible.

Excluded Parties and parties no longer enrolled in or covered by the OCIP shall obtain and maintain, and shall require each of its or their Subcontractors of all tiers to obtain and maintain, the insurance coverage specified in Section 13.2, and in the Insurance Manual for all on-site and off-site operations.

1.3. OCIP Insurance Policies Establish the OCIP Coverages. The OCIP Coverages and exclusions summarized in this Section 13.1 or in the Insurance Manual are set forth in full in their respective insurance policies. The summary descriptions
of the OCIP Coverages in this Section 13.1 or the Insurance Manual are not intended to be exhaustive, or to alter or amend any provision of the actual OCIP Coverages. In the event that any provision of this Section 13.1, or the Insurance Manual conflicts with the OCIP insurance policies, the provisions of the actual OCIP insurance policies shall govern.

1.4. Summary of OCIP Coverages. OCIP Coverages shall apply only to those operations of each Enrolled Party performed at the Project site in connection with the Work, and only to Enrolled Parties that are eligible for the OCIP. OCIP Coverages shall not apply to ineligible parties, even if they are erroneously enrolled in the OCIP. An Enrolled Party's operations away from the Project site, including product manufacturing, assembling, or otherwise, shall only be covered if such off-site operations are identified and are dedicated solely to the Project. OCIP Coverages shall not cover off-site operations until receipt by CONTRACTOR or its Subcontractor of any tier of written acknowledgment of such coverage from the OCIP Administrator. The OCIP shall provide only the following insurance to eligible and Enrolled Parties:

Summary Only

1.4.1. **Workers’ Compensation insurance** at the Statutory Limit in compliance with the Workers’ Compensation Law of the State of Florida, and in compliance with all federal laws, including U.S. Longshore & Harbor Workers Act, and Jones Act coverage, where appropriate.

This insurance is primary for all occurrences at the Project site.

1.4.2. **Employer’s Liability Insurance** with the following limits:

- Bodily Injury by Accident, each accident $1,000,000
- Bodily Injury by Disease, each employee $1,000,000
- Bodily Injury by Disease, policy limit $1,000,000

This insurance is primary for all occurrences at the Project site.

1.4.3. **Commercial General Liability** Insurance provided on ISO Occurrence Form, or its equivalent, with the following limits:

- Each Occurrence Limit $2,000,000
- General Aggregate Limit for all Enrolled Parties $4,000,000
- Products & Completed Operations Aggregate for all Enrolled Parties $4,000,000

Ten (10) Years Products & Completed Operations Extension

This insurance is primary for all occurrences at the Project site.
1.4.4. **Excess Liability Insurance** (over Employer's Liability & General Liability), with the following limits:

- Combined Single Limit: $200,000,000
- General Annual Aggregate for all Enrolled Parties: $200,000,000
- Products & Completed Operations Aggregate for all Enrolled Parties: $200,000,000

Ten (10) Years Products & Completed Operations Extension

1.4.5. COUNTY may obtain and maintain **Builder's Risk insurance** for the Project, providing coverage for all risks of direct physical loss or damage including flood, earthquake, and named windstorm, as more fully described in the original policy wording. CONTRACTOR, and all subcontractors of every tier performing a portion of the Work on the Project shall be additional insureds under the Builder's Risk insurance, as their respective interests appear. The Builder's Risk insurance will provide for property in the course of construction, including offsite storage, transit, buildings, structures, fixtures, materials, foundations, machinery and equipment, cold testing, and damage to existing property business interruption at the Ft. Lauderdale Hollywood International Airport and Port Everglades, all as more fully described in the original policy wording. The Builder's Risk insurance will provide minimum limits of liability of $50,000,000 for physical damage and loss per project, subject to additional sub-limits as set forth in the original policy wording. CONTRACTOR shall be responsible for all deductibles under the Builder's Risk insurance up to $25,000 per occurrence.

1.4.6. **CONTRACTOR’s Pollution Liability (“CPL”) insurance**, providing coverage for claims for bodily injury, property damage, clean-up costs, and related legal defense expense for pollution conditions that result from, or are disrupted by, the services rendered in performance of the contract by or on behalf of CONTRACTOR or any Subcontractor. Coverage will include, clean-up costs, extensions for transportation and disposal, will include full severability of interests, and will not be restricted by any time element limitations, mold, asbestos, or lead based paint exclusions. Coverage will apply to pollution conditions on, at, under, or migrating from the Project site. The CPL insurance shall have the following limits:

- Each Loss: $200,000,000
- Aggregate: $200,000,000

CONTRACTOR shall be responsible for all deductibles under the Contractor's Pollution Liability (“CPL”) insurance, up to $50,000.

1.5. COUNTY's Obligations. COUNTY shall pay the costs of premiums for the OCIP Coverages. COUNTY will receive or pay, as the case may be, all adjustments to

SPECIAL PROVISION 4B
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such costs, whether by way of dividends, retroactive adjustments, return premiums, other moneys due, audits or otherwise. CONTRACTOR hereby assigns to COUNTY the right to receive all such adjustments, and shall require each of its Subcontractors of every tier to assign to COUNTY the right to receive all such adjustments. COUNTY assumes no obligation to provide insurance other than that specified in this Section 13.1, and in the OCIP insurance policies. COUNTY’S furnishing of OCIP Coverages shall in no way relieve or limit, or be construed to relieve or limit, CONTRACTOR or any of its Subcontractors of any responsibility, liability, or obligation imposed by the Contract Documents, the OCIP insurance policies, or by law, including, without limitation, any indemnification obligations which CONTRACTOR or any of its Subcontractors have to COUNTY thereunder. COUNTY reserves the right at its option, without obligation to do so, to furnish other insurance coverage of various types and limits provided that such coverage is not less than that specified in the Contract Documents.

1.6. CONTRACTOR’S OCIP Obligations. CONTRACTOR shall:

1.6.1. Incorporate the terms of Section 13.1 of this Contract, concerning the OCIP, into all subcontract agreements.

1.6.2. Enroll in the OCIP within five (5) days of execution of the Contract and maintain enrollment in the OCIP for the duration of the Contract, and assure that each of CONTRACTOR’S eligible Subcontractors of every tier enroll in the OCIP, and maintain enrollment in the OCIP for the duration of their respective subcontract within five (5) days of subcontracting and prior to the commencement of Work at the Project site.

1.6.3. Comply with all of the administrative, safety, insurance, and other requirements outlined in this Section 13.1, the Insurance Manual, the OCIP Safety and Loss Prevention Manual which is attached hereto as Exhibit the OCIP insurance policies, or elsewhere in the Contract Documents.

1.6.4. Provide to each of its Subcontractors of every tier a copy of the Insurance Manual, and ensure Subcontractor compliance with the provisions of the OCIP insurance policies, the Insurance Manual, this Section 13.1, and the Contract Documents. The failure of (a) COUNTY to include the Insurance Manual in the bid documents or (b) CONTRACTOR to provide to each of its eligible Subcontractors of every tier a copy of the same shall not relieve CONTRACTOR or any of its Subcontractors from any of the obligations contained therein.

1.6.5. Acknowledge, and require all of its Subcontractors of every tier to acknowledge, in writing, that COUNTY and the OCIP Administrator are not agents, partners or guarantors of the insurance companies providing coverage under the OCIP (each such insurer, an “OCIP Insurer”), that neither COUNTY nor the OCIP Administrator are responsible for any claims or disputes between or among CONTRACTOR, its Subcontractors of any tier, and any OCIP
Insurer(s), and that neither COUNTY nor OCIP Administrator guaranties the solvency or the availability of limits of any OCIP Insurer(s). Any type of insurance coverage or limits of liability in addition to the OCIP Coverages that CONTRACTOR or its Subcontractors of any tier require for its or their own protection, or that is required by applicable laws or regulations, shall be CONTRACTOR'S or its Subcontractors' sole responsibility and expense, and shall not be billed to COUNTY.

1.6.6. Exclude the Cost of OCIP Coverages from CONTRACTOR'S bid or proposal, and ensure that each Subcontractor of every tier excludes the Cost of OCIP Coverages from their respective bids or proposals. The "Cost of OCIP Coverages" is defined as the amount of CONTRACTOR'S and its Subcontractors' reduction in insurance costs due to eligibility for OCIP Coverages which includes reduction in insurance premiums, related taxes and assessments, markup on the insurance premiums and losses retained through the use of a self-funded program, self-insured retention, or deductible program. The Cost of OCIP Coverages must include expected losses within any retained risk. CONTRACTOR must deduct the Cost of OCIP Coverages for all Subcontractors in addition to their own Cost of OCIP Coverages. Change orders must also be priced to exclude the Cost of OCIP Coverages.

1.6.7. Cooperate fully with the OCIP Administrator and the OCIP Insurers, as applicable, in the administration of the OCIP.

1.6.8. Provide, within five (5) days of COUNTY's or the OCIP Administrator's request, all documents or information requested of CONTRACTOR or its Subcontractors relating to eligibility for, enrollment in, or administration of the OCIP. Such information may include, but may not be limited to, payroll records, certified copies of insurance coverages, declaration pages of coverages, certificates of insurance, underwriting data, prior loss history information, safety records or history, OSHA citations, construction cost estimates for this Project, including auditable records of the calculation of the bid or Contract Price or any subcontract amount, pricing for each cost included in the bid or Contract Price or any subcontract amount, or such other data or information as COUNTY, the OCIP Administrator, or OCIP Insurers may request in the administration of the OCIP, to verify that the Costs of OCIP Coverages were not included in the Contract Price or any subcontract amount, or as required by the Insurance Manual. All such records shall be maintained through the term of the Contract and for a period of one (1) year thereafter.

1.6.9. Comply, and require all of its Subcontractors to comply with OCIP Administrator's instructions for electronically enrolling in the OCIP using "Aon Wrap" and for electronically reporting payroll using "Aon Wrap." If a CONTRACTOR or Subcontractor cannot provide payroll information electronically, they may provide it to the OCIP Administrator.
1.6.10. Pay to COUNTY a sum of up to $5,000 for each occurrence under the OCIP's Commercial General Liability Policy, including court costs, attorneys' fees and costs of defense for bodily injury or property damage to the extent losses are attributable to CONTRACTOR'S Work, acts, or omissions, the Work, acts, or omissions of any of CONTRACTOR'S Subcontractors, or the Work, acts or omissions of any other entity or party for whom CONTRACTOR or its Subcontractor may be responsible ("General Liability Obligation").

2. Additional Insurance Required From Enrolled Parties and Excluded Parties. CONTRACTOR shall obtain and maintain, and shall require each of its Subcontractors of all tiers to obtain and maintain, the insurance coverages specified in this Section 13.2 in a form and from insurance companies reasonably acceptable to COUNTY. The insurance limits may be provided through a combination of primary and excess policies, including the umbrella form of policy. Each policy required under this Section 13.2, except the Workers' Compensation policy, shall name COUNTY, Consultant, the OCIP Administrator, their respective officers, agents and employees, and any additional entities as COUNTY may request as additional insureds. The additional insured endorsement shall state that the coverage provided to the additional insureds is primary and non-contributory with respect to any other insurance available to the additional insureds. CONTRACTOR shall provide certificates of insurance coverage to COUNTY or the OCIP Administrator as required by the Insurance Manual. Enrolled Parties are to provide evidence of Worker's Compensation, Employer's Liability, General Liability, and Excess Liability insurance, as set out below, for off-site activities, and evidence of Automobile Liability insurance for all activities, both on-site and off-site. Excluded Parties must provide evidence of all insurance set out below for both on-site and off-site activities.

2.1. Standard Commercial Automobile Liability Insurance covering all owned, non-owned, and hired automobiles, trucks, and trailers with a combined single limit of not less than $1,000,000 for bodily injury, $1,000,000 for property damage, with a $5,000,000 policy limit for vehicles traveling airside at the COUNTY's Airport.

2.2. Workers' Compensation insurance at the Statutory Limit in compliance with the Workers Compensation Law of the State of Florida, and in compliance with all federal laws, including U.S. Longshore & Harbor Workers Act, and Jones Act coverage, where appropriate, and Employer's Liability insurance with limits of not less than $1,000,000 each accident, $1,000,000 each employee, and with a $1,000,000 policy limit.

2.3. Commercial General Liability Insurance in a form providing coverage not less than the standard ISO Commercial General Liability insurance policy ("Occurrence Form"). The limits shall be:

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<thead>
<tr>
<th>Included/Excluded</th>
<th>Each Occurrence</th>
<th>$1,000,000/$2,000,000</th>
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<tbody>
<tr>
<td></td>
<td>General Aggregate</td>
<td>$2,000,000/$4,000,000</td>
</tr>
<tr>
<td></td>
<td>Products/Completed Operations Aggregate</td>
<td>$2,000,000/$4,000,000</td>
</tr>
</tbody>
</table>
Personal/Advertising Injury Aggregate $1,000,000/$2,000,000

Ten (10) Years Products/Completed Operations Extension

2.4. If required by COUNTY, Aviation and/or Watercraft Liability Insurance, in form and with limits of liability and from an insurer reasonably satisfactory to the COUNTY.

2.5. Contractor’s Pollution Liability insurance for Excluded Parties, with the following limits:

- Combined Single Limit per Occurrence $2,000,000
- General Annual Aggregate $2,000,000

If transporting hazardous waste/materials from the Project site, an appropriate MCS-90 Endorsement must be attached and supplied to COUNTY on a primary basis with $5,000,000 limits of liability.

2.6. Installation Floater coverage for the installation of machinery and/or equipment into an existing structure, on an "All Risk" coverage form including installation and transit for one hundred percent (100%) percent of the "installed replacement cost value," covering COUNTY as a named insured, with a deductible of not more than Ten Thousand Dollars ($10,000.00) each claim.

2.6.1. Cessation of Insurance. Installation Floater coverage is not to cease and is to remain in force (subject to cancellation notice) until final acceptance by Broward County.

2.6.2. Flood Insurance. When the machinery or equipment covered under the Installation Floater is located within an identified special flood hazard area, flood insurance must be afforded for the lesser of the total insurable value of such buildings or structure, or, the maximum amount of flood insurance coverage available under the National Flood Insurance Program.

2.7. For all policies provided under this Section 13.2, if the initial insurance expires prior to the completion of the work, renewal copies of policies shall be furnished at least thirty (30) days prior to the date of their expiration.

2.8. For all policies provided under this Section 13.2, the policy(ies) must be endorsed to provide COUNTY with at least thirty (30) days' notice of cancellation and/or restriction.

2.9. CONTRACTOR shall furnish to the COUNTY, or the OCIP Administrator, Certificates of Insurance or endorsements evidencing the insurance coverage specified above within fifteen (15) calendar days after notification of award of the Contract. The required Certificates of Insurance shall name the types of policies provided, refer specifically to this Contract, and state that such insurance is as required by this Contract. The Certificate of Insurance shall be in form similar to and contain the information set forth in a standard Acord form 25-S. The failure to provide the Certificate of Insurance within fifteen (15) days shall be the basis
for the rescission of the awarding contract. The official title of the certificate holder is Broward County Board of County Commissioners. This official title shall be used in all insurance documentation.

2.10. Right to revise or reject. Broward County's Risk Management Division reserves the right, but not the obligation, to review and revise any insurance requirements at the time of contract renewal and/or any amendments, not limited to deductibles, limits, coverages and endorsements based on insurance market conditions affecting the availability or affordability of coverage; or changes in the scope of work/specifications affecting the applicability of coverage.

2.11. COUNTY and Consultant are to be expressly included as an Additional Insured in the name of Broward County Board of County Commissioners with respect to general liability and excess liability coverages arising out of operations performed for COUNTY by or on behalf of CONTRACTOR or acts or omissions of CONTRACTOR in connection with general supervision of such operation. If CONTRACTOR uses a subcontractor, then CONTRACTOR shall ensure that subcontractor names COUNTY and CONSULTANT as an additional insured.

CONTRACTOR'S failure to procure or maintain the insurance required by this section and to ensure that all of its Subcontractors of every tier maintain the required insurance during the entire term of their respective contracts shall constitute a material breach of this Contract pursuant to which COUNTY may immediately suspend or terminate this Contract, or, at its discretion, procure or renew such insurance to protect COUNTY's interests, pay any and all premiums in connection therewith, and withhold or recover all monies so paid from CONTRACTOR.


3.1. Representations and Warranties. CONTRACTOR represents and warrants to COUNTY, and shall require its Subcontractors of every tier represent and warrant to COUNTY that:

3.1.1. All information they submit to COUNTY, or to the OCIP Administrator, shall be accurate and complete.

3.1.2. They have had the opportunity to read and analyze copies of the OCIP insurance policies that are on file in COUNTY's office, and they understand the OCIP Coverages. Any reference or summary in the Contract, this Section, the Insurance Manual, or elsewhere in any other Contract Document as to amount, nature, type or extent of OCIP Coverages and/or potential applicability to any potential claim or loss is for reference only. CONTRACTOR and its Subcontractors of all tiers have not relied upon said reference, but solely upon their own independent review and analysis of the OCIP Coverages in formulating any understanding and/or belief as to amount, nature, type or extent of any OCIP Coverages and/or its potential applicability to any potential claim or loss.
3.1.3. The Costs of OCIP Coverages were not included in CONTRACTOR’S bid or proposal for the Work, the Contract Price, and will not be included in any change order or any request for payment for the Work or extra work.

3.1.4. CONTRACTOR acknowledges that COUNTY shall not pay or compensate CONTRACTOR or any Subcontractor of any tier, in any manner, for the Costs of OCIP Coverages.

3.2. Audits. CONTRACTOR agrees that OWNER, the OCIP Administrator, and/or any OCIP Insurer may audit CONTRACTOR’S or any of its Subcontractors’ payroll records, books and records, insurance coverages, insurance cost information, bid estimates, or pricing for any cost in the Contract Price or any subcontracted Work, or any information that CONTRACTOR provides to COUNTY, the OCIP Administrator, or the OCIP Insurers to confirm their accuracy, and to ensure that the costs of OCIP Coverages are not included in any payment for the Work.

3.3. COUNTY’s Election to Modify or Discontinue the OCIP. COUNTY may, for any reason, modify the OCIP Coverages, discontinue the OCIP, or request that CONTRACTOR or any of its Subcontractors of any tier withdraw from the OCIP upon thirty (30) days written notice. Upon such notice CONTRACTOR and/or one or more of its Subcontractors, as specified by COUNTY in such notice, shall obtain and thereafter maintain during the performance of the Work, all (or a portion thereof as specified by COUNTY) of the OCIP Coverages. The form, content, limits of liability, cost, and the insurer issuing such replacement insurance shall be subject to COUNTY’S approval. The cost of the replacement coverage shall be at COUNTY’S expense, but only to the extent of the applicable costs of OCIP Coverages.

3.4. Withholding Payments. COUNTY may withhold from any payment owed or owing to CONTRACTOR or its Subcontractors of any tier the costs of OCIP Coverages if they are included in a request for payment. In the event a COUNTY audit of CONTRACTOR’S records and information reveals a discrepancy in the insurance, payroll, safety, or any other information required by the Contract Documents to be provided by CONTRACTOR to COUNTY, or to the OCIP Administrator, or reveals the inclusion of the cost of OCIP Coverages in any payment for the Work, COUNTY shall have the right to full deduction from the Contract Price of all such costs of OCIP Coverages and all audit costs. Audit costs shall include, but shall not be limited to, the fees of the OCIP Administrator, and the fees of attorneys and accountants conducting the audit and review. If the CONTRACTOR or its Subcontractors fail to timely comply with any provisions of this Contract concerning the OCIP, COUNTY may withhold any payments due to CONTRACTOR and/or its Subcontractors of any tier until such time as they have complied. Such withholding by COUNTY shall not be deemed to be a default under the Contract Documents.

3.5. Waiver of Subrogation. Where permitted by law, CONTRACTOR hereby waives all rights of recovery by subrogation because of deductible clauses, inadequacy of limits of any insurance policy, limitations or exclusions of coverage, or any other reason against COUNTY, the OCIP Administrator, their officers, agents, or employees, and any other contractor or Subcontractor performing Work or rendering services on behalf of COUNTY in connection with the planning,
development and construction of the Project. COUNTY also requires that all CONTRACTOR maintained insurance coverage related to the Work include clauses providing that each insurer shall waive all of its rights of recovery by subrogation against CONTRACTOR, COUNTY, the OCIP Administrator, and their officers, agents, or employees. Where permitted by law, CONTRACTOR shall require similar written express waivers and insurance clauses from each of its Subcontractors. A waiver of subrogation shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did not pay the insurance premium directly or indirectly, and (c) whether or not such individual or entity has an insurable interest in the property damaged.

3.6. Duty of Care. Nothing contained in this Section, or the Insurance Manual shall relieve the CONTRACTOR or any of its Subcontractors of any tier of their respective obligations to exercise due care in the performance of their duties in connection with the Work, and to complete the Work in strict compliance with the Contract Documents.

3.7. Conflicts. In the event of a conflict, the provisions of the OCIP insurance policies shall govern, then the provisions of the Contract and its other related Contact Documents, then the provisions of the Insurance Manual.
SPECIAL PROVISION 5: BUILDING INFORMATION MODELING (BIM)

NOT USED
SPECIAL PROVISION 6: LEED AND SUSTAINABLE BUILDINGS

NOT USED
SPECIAL PROVISION 7A: DISPUTE AVOIDANCE PANEL

NOT USED
SPECIAL PROVISION 7B: DISPUTE AVOIDANCE PANEL WITH CONSTRUCTION MANAGER FOR TERMINAL MODERNIZATION PROGRAM OR OTHER PROJECTS/PROGRAMS EXCLUDING THE RUNWAY EXPANSION PROGRAM AND TERMINAL 4 EXPANSION

NOT USED
NOT USED
SPECIAL PROVISION 7D: DISPUTE AVOIDANCE PANEL WITH CONSTRUCTION MANAGER FOR AIRPORT TERMINAL 4 EXPANSION

1. Definitions. In addition to the definitions set forth in the Contract Documents, the following definitions shall apply to this Special Provision:

1.1 Construction Project Manager ("CPM"): Turner Construction Company, with which the COUNTY has contracted to provide construction management services for the Terminal 4 Expansion Program.

1.2 Program Management Office ("PMO"): DMJM Aviation, Inc., with which the COUNTY has contracted to provide management services for the Airport Expansion Program, which includes the Terminal 4 Expansion Program.

1.3 Terminal 4 Contractors: Those contractors and construction managers at risk having a prime contract with the COUNTY or an airline tenant in connection with the Terminal 4 Expansion Program.

1.4 Terminal 4 Expansion Program or T4 Projects: All projects associated with the expansion of Terminal 4 at the Fort Lauderdale-Hollywood International Airport including, but not limited to, gate replacement, apron reconstruction, fuel hydrant system reconfiguration, utility relocation and/or enhancement, environmental remediation, baggage handling system installation, and any other necessary, incidental, or ancillary projects related to the Terminal 4 expansion.

2. Purpose. The purpose of this dispute avoidance process is primarily to assist in the prevention of disputes between the COUNTY and the various construction contractors ("Terminal 4 Contractors") for the Terminal 4 Expansion Program ("Terminal 4 Projects"), and to mitigate impacts to the Terminal 4 Projects, and secondarily to assist in the resolution of disputes and claims between the COUNTY and the Terminal 4 Contractors arising out of the Contract Documents. The intent of the establishment of the DISPUTE AVOIDANCE PANEL ("PANEL") is to facilitate contemporaneous agreement as to the resolution of events occurring during the progress of the work, and if agreement cannot be quickly reached, then to fairly and impartially consider disputes placed before it and to provide verbal or written recommendations for resolution of these disputes to both the COUNTY and the particular Terminal 4 Contractor involved in the dispute. All decisions of the PANEL are non-binding on the parties. Submission of a disputed matter to the PANEL for its written recommendation is an absolute condition precedent to filing any suit or demand for arbitration with regard to the matter. With the consent of the COUNTY and the CPM, the PANEL may also consider issues that may arise between the CPM and the COUNTY.

3. Panel Scope

3.1 Operations: The PANEL will formulate its own rules of operation, which will be kept flexible to adapt to changing situations. The COUNTY, either itself or through the CPM and the Terminal 4 Contractors, will keep the PANEL informed of construction activity and progress of the various Terminal 4 Contractors by submitting to the PANEL monthly written progress reports and other relevant data. Selected project records including, but not limited to, schedule updates,
requests for information, requests for work orders, and requests for change orders, will be furnished to the PANEL at the same time as they are initially furnished to the other parties engaged on the projects for the Terminal 4 Expansion Program. The PANEL will visit the project at regular intervals and at times of critical construction events and meet with the representatives of the COUNTY, the CPM, and the Terminal 4 Contractors.

3.2 Membership of the PANEL: The PANEL shall consist of three neutral members, who shall not have been previously employed or engaged as a consultant in any capacity for the COUNTY, the CPM, or any of the Terminal 4 Contractors; provided however, that prior services as a dispute panel member shall not automatically disqualify a potential panel member. PANEL members shall disclose all prior employment and engagements to the COUNTY, the PMO, the CPM, any of the Terminal 4 Contractors, and any of the Terminal 4 Expansion Program designers (collectively, the "Project Team"). The initial panel members shall be:

Allen Thompson; 
Francis Brennan; and 
Robert Cedeno, who shall serve as PANEL Chair.

One member was nominated by the COUNTY and one member was nominated by a non-profit entity that represents the interests of construction contractors. Unless reasonably objected to, the nominees shall be appointed to the PANEL. The third member was selected by the two party-appointed members. Unless the parties agreed otherwise, each member has significant public construction experience, with the Chair being a lawyer and the other panel members not being lawyers. All PANEL members are trained and experienced in the effective operations of Dispute Resolution Boards for dispute avoidance and mitigation.

3.3 Meetings; confidentiality: The first meeting of the PANEL shall occur on the date of the first regularly scheduled project progress meeting after the PANEL members execute Payment For Services Agreements with the CPM. Subsequent meetings will be regularly held on site as set forth in Frequency of Meetings below. Statements made in regular meetings of the PANEL will be confidential and deemed settlement negotiations and shall be inadmissible in subsequent proceedings to the same degree as communications in mediation hearings or discussion in furtherance of settlement under Florida law. Each meeting will consist of an informal round table discussion and, if convenient and helpful or necessary, a field inspection of the work. The round table discussion will be attended by representatives from the applicable Project Team. The round table discussions shall include presentations from the applicable Project Team to the PANEL that addresses the following items: construction work accomplished since the last meeting, current status of the work, the current and future schedule, payment status, potential future problems that may come before the PANEL, proposed solutions to those problems, and an update regarding previously handled or ongoing problems. It is contemplated that other project participants for the particular Terminal Modernization project under discussion will be invited to attend regular PANEL meetings, including the applicable Project Team and major subcontractors. In addition to round table discussions, agendas for regular meetings of the PANEL may include the following:
3.3.1 Presentations by representatives of the parties with respect to any issues that have arisen or have been properly presented to the PANEL through the below stated Request for Hearing process. Issues that were not submitted to the PANEL pursuant to the procedures delineated herein shall not be presented to the PANEL for consideration without the agreement of both parties.

3.3.2 Rebuttals, if requested, by representatives of the parties with respect to presentations made by the representatives of the other party.

3.3.3 Set a tentative date for next meeting.

4. Frequency of Meetings: In order for the PANEL to become familiar with the project circumstances, it will begin to meet at least once per month. If conditions warrant, the Chair, in consultation with other PANEL members, the CPM, the Terminal 4 Contractors and the COUNTY, may reduce/increase the time between meetings to better serve the parties. Factors to be considered when setting the time between meetings include work progress, occurrence of unusual events and the number and complexity of ongoing or potential disputes.

5. Procedure for scheduling disputed matters before the PANEL: The parties should attempt to resolve potential disputes without resorting to use of the PANEL. However, in the event that a resolution is unlikely, the following procedures must be followed:

5.1 Before referring a matter to the PANEL for a hearing, a party that desires to initiate a PANEL hearing must first submit a letter titled Notice of Disagreement to his/her counterpart from the other party describing the issue that has arisen. The party receiving the notice shall have 7 days from receipt of the letter to submit a response. If, after 14 days from the initial receipt of the Notice of Disagreement, the issue has not been resolved, the party who sent the original Notice may file a written Request for a Hearing to the PANEL with a commitment from the applicable Terminal 4 Contractor for that Terminal 4 Contractor's share of the anticipated costs for a PANEL Hearing, including ensuing recommendations, and the matter will be scheduled before the PANEL. The written Request shall contain a copy of the initial Notice of Disagreement and the response to this Notice, if any, by the other party. No Request may be filed with the PANEL without first having complied with the Notice of Disagreement requirements of this section.

5.2 Upon receipt of a Request for a Hearing, the Chair will schedule the matter for Hearing at a location in Broward COUNTY, Florida, within 30 days. The parties may request that the matter be deferred in the event that additional preparation is necessary. The parties may request an informal verbal PANEL recommendation, or the parties may request a formal written recommendation from the PANEL.

5.3 The COUNTY, either itself or through the CPM and the particular Terminal 4 Contractor involved in the dispute, shall provide to the PANEL position papers with appropriate supporting documentation no later than 14 days before the commencement of the Hearing. The parties shall provide rebuttal papers, if any, no later than 5 days before the Hearing.
5.4 The party submitting the Request shall be responsible to provide the PANEL with 3 copies of each document submitted with the Request, one for each PANEL member. The party furnishing any written evidence or documentation to the PANEL shall also furnish copies of such information to the other party concurrently when furnishing the documents to the PANEL. The PANEL may request that additional written documentation and explanations from both parties be sent to each member and to the other party for study before the hearing begins.

5.5 The COUNTY and the particular Terminal 4 Contractor involved in the dispute will be afforded an opportunity to be heard by the PANEL and to offer evidence. The PANEL members may ask questions, request clarification, or ask for additional data. In large or complex disputes, additional hearing days may be necessary in order to consider and fully understand all the evidence presented by both parties.

5.6 Attorneys are generally discouraged from attending the PANEL meetings, but are allowed to participate in the Hearings on the following limited basis. Any participation in a hearing by legal counsel or independent claims or technical experts will be for the sole purpose of facilitating a party’s presentation. Legal counsel may not examine directly or by cross-examination any witness, object to questions asked or factual statements made during the hearing, or make or argue legal motions.

5.7 All of the PANEL’s written recommendations for resolution of disputes will be given to the COUNTY, the affected Terminal 4 Contractor(s), and the CPM within 10 days of completing the Hearing(s). In cases of extreme complexity, the COUNTY and the particular Terminal 4 Contractor involved in the dispute may agree to allow additional time for the PANEL to formulate its recommendations. The PANEL’s initial 10-day written recommendation will address contractual entitlement and the number of days of extension of milestones and/or Contract Time, if at issue. The COUNTY and the particular Terminal 4 Contractor will have 7 days after the 10-day written recommendation to resolve the issue. The COUNTY and the particular Terminal 4 Contractor involved in the dispute may agree to mediate the resolution during this 7 day period. If they cannot agree on the resolution of the 10-day recommendation during this 7-day period, the PANEL shall issue a written recommendation addressing monetary damages no later than 24 days from completion of the Hearing.

5.8 No provisions associated with the Panel shall in any way abrogate the Terminal 4 Contractors’ or CPM’s responsibility for preserving a claim filed in accordance with the requirements set forth in the Contract Documents.

5.9 In the event that the COUNTY is not in agreement with a decision or recommendation of the PANEL, the COUNTY may elect to issue a Work Order or Change Order, with an appropriate reservation of its rights.

5.10 Although the PANEL’s recommendations are non-binding, all records and written recommendations of the PANEL will be admissible as evidence in any subsequent court proceeding or other dispute resolution procedures.

5.11 By agreement of the parties and the PANEL, the steps listed under this section may be omitted and the time periods shortened in order to hasten resolution.
6. Neutrality of PANEL members: All PANEL members shall act impartially and independently when performing their functions as PANEL members including in the consideration of any Contract provisions and the facts and conditions surrounding any written Request to the PANEL by the COUNTY or a Terminal 4 Contractor. Ex parte communications between a PANEL member and any party and/or the CPM, for matters other than those covered by Section 11 below, are strictly prohibited. PANEL members shall not discuss or communicate with any party without the other party being present. Seeking any PANEL member's advice or consultation is expressly prohibited, unless it is done in the open at a PANEL meeting and in the presence of the other party.

7. Records of Meetings: While the PANEL may take notes or keep other records during the consideration of a Notice of Disagreement, it is not necessary for the PANEL to keep a formal record. If possible, it is desirable to keep the hearings completely informal. However, records of the formal Hearings in regards to Notices of Disagreements will be transcribed by a court reporter if requested by one party. The party requesting the court reporter shall be responsible for any costs. Audio and/or video recording of the meeting is prohibited without prior written agreement by the PANEL and the parties.

8. Recommendations of the PANEL: All written recommendations of the PANEL shall be executed by all PANEL members and supported by at least two members. Recommendations will be based on the pertinent Contract provisions and the facts and circumstances involved in the dispute. This provision shall not prevent the PANEL from issuing informal verbal recommendations in accordance with Section 5.2 above.

9. Reconsiderations: Either party may seek written reconsideration of a written recommendation within 3 working days of receipt of such recommendation from the PANEL.

10. Construction Site Visits: The PANEL members shall visit the site on a regular basis to keep abreast of construction activities and to develop a familiarity of the work in progress. The frequency, exact time, and duration of these visits shall be as mutually agreed between the COUNTY, the Terminal 4 Contractors, and the PANEL.

11. Coordination and Logistics: The CPM, in cooperation with the COUNTY and the Terminal 4 Contractors, will coordinate the operations and meetings of the PANEL. The CPM need not take minutes of PANEL meetings. The PANEL members will execute Payment For Services Agreements with the CPM, but the CPM may only communicate with PANEL members concerning logistics of meetings and payment for PANEL services. Copies of all bills for services of the Panel shall be contemporaneously provided to the Terminal 4 Contractors.

12. Time for Beginning and Completion: The PANEL is to be in operation until all Request for Hearing forms submitted prior to Final Acceptance of the Program are heard or Final Acceptance of the Program, whichever is later.

13. Payment. Payment for services rendered by the PANEL members shall be $200 per hour, and the maximum not to exceed daily fee to be paid to each PANEL member shall be One Thousand Five Hundred Dollars ($1,500) and travel costs in accordance with the CPM Agreement. Travel costs shall conform to the requirements of COUNTY procedures and Florida law.
13.1 Regular meetings: The amounts paid to the chair of the PANEL and the other PANEL members for their services, including travel costs pursuant to the CPM Agreement Attachment Ill, shall be paid from a task account established within the CPM Agreement for that purpose. The CPM shall submit a request to the COUNTY for payment of all expenses incurred, without markup or bond. COUNTY shall process and pay CPM for PANEL expenses as part of regular project periodic pay requests, and the CPM shall be responsible to promptly pay the PANEL members with no withholding or deductions.

13.2 Payment - Hearings. In the event a party files a Request for a Hearing, the expenses and fees incurred by the PANEL members in connection with the Hearing shall be shared equally between the COUNTY and the particular Terminal 4 Contractor involved in the dispute. The CPM will confirm that it has received a commitment from the applicable Terminal 4 Contractor for one-half of the anticipated costs for a PANEL Hearing, including ensuing recommendations, before the Hearing is scheduled.

13.3 Payment – Non-hearing. In addition, PANEL members shall be compensated for a maximum of 4 hours per month of time spent reviewing project records outside of meeting or hearing days; provided however, that this limitation shall not apply to records reviewed in connection with the PANEL’s consideration of a dispute which is the subject of a Hearing.

14. Costs and Accounting Records. The PANEL members shall keep available the cost records and accounts pertaining of all of the work by the PANEL for inspection by representatives of the COUNTY, the Terminal 4 Contractors, or the CPM for a period of three years after final payment. If any litigation, claim, or audit arising out of, in connection with, or related to the Contract is initiated before the expiration of the three year period, the cost records and accounts shall be retained until such litigation, claim, or audit involving the records is completed.

15. Termination of Panel. Upon formal written amendment to a Terminal 4 Contract, the dispute avoidance/resolution process requiring the services of the PANEL for the Terminal 4 Contract so amended may be terminated.

16. Termination or Withdrawal/ Replacement of Panel Members.

16.1 Withdrawal by or Inability to Continue Service of a PANEL member: A PANEL member may withdraw from the PANEL by providing four weeks written notice, if practical, to the other PANEL members and all other parties.

16.2 Should the need arise to appoint a replacement PANEL member, the replacement PANEL member shall be selected as was the departing PANEL member. The selection of a replacement PANEL member shall occur promptly upon notification of the necessity for a replacement.

16.3 Termination Without Cause of a PANEL member – Chair: The Chair of the PANEL may be terminated without cause by mutual agreement of the parties. Each party may change its appointed PANEL member, without cause, once during the life of the Contract.
16.4 Termination For Cause: A PANEL member may be terminated for cause by any of the parties. The party desiring to terminate a PANEL member for cause will notify the other parties and the other PANEL members and shall provide an explanation for the requested termination. If the other parties do not agree that cause exists, the remaining PANEL members shall convene and decide whether cause exists and such decision shall be effectuated.

17. Independent Contractor. Each PANEL member, in the performance of his or her duties on the PANEL, shall act in the capacity of an independent agent and not as an employee of the COUNTY, the Terminal 4 Contractors, or the CPM. Each PANEL member shall have the same immunity as does a mediator appointed by Court order, as provided by Florida law.

18. Public Records. Each PANEL member, Terminal 4 Contractor, CPM, PMO, and the COUNTY shall allow public access to all documents, papers, letters, and other material made or received by the parties that are related to this PANEL and the activities of this PANEL, subject to the provisions of Chapter 119, Florida Statutes. However, upon receipt of any such public records request, the parties hereto shall immediately notify the COUNTY and obtain prior written consent from the COUNTY before releasing such records. Plans, schematics, security plans and other project elements may not be released unless the recipient executes an appropriate confidentiality agreement.

19. Statute Of Limitations. None of the procedures delineated herein will in any way toll any statutes of limitations for the parties.

20. No Bonus. PANEL members shall not be paid nor will they receive or accept any commission, percentage, bonus, or consideration of any nature, other than the payment provided for in this Section 13, for their performance and services.

21. No Conflict. The members of the PANEL shall affirm that at no time, while performing their duties under this section, shall they have any direct or indirect ownership or financial interest in or be employed in any capacity by the COUNTY, any Terminal 4 Contractor, the PMO, any Architect/Engineer or Consultant organization working on the Project, any Subconsultant or supplier of the Project, or any other PANEL member. Notwithstanding the foregoing, the CPM may execute agreements with the PANEL members in order to facilitate invoicing and payment of PANEL members. The members of the PANEL shall affirm and agree in writing that, except for services as a PANEL member on other COUNTY, Terminal 4 Contractor, or CPM projects, that they have not been an employee, subcontractor, or Consultant to the COUNTY, a Terminal 4 Contractor, the CPM (for CPM services other than serving on the PANEL), the PMO, any Architect/Engineer or Consultant organization working on a Terminal Modernization Project, any Subconsultant or supplier of a Terminal Modernization Project, or of another PANEL member, and that during the term of this Contract they shall not become so involved. The members of the PANEL, the COUNTY, the Terminal 4 Contractor, and the CPM agree that during the life of the Contract, no discussion or agreement will be made between any PANEL member and any party to this Contract for employment after the Contract is completed.

22. Interpretation. Nothing herein shall limit in any way the rights of the COUNTY to issue Work Authorizations, Change Orders, issue any other type of order or instruction, or take any other type of action that is permitted by the Terminal 4 Contracts. Nor shall any of the provisions herein limit the remedies or obligations of the CPM or Terminal 4 Contractors pursuant to their Contracts, except that submission of a disputed matter to the PANEL for
a written recommendation as to resolution shall be a condition precedent to pursuit of any claim in arbitration or litigation.

23. Subsequent proceedings. In the event that a party files suit, claim or initiates arbitration in connection with a Terminal Modernization project, no member of the PANEL shall be called to testify in such proceedings, and the personal notes of PANEL members shall not be admissible. Any and all claims against any of the Panel members arising out of the work of the PANEL are waived.
SPECIAL PROVISION 8: FAA CONTRACT PROVISIONS

Federal Aviation Administration Mandatory Contract Provisions

SECTION A

CIVIL RIGHTS ACT OF 1964, TITLE VI – CONTRACTOR CONTRACTUAL REQUIREMENTS

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1.1 Compliance with Regulations. The contractor shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

1.2 Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

1.3 Solicitations for Subcontracts, Including Procurements of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

1.4 Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration (FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor or the FAA, as appropriate, and shall set forth what efforts it has made to obtain the information.

1.5 Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the FAA may determine to be appropriate, including, but not limited to:

a. Withholding of payments to the contractor under the contract until the contractor complies,

and/or

b. Cancellation, termination, or suspension of the contract, in whole or in part.
1.6 Incorporation of Provisions. The contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the sponsor or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

SECTION B

AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, SECTION 520 - GENERAL CIVIL RIGHTS PROVISIONS

The contractor assures that it will comply with pertinent statutes, Executive orders and such rules as are promulgated to assure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance. This provision obligates the tenant/concessionaire/lessee or its transferee for the period during which Federal assistance is extended to the airport a program, except where Federal assistance is to provide, or is in the form of personal property or real property or interest therein or structures or improvements thereon. In these cases the provision obligates the party or any transferee for the longer of the following periods: (a) the period during which the property is used by the airport sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits or (b) the period during which the airport sponsor or any transferee retains ownership or possession of the property. In the case of contractors, this provision binds the contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

SECTION C

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

(1) No Federal appropriated funds shall be paid, by or on behalf of the contractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the making of any Federal grant and the amendment or modification of any Federal grant.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any Federal grant, the contractor shall complete and submit Standard Form-LLL, "Disclosure of Lobby Activities," in accordance with its instructions.
SECTION D

ACCESS TO RECORDS AND REPORTS

The Contractor shall maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

SECTION E

DISADVANTAGED BUSINESS ENTERPRISES

Contract Assurance (§26.13) - The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate.

Prompt Payment (§26.29) - The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 10 days from the receipt of each payment the prime contractor receives from Broward County. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor’s work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of Broward County. This clause applies to both DBE and non-DBE subcontractors.

SECTION F

ENERGY CONSERVATION REQUIREMENTS

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163)

SECTION G

BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the contractor or their subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement. The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.
SECTION H

RIGHTS TO INVENTIONS

All rights to inventions and materials generated under this contract are subject to regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed.

SECTION I

TRADE RESTRICTION CLAUSE

The contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

a. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

b. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;

c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide written notice to the contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

SPECIAL PROVISION 8
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SECTION J

VETERAN’S PREFERENCE

In the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Veterans of the Vietnam era and disabled veterans as defined in Section 515(c)(1) and (2) of the Airport and Airway Improvement Act of 1982. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

SECTION K

DAVIS BACON REQUIREMENTS

Updated 2/14/2012

1. Minimum Wages

   (i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

   Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conforming under (1)(ii) of this section) and the Davis Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

   (ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

   (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

   (2) The classification is utilized in the area by the construction industry; and
(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such
action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be
provided under § 5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5(a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in
percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance With Copeland Act Requirements.

The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.


The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these
clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.


A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance With Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.


Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).


SECTION L

EQUAL EMPLOYMENT OPPORTUNITY - 41 CFR PART 60-1.4(b)

During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

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2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

3. The contractor will send to each labor union or representative of workers with which s/he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

5. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedure authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provision, including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

SECTION M

CERTIFICATION OF NONSEGREGATED FACILITIES - 41 CFR PART 60-1.8

Notice to Prospective Federally Assisted Construction Contractors

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a federally-assisted construction contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving federally-assisted construction contract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

SPECIAL PROVISION 8
Z1145017C1 / Terminal 4 Apron Expansion
Notice to Prospective Subcontractors of Requirements for Certification of Non-Segregated Facilities

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a subcontract exceeding $10,000, which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

CERTIFICATION OF NONSEGREGATED FACILITIES

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally-assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

SECTION N

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION - 41 CFR PART 60-2

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

<table>
<thead>
<tr>
<th>Time</th>
<th>Goals for minority participation for each trade</th>
<th>Goals for female participation in each trade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Vol. 45 Federal Register pg. 65984 10/3/80)</td>
<td>(6.9%)</td>
</tr>
</tbody>
</table>

These goals are applicable to all the contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a...
geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its Federally involved and non-federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training shall be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project, for the sole purpose of meeting the contractor's goals, shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director, OFCCP, within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is [insert description of the geographical areas where the contract is to be performed giving the state, county, and city, if any].

SECTION 0

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS - 41 CFR Part 60.4.3

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

d. "Minority" includes:

(1) Black (all) persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 18.7a through 18.7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the contractor during the training period and the contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to
maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which express the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such a superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor
shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (18.7a through 18.7p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 18.7a through 18.7p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally,) the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from
Government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 18.7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

SECTION P

TERMINATION OF CONTRACT

a. The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services shall be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Sponsor.

b. If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed services.

c. If the termination is due to failure to fulfill the contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the contractor shall be liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.

d. If, after notice of termination for failure to fulfill contract obligations, it is determined that the contractor had not so failed, the termination shall be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price shall be made as provided in paragraph 2 of this clause.

e. The rights and remedies of the sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.
SECTION Q

CERTIFICATION REGARDING DEBAREMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

The bidder/offeror certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/offeror/contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

SECTION R

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS 29 CFR PART 5

1. Overtime Requirements.
No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.
In the event of any violation of the clause set forth in paragraph (1) above, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 above, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 above.

3. Withholding for Unpaid Wages and Liquidated Damages.
The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 above.

4. Subcontractors.
The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section.
SECTION S

CLEAN AIR AND WATER POLLUTION CONTROL

Contractors and subcontractors agree:

a. That any facility to be used in the performance of the contract or subcontract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

b. To comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 U.S.C. 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308 of the Acts, respectively, and all other regulations and guidelines issued thereunder;

c. That, as a condition for the award of this contract, the contractor or subcontractor will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be used for the performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities;

d. To include or cause to be included in any construction contract or subcontract which exceeds $100,000 the aforementioned criteria and requirements.

SECTION T

BUY AMERICAN PREFERENCES

The successful bidder must comply with Title 49 U.S.C. Section 50101. Unless otherwise formally approved by the FAA, all acquired steel and manufactured products installed under the AIP assisted project must be produced in the United States. Section 50101(b) permits conditional waivers of this preference. Specifically, the FAA will consider a waiver if the bidder can demonstrate:

1. Applying subsection 50101(a) is inconsistent with the public interest;
2. The steel and goods produced in the United States are not produced in a sufficient and reasonably available amount or are not of a satisfactory quality;
3. The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and final assembly occurs within the United States;
4. The inclusion of domestic material will increase the cost of the overall project by more than 25 percent.

As a condition of bid responsiveness, Bidder must indicate on the Buy American Certification whether it intends to meet Buy American requirements by only installing 100% United States made steel and manufactured products or if it intends to request a permissible waiver to Buy American preferences.
GENERAL PROVISIONS

SECTION 10

DEFINITION OF TERMS

Where portions of text have been lined through (example) this text has been deleted and does not apply to this project. Where portions of text have been added with bolding and italics (example), this text has been added and is binding to this project. This process is utilized throughout the specifications and contract documents (excluding the plans).

Whenever the following terms are used in these specifications, in the contract, in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

10.01 AASHTO. The American Association of State Highway and Transportation Officials, the successor association to AASHO.

10.02 ACCESS ROAD. The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public highway.

10.03 ADVERTISEMENT. A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.

10.04 AIP. The Airport Improvement Program, a grant-in-aid program, administered by the Federal Aviation Administration.

10.05 AIR OPERATIONS AREA. For the purpose of these specifications, the term air operations area shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

10.06 AIRPORT. Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

10.07 ASTM. ASTM International formerly known as the American Society for Testing and Materials (ASTM).

10.08 AWARD. The acceptance, by the Owner, of the successful bidder’s proposal.

10.09 BIDDER. Any individual, partnership, firm, joint venture, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10.10 BUILDING AREA. An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.

10.11 CALENDAR DAY. A Calendar Day shall be Every day shown on the calendar. A Calendar Day shall be a 24 Hour/day period from 12:00 AM to 12:00 AM and may include multiple work shifts. As set forth in the Contract Documents, the Contractor is given a specific number of Calendar Days to perform the Work.
10-12 CHANGE ORDER. A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the work affected by such changes. The work covered by a change order shall be within the scope of the contract.

10-13 CONTRACT. The written agreement covering the work to be performed. The awarded contract shall include, but is not limited to: The Advertisement; The Contract Form; The Proposal; The Performance Bond; The Payment Bond; any required insurance certificates; The Specifications; The Plans, and any addenda issued to bidders.

10-14 CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the contract.

10-15 CONTRACT TIME. The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.

10-16 CONTRACTOR. The individual, partnership, firm, joint venture, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.

10-17 DRAINAGE SYSTEM. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

10-18 ENGINEER. The individual, partnership, firm, or corporation duly authorized by the Owner (sponsor) to be responsible for engineering and construction administration of the contract work and acting directly or through an authorized representative. The Engineer shall be understood to be the Engineer of Record for the Owner.

10-19 EQUIPMENT. All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

10-20 EXTRA WORK. An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement (if authorized by the Contract Documents) or CPEAM, but which is found by the Engineer or CPM to be necessary to complete the work within the intended scope of the contract as previously modified.

10-21 FAA. The Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or his/her duly authorized representative.

10-22 FEDERAL SPECIFICATIONS. The Federal Specifications and Standards, Commercial Item Descriptions, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government.

10-23 FORCE ACCOUNT. Force account construction work is construction that is accomplished through the use of material, equipment, labor, and supervision provided by the Owner, Engineer, CPM, or by another public agency pursuant to an agreement with the Owner. It is also construction performed by the Contractor through the use of material, equipment, labor, and supervision which includes an allowance for overhead and profit where no bid item or established payment provision is provided within the Contract Documents.
10-24 INSPECTOR. An authorized representative of the Engineer-CPM assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-25 INTENTION OF TERMS. Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of the like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer, subject in each case to the final determination of the Owner.

Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.

10-26 LABORATORY. The official testing laboratory(ies) of the Owner or such other laboratories as may be designated by the Engineer-Owner.

10-27 LIGHTING. A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

10-28 MAJOR AND MINOR CONTRACT ITEMS. A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20 percent of the total amount of the awarded contract. All other items shall be considered minor contract items.

10-29 MATERIALS. Any substance specified for use in the construction of the contract work.

10-30 NOTICE TO PROCEED. A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.

10-31 OWNER. The term Owner shall mean the party of the first part or the contracting agency signatory to the contract. Owner may designate authorized representatives, including the Program Management Office (PMO), the Quality Assurance Materials Testing representative (QAMT), and the Construction Project Manager (CPM), to act on its behalf in fulfilling the requirements of the Contract Documents. For AIP contracts, the term Sponsor shall have the same meaning as the term Owner as defined in Article 1 of the Contract Documents.

10-32 PAVEMENT. The combined surface course, base course, and subbase course, if any, considered as a single unit.

10-33 PAYMENT BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that he will pay in full all bills and accounts for materials and labor used in the construction of the work.

10-34 PERFORMANCE BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

10-35 PLANS. The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. No electronic versions of the official hard copy
drawings shall be approved or used for construction purposes. Electronic files of the plans provided to the Contractor shall be used by the Contractor only for construction survey/layout purposes.

10-36 PROJECT. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

10-37 PROPOSAL. The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.

10-38 PROPOSAL GUARANTY. The security furnished with a proposal to guarantee that the bidder will enter into a contract if his/her proposal is accepted by the Owner.

10-39 RUNWAY. The area on the airport prepared for the landing and takeoff of aircraft.

10-40 SPECIFICATIONS. A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.

10-41 SPONSOR. See definition above of "Owner".

10-42 STRUCTURES. Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; flexible and rigid pavements; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.

10-43 SUBGRADE. The soil which forms the pavement foundation.

10-44 SUPERINTENDENT. The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the Engineer, and who shall supervise and direct the construction.

10-45 SUPPLEMENTAL AGREEMENT. A written agreement between the Contractor and the Owner covering: (1) work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25 percent, such increased or decreased work being within the scope of the originally awarded contract; or (2) work that is not within the scope of the originally awarded contract.

10-46 SURETY. The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds which are furnished to the Owner by the Contractor.

10-47 TAXIWAY/TAXILANE. For the purpose of this document, the term taxiway/taxilane means the portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways or aircraft parking areas.

10-48 WORK. The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.

10-49 WORKING DAY. A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least 6 hours toward completion of the contract. Unless work is suspended for causes beyond the Contractor's control,
Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work, requiring the presence of an inspector, will be considered as working days.

END OF SECTION 10
SECTION 20
PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 ADVERTISEMENT (Notice to Bidders).

The Owner, or his/her authorized agent, shall publish the advertisement at such places and at such times as are required by local law or ordinances. The published advertisement shall state the time and place for submitting sealed proposals; a description of the proposed work; instructions to bidders as to obtaining proposal forms, plans, and specifications; proposal guaranty required; and the owner's right to reject any and all bids.

20-02 PREQUALIFICATION OF BIDDERS. Each bidder shall furnish the owner satisfactory evidence of his/her competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, a list of equipment that would be available for the work, and a list of key personnel that would be available. In addition, each bidder shall furnish the owner satisfactory evidence of his/her financial responsibility. Such evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the Contractor's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether his/her financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect his/her (bidder's) true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that he is prequalified with the State Highway Division and is on the current "bidder's list" of the state in which the proposed work is located. Such evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports hereinbefore specified provided the costs of projects submitted as evidence of prequalification is equal to the estimated costs of the project for which the bidder is submitting a bid. The bidder must also provide proof that he/she is licensed in the State of Florida to perform construction activities.

Each bidder shall submit "evidence of competency" and "evidence of financial responsibility" to the Owner no later than 10 days prior to the specified date for opening bids at the time of bid opening.

20-03 CONTENTS OF PROPOSAL FORMS. The Owner shall furnish bidders with proposal forms. All papers bound with or attached to the proposal forms are necessary parts and must not be detached.

The plans, specifications, and other documents designated in the proposal form shall be considered a part of the proposal whether attached or not.

20-04 ISSUANCE OF PROPOSAL FORMS. The owner reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be in default for any of the following reasons:

a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

SPECIAL PROVISION 8
c. Contractor default under previous contracts with the Owner.

d. Unsatisfactory work on previous contracts with the Owner.

e. Contractor has an interest in any litigation or arbitration or other type claim against the Owner, PMO, QAMT, CPM or Engineer.

20-05 INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly or by implication agree that the actual quantities involved will correspond exactly therewith, nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as hereinafter provided in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 40 without in any way invalidating the unit bid prices.

20-06 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. He shall satisfy himself as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which he may make or obtain from his/her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 PREPARATION OF PROPOSAL. The bidder shall submit his/her proposal on the forms furnished by the Owner. All blank spaces in the proposal forms must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals for which he proposes to do each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall sign his/her proposal correctly and in ink. If the proposal is made by an individual, his/her name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state under which the corporation was chartered and the name, titles, and business address of the president, secretary, and treasurer. If made by a joint venture, the name of the joint venture, a list of all joint venture partners, a copy of the joint venture agreement and the proposed person(s) signing the proposal shall give the name of the state under which the joint venture was chartered and the name, titles, and business address of the presidents, secretaries, and the treasurers. Anyone signing a proposal as an agent shall file evidence of his/her authority to do so and that the signature is binding upon the firm or corporation.
20-08—IRREGULAR PROPOSALS. Proposals shall be considered irregular for the following reasons:

Proposals shall be considered irregular for the following, but not limited to, reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind which make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced as interpreted by the Owner and Engineer.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

To be determined responsible, a prospective contractor must—

a. have adequate financial resources to perform the contract or the ability to obtain such resources;

b. is able to comply with the required or proposed delivery or performance schedule, taking into consideration all existing commercial and Government business commitments;

c. has a satisfactory performance record;

d. has a satisfactory record of integrity and business ethics;

e. has the necessary organization, experience, accounting and operational controls, and technical skills, or the ability to obtain such organization, experience, controls and skills;

f. has the necessary production, construction, and technical equipment and facilities or the ability to obtain such equipment and facilities; and

g. is otherwise qualified and eligible to receive an award under applicable laws and regulations. (FAR 9.104-1.)

Further, responsibility relates to a bidder’s ability or capacity to perform the contract requirements and is considered in the award of all federal government (and most state) contracts, whether the method of acquisition is sealed bidding or negotiated procurement.

Responsiveness applies only to sealed bid procurements and involves a bidder’s unequivocal offer or promise to perform exactly the requirements stated in the solicitation.

In general, solicitation requirements relating to a bidder’s capability and experience are associated with the bidder’s responsibility.

Requirements concerned with the products or services to be furnished, however, involve bid responsiveness.
The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-09 BID GUARANTEE. Each separate proposal shall be accompanied by a certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such check, or collateral, shall be made payable to the Owner. The proposal guarantee shall be in the amount of 5% of the maximum bid price submitted unless a different amount is required by the Owner.

20-10 DELIVERY OF PROPOSAL. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened. The bidders shall meet all local requirements regarding the submittal of their bids if those requirements conflict with the requirements listed above.

20-11 WITHDRAWAL OR REVISION OF PROPOSALS. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by telegram before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids. The bidders shall meet all local requirements regarding the withdrawal or revision of their bids if those requirements conflict with the requirements listed above.

20-12 PUBLIC OPENING OF PROPOSALS. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-13 DISQUALIFICATION OF BIDDERS. A bidder shall be considered disqualified for any of the following reasons:

A bidder shall be considered disqualified for any of the following, but not limited to, reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in Subsection 20-04, titled ISSUANCE OF PROPOSAL FORMS of this section.

d. Where the Bidder has an interest in any litigation or arbitration or other type claim against the Owner, PMO, QAMT, CPM or Engineer.

e. Lack of competency as revealed by the Statement of Bidder's Qualifications.

f. Uncompleted work which, in the judgment of the Owner, will hinder or prevent the prompt completion of additional work, if awarded.

g. Previous projects where, in the judgment of the Owner, the Bidder performed unsatisfactorily and did not complete and close out the project in a timely manner resulting in the
Owner not being able to close out the project with various funding agencies and resulting in the Owner potentially or actually losing planned funding for other projects.

END-OF-SECTION 20
SECTION 30

AWARD AND EXECUTION OF CONTRACT

30-01 CONSIDERATION OF PROPOSALS. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

   a. If the proposal is irregular as specified in the subsection titled IRREGULAR PROPOSALS of Section 20.

   b. If the bidder is disqualified for any of the reasons specified in the subsection titled DISQUALIFICATION OF BIDDERS of Section 20.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 AWARD OF CONTRACT. The award of a contract, if it is to be awarded, shall be made within 30 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein. The award of a contract, if it is to be awarded, shall be made within 120 calendar days of the date specified for publicly opening proposals, unless otherwise specified in the Contract Documents. No award shall be made until the FAA has concurred in the Owner's recommendation to make such award and has approved the Owner's proposed contract to the extent that such concurrence and approval are required by 49 CFR Part 18.

Award of the contract shall be made by the Owner to the lowest, qualified bidder whose proposal conforms to the cited requirements of the Owner.

30-03 CANCELLATION OF AWARD. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the subsection titled APPROVAL OF CONTRACT of this section.

30-04 RETURN OF PROPOSAL GUARANTY. All proposal guaranties, except those of the two lowest bidders, three (3) lowest bidders, will be returned immediately after the Owner has made a comparison of bids as hereinbefore specified in the subsection titled CONSIDERATION OF PROPOSALS of this section. Proposal guaranties of the two three lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contracts bonds as specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS of this section.

30-05 REQUIREMENTS OF CONTRACT BONDS. At the time of the execution of the contract, within fifteen (15) calendar days of being notified of the conditional award, the successful bidder shall furnish the Owner a surety bond or bonds which have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by

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reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 EXECUTION OF CONTRACT. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return such signed contract to the Owner, along with the fully executed surety bond or bonds specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS of this section, within 15-20 calendar days from the date mailed or otherwise delivered to the successful bidder. If the contract is mailed, special handling is recommended. The successful bidder shall meet all local requirements regarding the timeframe for returning the fully-executed contract if those requirements conflict with the requirements listed above.

30-07 APPROVAL OF CONTRACT. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 FAILURE TO EXECUTE CONTRACT. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the 15-20 calendar day period specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the Owner.

END OF SECTION 30
SECTION 40

SCOPE OF WORK

40-01 INTENT OF CONTRACT. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies and incidentals required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 ALTERATION OF WORK AND QUANTITIES. The Owner reserves and shall have the right to make such alterations in the work as may be necessary or desirable to complete the work originally intended in an acceptable manner. Unless otherwise specified herein, the Engineer shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded contract quantities, provided that the aggregate of such alterations does not change the total contract cost or the total cost of any major contract item by more than 25 percent (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations which do not exceed the 25 percent limitation shall not invalidate the contract nor release the surety, and the Contractor agrees to accept payment for such alterations as if the altered work had been a part of the original contract. These alterations which are for work within the general scope of the contract shall be covered by "Change Orders" or Contract Price Element Adjustment Memoranda (CPEAM) issued by the Engineer-Owner. Change orders for altered work shall include extensions modifications of contract time where, in the Engineer's and CPM's opinion, such extensions are commensurate with the amount and difficulty of added altered work and the demonstrated schedule impacts, and the request is in accordance with the Contract Documents.

Should the aggregate amount of altered work exceed the 25 percent limitation hereinbefore specified, such excess altered work shall be covered by supplemental agreement. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

For AIP contracts, all supplemental agreements shall be approved by the FAA and shall include valid wage determinations of the U.S. Secretary of Labor when the amount of the supplemental agreement exceeds $2,000. However, if the contractor elects to waive the limitations on work that increases or decreases the originally awarded contract or any major contract item by more than 25 percent, the supplemental agreement shall be subject to the same U.S. Secretary of Labor wage determination as was included in the originally awarded contract.

All change orders or supplemental agreements (if authorized by the Contract Documents) shall require consent of the Contractor's surety and increased performance and payment bonds in 100% of the approved change order.

40-03 OMITTED ITEMS. The Engineer may, in through the Owner's best interest may delete, omit from the work any contract item upon approval of a Change Order or CPEAM, except major contract items. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be nonperformed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with the subsection titled PAYMENT FOR OMITTED ITEMS of Section 90.
40-04 EXTRA WORK. Should acceptable completion of the contract require the Contractor to perform an item of work for which no basis of payment has been provided in the original contract or previously issued change orders or supplemental agreements (if authorized by the Contract Documents) or CPEAMS, the same shall be called Extra Work. Extra work that is within the general scope of the contract shall be covered by written change order or CPEAM. Change orders or CPEAMS for such extra work shall contain agreed unit prices for performing the change order or CPEAM work in accordance with the requirements specified in the change order or CPEAM, and shall contain any adjustment to the contract time that, in the Engineer’s and CPM’s opinion, is necessary for completion of such extra work.

When determined by the Engineer and CPM to be in the Owner's best interest, the CPM may order the Contractor to proceed with extra work by force account as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of Section 90.

Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a Supplemental Agreement, Change Order or CPEAM as hereinbefore defined in the subsection titled SUPPLEMENTAL AGREEMENT in Section 10 Contract Documents.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 MAINTENANCE OF TRAFFIC. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas of the airport with respect to his/her own operations and the operations of all his/her subcontractors as specified in the subsection titled LIMITATION OF OPERATIONS of Section 80. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in the subsection titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Section 70.

With respect to his/her own operations and the operations of all his/her subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying: personnel; equipment; vehicles; storage areas; and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport. Therefore, the Contractor shall submit a Maintenance of Traffic Plan (MOT) to the CPM and BCAD for approval on the project prior to startup of construction. Additionally, the Contractor shall also submit additional Maintenance of Traffic (MOT) Plans to the CPM and BCAD during construction when there are phase changes or conditions in the construction areas that warrant them.

When the contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall furnish erect, and maintain barricades, warning signs, flagmen, and other traffic control devices in reasonable conformity with the manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office) or the Florida Department of Transportation (FDOT) standards, latest edition whichever is more strict, unless otherwise specified herein. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

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The Contractor shall make his/her own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of aircraft and vehicular traffic as specified in this subsection.

The cost of maintaining the aircraft and vehicular traffic specified in this subsection shall not be measured or paid for directly, but shall be included in the various contract items.

**40-06 REMOVAL OF EXISTING STRUCTURES.** All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Engineer and CPM shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer and CPM in accordance with the provisions of the contract.

Except as provided in the subsection titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this section, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be utilized in the work as otherwise provided for in the contract and shall remain the property of the Owner when so utilized in the work.

**40-07 RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK.** Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be either embankment or waste, he may at his/her option either:

- a. Use such material in another contract item, providing such use is approved by the Engineer and is in conformance with the contract specifications applicable to such use; or,
- b. Remove such material from the site, upon written approval of the Engineer CPM; or
- c. Use such material for his/her own temporary construction on site; or,
- d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., he shall request the Engineer's and CPM written approval in advance of such use.

Should the Engineer approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at his/her own expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for his/her use of such material so used in the work or removed from the site.

Should the Engineer approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of his/her exercise of option a., b., or c.

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The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-09 FINAL CLEANING UP. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. He shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property owner.

END OF SECTION 40
SECTION 50
CONTROL OF WORK

50-01 AUTHORITY OF THE ENGINEER. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work. The Engineer shall decide all questions which may arise as to the interpretation of the specifications or plans relating to the work. The Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for under the contract.

The Engineer and CPM does not have the authority to accept pavements that do not conform to FAA specification requirements.

50-02 CONFORMITY WITH PLANS AND SPECIFICATIONS. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans or specifications.

If the Engineer and/or CPM finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications but that the portion of the work affected will, in his/her opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, he will advise the Owner of his/her determination that the affected work be accepted and remain in place. In this event, the Engineer CPM will document his/her determination and recommend to the Owner and Engineer a basis of acceptance which will provide for an adjustment in the contract price for the affected portion of the work. No increase in the contract price shall be made for acceptance of any nonconformity that results in a finished product better than that intended by the requirements of the Contract Documents. The Engineer's determination and recommended contract price adjustments will be based on good engineering judgment and such tests or retests of the affected work as are, in his/her opinion, needed. Changes in the contract price shall be covered by contract modifications (change order or supplemental agreement if authorized by the Contract Documents or CPEAM) as applicable.

If the Engineer finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the Engineer's written orders and the Contract Documents.

For the purpose of this subsection, the term "reasonably close conformity" means compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified. Where working tolerances are specified, reasonably close conformity means compliance with such working tolerances. Without detracting from the complete and absolute discretion of the Engineer to insist upon such tolerances as establishing reasonably close conformity, the Engineer may accept variations beyond such tolerances as reasonably close conformity where they will not materially affect the value or utility of the Work and the interests of the Owner.

For the purpose of this subsection, the term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the Engineer's right to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's
prosecution of the work, when, in the Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority to use good engineering judgment in his/her determinations as to acceptance of work that is not in strict conformity but will provide a finished product equal to or better than that intended by the requirements of the contract, plans and specifications.

The Engineer will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

All defined tolerances shall apply before, during and after incorporation of the materials into the work. It is the intent of the specifications that all materials meet all of the requirements of the specifications after all material has been set in place in its final form.

The Owner shall keep the FAA advised of the Engineer's determinations as to acceptance of the work that is not in reasonably close conformity with the contract, plans, and specifications. Change orders or supplemental agreements must bear the written approval of the FAA.

50-03 COORDINATION OF CONTRACT, PLANS, AND SPECIFICATIONS. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions conditions, plans, cited standards for materials or testing, and cited FAA advisory circulars; contract general provisions conditions shall govern over plans, cited standards for materials or testing, and cited FAA advisory circulars; plans shall govern over cited standards for materials or testing and cited FAA advisory circulars. If any paragraphs contained in the Special Provisions or other sections of the Contract Documents conflict with General Provisions Conditions or Technical Specifications, the Special Provisions or other sections of the Contract Documents shall govern.

From time to time, discrepancies within cited standards for testing occur due to the timing of changing, editing, and replacing of standards. In the event the Contractor discovers any apparent discrepancy within standard test methods, he shall immediately call upon the Engineer and CPM for his/her interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, he shall immediately call upon the Engineer and CPM for his/her interpretation and decision, and such decision shall be final.

50-04 COOPERATION OF CONTRACTOR. The Contractor will be supplied with five copies each of the plans and specifications. He shall have available on the work at all times one copy each of the plans and specifications. Additional copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and he shall cooperate with the Engineer and CPM's inspectors and with other contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as his/her agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the Engineer and/or CPM or his/her authorized representative.
50-05 COOPERATION BETWEEN CONTRACTORS. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct his/her work so as not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his/her contract and shall protect and save harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by him because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his/her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. He shall join his/her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

During performance of the Work under this Contract, the following other contracts may be under construction:

1. Terminal 4 Gate Replacement – Phase 1 (Western Expansion)
2. Terminal 4 Gate Replacement – Phase 2 (Eastern Expansion)
3. Demolition of East Side facilities
4. Demolition of West Side facilities
5. Runway, Crossfield Taxiways, and Hold Pad Paving, Lighting and Signage
6. Hydrant Fueling (Western Expansion)
7. Hydrant Fueling (Eastern Expansion)
8. Site Preparation and NAVAIDS Infrastructure
9. US1/FEC Railroad Structures
10. Landside Improvements
11. Various Airport Expansion Program Demolitions Projects
12. Various Other Capital Improvements Projects

50-06 CONSTRUCTION LAYOUT AND STAKES. The Engineer shall establish horizontal and vertical control only. The Contractor must establish all layout required for the construction of the work. Such stakes and markings as the Engineer may set for either his/her own or the Contractor's guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or his/her employees, resulting in the destruction of such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due the Contractor at the discretion of the Engineer.

The Contractor shall furnish, at his expense, all horizontal and vertical control, and all staking and layout of construction work called for on the plans and in accordance with Technical Specification P-104, Project Survey and Stakeout. The Engineer, CPM and Owner shall not be responsible for such work. However, the Owner, CPM and/or Engineer reserve the right to check all said lines, grades, and measurements with their appointed surveyor. Should the Owner's surveyor detect errors in said lines, grades, and measurements, the Contractor shall pay for all said surveying costs and subsequent surveying costs performed to verify correction of errors found in said lines, grades, and measurements. Included in this are all blue top staking or other forms of grade establishment for subgrade and base course installation, when applicable. Definition of an error shall be 1/4" or more vertically for any material used in the project that does not have a defined tolerance.

The Contractor will be required to furnish all lines, grades and measurements from the control points necessary for the proper prosecution and control of the work contracted for under these specifications.
The Contractor must give weekly *electronic* copies of the survey notes to the *Engineer-CPM* so that the Engineer-CPM may check them as to accuracy and method of staking. All areas that are staked by the Contractor must may be checked by the Engineer prior to beginning any work in the area. The Engineer and/or CPM will may make periodic checks of the grades and alignment set by the Contractor. In case of error on the part of the Contractor, or his/her employees, resulting in establishing grades and/or alignment that are not in accordance with the plans or established by the Engineer, all construction not in accordance with the established grades and/or alignment shall be replaced without additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses therewith. The cost thereof shall be included in the price of the bid for the various items of the Contract.

Construction Staking and Layout includes but is not limited to:

- Clearing and Grubbing perimeter staking.
- Rough Grade slope stakes at 100-foot stations.
- Drainage Swales slope stakes and flow line blue tops at 50-foot stations.
- Subgrade blue tops at 25-foot stations and 25-foot offset distance (max.) for the following section locations:
  - a. Runway – minimum 5 per station
  - b. Taxiways – minimum 3 per station
  - c. Holding apron areas – minimum 3 per station
  - d. Roadways – minimum 3 per station
- Base Course blue tops at 25-foot stations and 25-foot offset distance (max.) for the following section locations:
  - a. Runway – minimum 5 per station
  - b. Taxiways – minimum 3 per station
  - c. Holding apron areas – minimum 3 per station
- Pavement areas:
  - a. Edge of Pavement hubs and tacks (for stringline by Contractor) at 100-foot stations
  - b. Between Lifts at 25-foot stations for the following section locations:
    - (1) Runways – each paving lane width
    - (2) Taxiways – each paving lane width
    - (3) Holding areas – each paving lane width
  - c. After finish paving operations at 50-foot stations

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(1) All paved areas – Edge of each paving lane prior to next paving lot

d. Shoulder and safety area blue tops at 50-foot stations and at all break points with maximum of 50-foot offsets

Fence lines at 100-foot stations

Electrical and Communications System locations, lines and grades including but not limited to duct runs, connections, fixtures, signs, lights, VASI's, PAPI's, REIL's, Wind Cones, Distance Markers (signs), pull boxes and manholes.

Drain lines, cut stakes and alignment on 25-foot stations, inlet and manholes.

Painting and Striping layout (pinned with 1.5-inch PK nails) marked for paint Contractor. (All nails shall be removed after painting).

Laser, or other automatic control devices, shall be checked with temporary control point or grade hub at a minimum of once per 400 feet per pass (i.e. paving lane).

Property lines, if applicable.

NOTE: Controls and stakes disturbed or suspect of having been disturbed shall be checked and/or reset as directed by the Engineer

50-07 AUTOMATICALLY CONTROLLED EQUIPMENT. Whenever batching or mixing plant equipment is required to be operated automatically under the contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period of 48 hours following the breakdown or malfunction, provided this method of operations will provide product results which conform to all other requirements of the contract.

50-08 AUTHORITY AND DUTIES OF INSPECTORS. Inspectors employed by the Owner shall be authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors employed by the Owner are authorized to notify the Contractor or his/her representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Engineer for his/her decision.

50-09 INSPECTION OF THE WORK. All materials and each part or detail of the work shall be subject to inspection by the Engineer and CPM. The Engineer and CPM shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Engineer and/or CPM requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so
exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized representative of the Owner may be ordered removed and replaced at the Contractor's expense unless the Owner's representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

The Engineer, CPM and/or their authorized representatives shall have full authority to inspect all materials on the project site, test all materials at as many locations and at any frequency they deem necessary to satisfy themselves that the final in-place product meets the requirements of the plans, specifications and Contract Documents.

50-10 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. All work which does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the Engineer as provided in the subsection titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this section.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of the subsection titled CONTRACTOR’S RESPONSIBILITY FOR WORK of Section 70.

Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as given, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply forthwith with any order of the Engineer made under the provisions of this subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed and unauthorized work to be removed and to deduct the costs (incurred by the Owner) from any monies due or to become due the Contractor.

50-11 LOAD RESTRICTIONS. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage which may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor shall be responsible for all damage done by his/her hauling equipment and shall correct such damage at his/her own expense.

50-12 MAINTENANCE DURING CONSTRUCTION. The Contractor shall maintain the work during construction and until the work is Final Acceptance accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.
In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 FAILURE TO MAINTAIN THE WORK. Should the Contractor at any time fail to maintain the work as provided in the subsection titled MAINTENANCE DURING CONSTRUCTION of this section, the Engineer CPM shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the Engineer's CPM's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be deducted from monies due or to become due the Contractor.

50-14 PARTIAL ACCEPTANCE. If at any time during the prosecution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, he may request the Engineer and CPM to make final inspection of that unit. If the Engineer and CPM finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, he may accept it as being completed, and the Contractor may be relieved of further responsibility for that unit. Partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract. Partial acceptance or beneficial occupancy of any part of the work shall not constitute acceptance from a warranty standpoint. The warranty for any work completed and accepted shall not begin until the entire project is substantially complete and accepted by the Owner, unless otherwise provided by the Contract Documents.

50-15 FINAL ACCEPTANCE. Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer and owner will make an inspection. Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer, CPM, Owner and representative of the Federal Aviation Administration and/or State funding agency (when applicable) will make an inspection. Final acceptance of the project shall not occur until the FAA and/or State funding agency representative(s) (when applicable) have made their inspection and the FAA and/or State funding agency has accepted the project (when applicable). If all construction provided for and contemplated by the contract is found to be completed in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The Contractor shall be notified in writing of the Owner's final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the Engineer and/or CPM will give the Contractor the necessary instructions for correction of same and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the Engineer will make the recommendation for final acceptance and notify the Contractor in writing of the Owner's this acceptance as of the date of final inspection.

50-16 CLAIMS REQUESTS FOR ADJUSTMENT AND DISPUTES. If for any reason the Contractor deems that additional compensation or time is due him for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, he shall notify the Engineer and CPM in writing of his/her intention to claim seek such additional compensation or time before he begins the work on which he bases the claim request. Such notice shall be given within two (2) days.
of the commencement of the event giving rise to the request. If such notification is not given or the Engineer and CPM is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim request for such additional compensation or time. Such notice by the Contractor and the fact that the Engineer and CPM have kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim request. Within (14) fourteen days of the commencement of the event When the work on which the claim request for additional compensation or time is based has been completed, the Contractor shall, within ten (10) calendar days, submit to the Engineer and CPM all documentation supporting his/her request for additional compensation or time, his/her written claim to the Engineer and CPM who will present it to the Owner for consideration in accordance with local laws or ordinances and the Owner shall consider the request in accordance with the provisions of the Contract Documents.

50-17 COST REDUCTION INCENTIVE. The provisions of this subsection will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.

On projects with original contract amounts in excess of $100,000, the Contractor may submit to the Engineer, in writing, proposals for modifying the plans, specifications or other requirements of the contract for the sole purpose of reducing the cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards. This provision shall not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.

Not eligible for cost reduction proposals are changes in the basic design of a pavement type, runway and taxiway lighting, visual aids, hydraulic capacity of drainage facilities, or changes in grade or alignment that reduce the geometric standards of the project.

As a minimum, the following information shall be submitted by the Contractor with each proposal:

a. A description of both existing contract requirements for performing the work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each;

b. An itemization of the contract requirements that must be changed if the proposal is adopted;

c. A detailed estimate of the cost of performing the work under the existing contract and under the proposed changes;

d. A statement of the time by which a change order adopting the proposal must be issued;

e. A statement of the effect adoption of the proposal will have on the time for completion of the contract; and

f. The contract items of work affected by the proposed changes, including any quantity variation attributable to them.

The Contractor may withdraw, in whole or in part, any cost reduction proposal not accepted by the Engineer, within the period specified in the proposal. The provisions of this subsection shall not be construed to require the Engineer to consider any cost reduction proposal which may be submitted. The Contractor shall continue to perform the work in accordance with the requirements of the contract until a change order incorporating the cost reduction proposal has been issued. If a change order has not been issued by the date upon which the Contractor's cost reduction proposal specifies that a decision should be made or such other date as the Contractor may subsequently have requested in writing, such cost reduction proposal shall be deemed rejected.

SPECIAL PROVISION 8
The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings from the adoption of all or any part of such proposal. In determining the estimated net savings, the Engineer may disregard the contract bid prices if, in the Engineer's judgement such prices do not represent a fair measure of the value of the work to be performed or deleted.

The owner shall require the Contractor to share in the owner's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall acknowledge acceptance of it in writing. Such acceptance shall constitute full authority for the owner to deduct the cost of investigating a cost reduction proposal from amounts payable to the Contractor under the contract.

If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by a contract change order which shall specifically state that it is executed pursuant to this subsection. Such change order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted and shall include any conditions upon which the Engineer's approval is based. The change order shall also set forth the estimated net savings attributable to the cost reduction proposal. The net savings shall be determined as the difference in costs between the original contract costs for the involved work items and the costs occurring as a result of the proposed change. The change order shall also establish the net savings agreed upon and shall provide for adjustment in the contract price that will divide the net savings equally between the Contractor and the Owner.

The Contractor's 50 percent share of the net savings shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the work.

Acceptance of the cost reduction proposal and performance of the cost reduction work shall not extend the time of completion of the contract unless specifically provided for in the contract change order.

If the cost savings are due to the contractor's negligence in submitting timely shop drawings, cut sheets, etc., which result in potential delays to the project completion, any cost savings brought about by substituting materials approved by the Engineer shall not be eligible for sharing of those cost savings.

END OF SECTION 50
SECTION 60
CONTROL OF MATERIALS

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The materials used on the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish complete statements to the Engineer and CPM as to the origin, composition, and manufacture of all materials to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the Engineer's option, materials may be approved at the source of supply before delivery is stated. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other approved sources.

The Contractor shall furnish airport lighting equipment that conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the plans or specifications, the Contractor shall furnish such equipment that is;

a. Listed in FAA Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, and Addendum that is in effect on the date of advertisement; and,

b. Produced by the manufacturer as listed in the Addendum cited above for the certified equipment part number that is recognized as qualified (by FAA) to produce such specified equipment.

The following airport lighting equipment is required for this contract and is to be furnished by the Contractor in accordance with the requirements of this subsection:

<table>
<thead>
<tr>
<th>EQUIPMENT NAME</th>
<th>CITED FAA SPECIFICATIONS</th>
<th>EFFECTIVE FAA AC OR APPROVAL LETTER FOR EQUIPMENT AND MANUFACTURER</th>
</tr>
</thead>
</table>

60-02 SAMPLES, TESTS, AND CITED SPECIFICATIONS. Unless otherwise designated, all materials used in the work shall be inspected, tested for acceptance, and approved by the Engineer and CPM before incorporation in the work. Any work in which untested materials are used without approval or written permission of the Engineer shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer and CPM, shall be removed at the Contractor's expense. Unless otherwise designated, tests in accordance with the cited standard methods of ASTM, AASHTO, Federal Specifications, Commercial Item Descriptions, and all other cited methods which are current on the date of advertisement for bids will be made by and at the expense of the Owner. Samples will be taken by a qualified representative of the Owner. All materials being used are subject to inspection, test, or rejection at any time prior to, or during or after incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at his/her request.

The Contractor shall employ a testing organization to perform all Contractor required quality control tests. The Contractor shall submit to the Engineer or CPM resumes on all testing organizations and individual persons who will be performing the tests. The Engineer or CPM will determine if such persons are qualified. All the test data shall be reported to the Engineer or CPM after the results are known. A legible, handwritten copy of all test data shall be given to the Engineer or CPM daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final
payment, the Contractor shall submit a final report to the Engineer CPM showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests. Refer to Section 100 for more details and requirements.

The Owner shall pay for all passing acceptance tests. The Contractor shall pay for all failing acceptance tests. Charges for failing tests will be deducted from the Contractor's current pay application. The Contractor shall be responsible for notifying the Owner authorized testing laboratory to pick up the acceptance test samples. Also, the Engineer and CPM reserves the right to perform acceptance testing at any location on the project, and at any frequency he/she deems necessary before, during and after incorporation of all materials into the project to satisfy themselves and insure that all materials meet the specified requirements. All materials utilized in the project must meet specification requirements before, during and after incorporation into the project.

60-03 CERTIFICATION OF COMPLIANCE. The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the Engineer CPM.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

a. Conformance to the specified performance, testing, quality or dimensional requirements; and,

b. Suitability of the material or assembly for the use intended in the contract work.

Should the Contractor propose to furnish an "or equal" material or assembly, he shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 PLANT INSPECTION. The Engineer or CPM or his/her authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for his/her acceptance of the material or assembly.

Should the Engineer or CPM conduct plant inspections, the following conditions shall exist:
a. The Engineer or CPM shall have the cooperation and assistance of the Contractor and the producer with whom he has contracted for materials.

b. The Engineer or CPM shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

c. If required by the Engineer or CPM, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material which has been tested and approved at the source of supply after it has been delivered to the site. The Engineer shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 ENGINEER'S/CPM FIELD OFFICE AND LABORATORY. The Contractor shall furnish for the duration of the project one building for the use of the field engineers and inspectors, as a field office. This facility shall be an approved weatherproof building meeting the current State Highway Specifications (for example, Class I Field Office or Type C Structure). This building shall be located conveniently near the construction and shall be separate from any building used by the Contractor. A land line telephone and answering machine shall be provided. The Contractor shall be responsible for payment of the basic monthly charge and local calls only. Any Long Distance Tolls shall be the responsibility of the caller. The Contractor shall furnish [ FAX machine, photocopy machine, water, sanitary facilities, heat, air conditioning and electricity ]. No direct payment will be made for this building or labor, materials, ground rental, or other expense in connection therewith. The cost shall be included in the price bid for the various items of the contract. The Contractor and his/her superintendent shall provide all reasonable facilities to enable the Engineer and CPM to inspect the workmanship and materials entering into the work. When specified and provided for as a contract item, the Contractor shall furnish a building for the exclusive use of the Engineer and CPM as a field office and field testing laboratory. The building shall be furnished and maintained by the Contractor as specified herein, in Specification Item G-102, Contractor's Field Office.

60-06 STORAGE OF MATERIALS. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the Engineer CPM. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the Engineer, CPM and Owner. Private property shall not be used for storage purposes without written permission of the owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the Engineer-CPM a copy of the property owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at his/her entire expense, except as otherwise agreed to (in writing) by the owner or lessee of the property.

60-07 UNACCEPTABLE MATERIALS. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the Engineer.
Rejected material or assemblies, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the Engineer has approved its use in the work.

60-08 OWNER FURNISHED MATERIALS. The Contractor shall furnish all materials required to complete the work, except those specified herein (if any) to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified herein.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies which may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60
SECTION 70

LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-1 LAWS TO BE OBSERVED. The Contractor shall keep fully informed of all Federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. He shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees, and shall protect and indemnify the Owner and all his/her officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself or his/her employees.

70-02 PERMITS, LICENSES, AND TAXES. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

70-03 PATENTED DEVICES, MATERIALS, AND PROCESSES. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save harmless the Owner, CPMI, PMIO, QAMT, Engineer, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the work.

70-04 RESTORATION OF SURFACES DISTURBED BY OTHERS. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) is indicated as follows:

Owner (Utility or Other Facility)
Location (See Plan Sheet No.)
Person to Contact (Name, Title, Address and Phone)

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the Engineer. Owner or the individual owner of an affected utility or facility.

Should the owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such owners by arranging and performing the work in this contract so as to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the Engineer, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 FEDERAL AID PARTICIPATION. For AIP contracts, the United States Government has agreed to reimburse the Owner for some portion of the contract costs. Such reimbursement is made from time to time upon the Owner's request to the FAA. In consideration of the United States Government's (FAA's)
agreement with the Owner, the Owner has included provisions in this contract pursuant to the requirements of Title 49 of the United States Code (USC) and the Rules and Regulations of the FAA that pertain to the work.

As required by the USC, the contract work is subject to the inspection and approval of duly authorized representatives of the Administrator, FAA, and is further subject to those provisions of the rules and regulations that are cited in the contract, plans, or specifications.

No requirement of the USC, the rules and regulations implementing the USC, the rules and regulations implementing the USC, or this contract shall be construed as making the Federal Government a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 SANITARY, HEALTH, AND SAFETY PROVISIONS. The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his/her employees as may be necessary to comply with the requirements of the state and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, state, and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to his/her health or safety.

70-07 PUBLIC CONVENIENCE AND SAFETY. The Contractor shall control his/her operations and those of his/her subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to his/her own operations and those of his/her subcontractors and all suppliers in accordance with the subsection titled MAINTENANCE OF TRAFFIC of Section 40 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in the subsection titled LIMITATION OF OPERATIONS of Section 80 hereinafter.

70-08 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS. The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated. Unless otherwise specified, barricades, warning signs, and markings for hazards that are in the air operations area shall be a maximum of 18-inches high. Unless otherwise specified, barricades shall be spaced not more than 25-feet apart. Barricades, warning signs, and markings shall be paid for under Item G-101-4.1 Section 40-05. This shall include any specialty barricades, warning signs, markings, lighted runway closure markers, etc.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office). The Contractor shall submit a Maintenance of Traffic Plan (MOT) to BCAD and the CPM for approval on the project prior to startup of construction. Refer to Technical Specification Item G-101 Maintenance of Traffic for details.

When the work requires closing an air operations area of the airport or portion of such area, the Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of AC 150/5340-1, Standards for Airport Markings, latest change. The Contractor shall submit a Maintenance of Traffic Plan (MOT) to BCAD and the CPM for approval on every project phase prior to startup of construction. Refer to Technical Specification G-101 Maintenance of Traffic for details.

SPECIAL PROVISION 8
The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stockpiles, and his/her parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to AC 150/5370-2E, Operational Safety on Airports During Construction.

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to AC 150/5370-2E.

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work that requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Engineer CPM.

Open-flame type lights shall not be permitted within the air operations areas of the airport.

**70-09 USE OF EXPLOSIVES.** When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.

All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the Engineer and, in general, not closer than 1,000 feet (300 m) from the work or from any building, road, or other place of human occupancy.

The Contractor shall notify each property owner and public utility company having structures or facilities in proximity to the site of the work of his/her intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury.

The use of electrical blasting caps shall not be permitted on or within 1,000 feet (300 m) of the airport property.

**Explosives are prohibited on the Airport and will not be used for this project.**

**70-10 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE.** The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer CPM has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his/her manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, he shall restore, at his/her own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or he shall make good such damage or injury in an acceptable manner.

**70-11 RESPONSIBILITY FOR DAMAGE CLAIMS.** The Contractor shall indemnify and save harmless the Engineer and the Owner and their officers, and employees from all suits actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or
property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of his/her contract as may be considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, his/her surety may be held until such suit or suit(s), action(s), or claim(s) for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he is adequately protected by public liability and property damage insurance. Refer to Section 3-General Conditions, Article 39.

70-12 THIRD PARTY BENEFICIARY CLAUSE. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 OPENING SECTIONS OF THE WORK TO TRAFFIC. Should it be necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work shall be specified herein and indicated on the plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. The Contractor shall make his/her own estimate of the difficulties involved in arranging his/her work to permit such beneficial occupancy by the Owner as described below:

Phase or Description
Required Date or Sequence of Owner's Beneficial Occupancy
Work Shown on Plan-Sheet

Refer to the various Phasing Plan sheets of the drawings for phasing and for descriptions and durations of each phase.

Upon completion of any portion of the work listed above, such portion shall be accepted may be occupied by the Owner in accordance with the subsection titled PARTIAL ACCEPTANCE of Section 50 Contract Documents.

No portion of the work may be opened by the Contractor for public use until ordered by the Engineer in writing. Should it become necessary to open a portion of the work to public traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the Engineer, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at his/her expense.

The Contractor shall make his/her own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

Contractor shall be required to conform to safety standards contained in FAA AC 150/5370-2E, Operational Safety on Airports During Construction. (See Special Provisions.)
Contractor shall refer to the approved safety plan and associated phasing plans to identify barricade requirements and other safety requirements prior to opening up sections of work to traffic.

**70-14 CONTRACTOR'S RESPONSIBILITY FOR WORK.** Until the Engineer's Owner's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with the subsection titled PARTIAL ACCEPTANCE of Section 50 Contract Documents, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at his/her expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seedings, and soddings furnished under his/her contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

**70-15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS.** As provided in the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control his/her operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans.

```
Utility Service or Facility
Person to Contract (Name, Title, Address, & Phone)
Owner's Emergency Contact (Phone)
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It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of his/her responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the owners of all utility services or other facilities of his/her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided hereinbefore in this subsection and the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section. A copy of each notification shall be given to the Engineer-CPM.

In addition to the general written notification hereinbefore provided, it shall be the responsibility of the Contractor to keep such individual owners advised of changes in his/her plan of operations that would affect such owners.

SPECIAL PROVISION 8
Prior to commencing the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such owner of his/her plan of operation. If, in the Contractor's opinion, the owner's assistance is needed to locate the utility service or facility or the presence of a representative of the owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's PERSON TO CONTACT no later than two normal business thirty (30) days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the Engineer CPM.

The Contractor's failure to give the two-thirty (30) day's notice hereinabove provided shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use excavation methods acceptable to the Engineer CPM within 3-feet (90 cm) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, he shall immediately notify the proper authority, and the Engineer CPM shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the Engineer continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to his/her operations whether or not due to negligence or accident. The contract Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his/her surety.

70-15.1 FAA FACILITIES AND CABLE RUNS. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the prosecution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall notify the above-named FAA Airway Facilities Point-of-Contact seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If prosecution of the project work requires a facility outage, the Contractor shall contact the above-named FAA Point-of-Contact a minimum of 48 hours prior to the time of the required outage.

d. If prosecution of the project work results in damages to existing FAA equipment or cables, the Contractor shall repair the damaged item in conformance with FAA Airway Facilities' standards to the satisfaction of the above-named FAA Point-of-Contact.

e. If the project work requires the cutting or splicing of FAA owned cables, the above-named FAA Point-of-Contact shall be contacted a minimum of 48 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA Airway Facilities representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA Airway Facilities' specifications and require approval by the above-named FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA Airway Facilities
restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA Airway Facilities, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

There are times during the year when the FAA has a moratorium on construction activities on FAA airfield facilities and cables. The Contractor shall coordinate with Broward County Aviation Department (BCAD) on the project prior to startup of construction to ensure no such moratoriums are in place during the construction period(s).

70-16 FURNISHING RIGHTS-OF-WAY. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 PERSONAL LIABILITY OF PUBLIC OFFICIALS. In carrying out any of the contract provisions or in exercising any power or authority granted to him by this contract, there shall be no liability upon the Engineer, CPM, PMO, QAMT or his/her authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 NO WAIVER OF LEGAL RIGHTS. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or his/her surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his/her obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 ENVIRONMENTAL PROTECTION. The Contractor shall comply with all Federal, state, and local laws and regulations controlling pollution of the environment. He/she shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 ARCHAEOLOGICAL AND HISTORICAL FINDINGS. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during his/her operations, any building, part of a building, structure, or object which is incongruous with its surroundings, he shall immediately cease operations in that location and notify the Engineer-CPM. The Engineer-CPM will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume his/her operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract modification (change order or supplemental agreement or CPEAM) as provided in the subsection titled EXTRA WORK of Section 40 and the subsection titled PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT WORK of Section 90. If appropriate, the contract modification shall include an extension of contract time in accordance with the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Section 80.

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END OF SECTION 70
SECTION 80

PROSECUTION AND PROGRESS

80-01 SUBLETTING OF CONTRACT. The Owner, CPM, QAMT and Engineer will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Engineer and/or CPM.

Should the Contractor elect to assign his/her contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner. In case of approval, the Contractor shall file copies of all subcontracts with the Engineer CPM.

80-02 NOTICE TO PROCEED. The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and from which date contract time will be charged. The Contractor shall begin the work to be performed under the contract within 10 days of the date set by the Engineer in the written notice to proceed, but in any event, the Contractor shall notify the Engineer at least 24 hours in advance of the time actual construction operations will begin.

The Notice to Proceed shall be issued by the Owner.

The Contractor shall be given at least two notices to proceed (NTP). The First NTP shall authorize preconstruction work, and the Contractor shall commence such work within ten (10) calendar days of issuance of the First NTP. The Second NTP shall authorize commencement of construction work. The Contractor shall notify the Owner, CPM and Engineer at least 48 hours in advance of the time actual construction operations will begin. There shall also be the possibility of multiple Notices to Proceed given during the course of the project for either administrative or varying construction phases of the work.

80-03 PROSECUTION AND PROGRESS. Unless otherwise specified, the Contractor shall submit his/her progress schedule for the Engineer's and CPM's approval within 10 calendar days after the effective date of the first notice to proceed. The Contractor's progress schedule, when approved by the Engineer and CPM, may be used to establish major construction operations and to check on the progress of the work. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the Engineer's CPM's request, submit a revised schedule for completion of the work within the contract time and modify his/her operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations. Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Owner, CPM and Engineer at least 48 hours in advance of resuming operations.

For AIP contracts, the Contractor shall not commence any actual construction prior to the date on which the particular notice to proceed is issued by the Owner.

All Contractor questions and clarifications of the contract documents must be addressed through a Request for Information (RFI) process administered by the CPM. RFIs will be generated by the Contractor and answered through the CPM utilizing the County's Prolog database.
80-04 LIMITATION OF OPERATIONS. The Contractor shall control his/her operations and the operations of his/her subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft in the AIR OPERATIONS AREAS of the airport.

When the work requires the Contractor to conduct his/her operations within an AIR OPERATIONS AREA of the airport, the work shall be coordinated with airport management (through the Engineer-CPM) at least 48 hours one week prior to commencement of such work. The Contractor shall not close an AIR OPERATIONS AREA until so authorized by the Engineer Owner and until the necessary temporary marking and associated lighting is in place as provided in the subsection titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 70.

When the contract work requires the Contractor to work within an AIR OPERATIONS AREA of the airport on an intermittent basis (intermittent opening and closing of the AIR OPERATIONS AREA), the Contractor shall maintain constant communications as hereinafter specified; immediately obey all instructions to vacate the AIR OPERATIONS AREA; and immediately obey all instructions to resume work in such AIR OPERATIONS AREA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AIR OPERATIONS AREA until the satisfactory conditions are provided. The following AIR OPERATIONS AREA (AOA) cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

<table>
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<tr>
<th>AOA</th>
<th>TIME PERIODS AOA CAN BE CLOSED</th>
<th>TYPE OF COMMUNICATIONS REQUIRED WHEN WORKING IN AN AOA</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>CONTROL AUTHORITY</td>
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</table>

Contractor shall be required to conform to safety standards contained in AC 150/5370-2E, Operational Safety on Airports During Construction. (See Special Provisions.)

80-04.1 OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION. All Contractors' operations shall be conducted in accordance with the project safety plan and the provisions set forth within the current version of Advisory Circular 150/5370-2E. The safety plan included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a plan that details how it proposes to comply with the requirements presented within the safety plan.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks of the safety plan measures to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the safety plan and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved safety plan unless approved in writing by the Owner-Engineer.

The Contractor shall also submit a Maintenance of Traffic Plan (MOT) to BCAD Operations and the CPM for approval on every project prior to startup of construction. Refer to Technical Specification G-101 Maintenance of Traffic for details.

80-05 CHARACTER OF WORKERS, METHODS, AND EQUIPMENT. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.
All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations and, in the opinion of the Engineer, CPM or Owner, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer—CPM, be removed forthwith by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the Engineer—CPM.

Should the Contractor fail to remove such persons or person, or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer and/or CPM may suspend the work by written notice until compliance with such orders.

In addition, the following requirements shall apply concerning all workers utilized on the project:

a. The Contractor shall provide and maintain, continually on the project site of the Work during its progress, adequate and competent superintendence of all operations for and in connection with the Work. The Contractor shall provide a capable superintendent acceptable to the Owner. Such representative shall be able to read, write and speak English fluently and shall be authorized to receive instructions from the CPM and Owner. Said superintendent shall have authority to see that the Work is carried out in accordance with the Contract Documents and in a first class, thorough and workmanlike manner in every respect.

b. Incompetent, disorderly, intemperate or incorrigible employees shall be dismissed from the project by the Contractor or his representative when requested by the CPM or the Owner, and such persons shall not again be permitted to return to the work without the written consent of the Owner.

c. The Contractor agrees to indemnify and hold the Owner harmless from any and all loss or damages arising out of jurisdictional labor disputes or other labor troubles of any kind that may occur during the construction and performance of the Contract.

d. The Contractor shall provide at the request of the Owner such reasonable information about his employees as may be necessary, including in part, name, address and social security number.

e. Any employee of the Contractor or any subcontractors who violate the badging requirements or leaves unbadged individuals in the Airport Operations Area (AOA) or the Secured Identification Display Area (SIDA) without properly badged individuals will be removed from the Airport and not allowed back onto the Airport without prior approval by the Airport management.

All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall be such that no injury to previously completed work, adjacent property, or existing airport facilities will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer and CPM. If the Contractor desires to use a
method or type of equipment other than specified in the contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer and CPM determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this subsection.

80-06 TEMPORARY SUSPENSION OF THE WORK. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods as he may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the prosecution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Owner's order to suspend work to the effective date of the Owner's order to resume the work. Claims for such compensation shall be filed with the Engineer and CPM within the time period stated in the Owner's order to resume work. The Contractor shall submit with his/her claim information substantiating the amount shown on the claim. The Engineer and/or CPM will forward the Contractor's claim to the Owner—shall consider the request for consideration in accordance with the Contract Documents.

Requests for such compensation shall be filed with the Engineer and CPM within the time period stated in the Owner's order to resume work. The Contractor shall submit with his/her claim request information substantiating the amount shown on the claim request. The Engineer and/or CPM will forward the Contractor's claim to the Owner—shall consider the request for consideration in accordance with the Contract Documents.

If it should become necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. He shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 DETERMINATION AND EXTENSION OF CONTRACT TIME. The number of calendar or working days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Should the contract time require extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

a. CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of his/her weekly statement of the number of working days charged against the contract time during the week and the number of working days currently specified for completion of the contract (the original contract time plus the number of working days, if any, that have been included in approved CHANGE ORDERS or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).

The Engineer and/or CPM shall base his/her weekly statement of contract time charged on the following considerations:
(1) No time shall be charged for days on which the Contractor is unable to proceed with the principal item of work under construction at the time for at least 6-hour 50% of the normal calendar day, whether single, double or triple shifts, with the normal work force employed on such principal item, except where specific defined project elements, phases, etc. establishes a shorter time frame due to operational constraints of the airport. Should the normal work force be on a double shift, 12 hours shall be used. Should the normal work force be on a triple shift, 18 hours shall apply. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the principal item of work under construction or temporary suspension of the entire work which have been ordered by the Owner for reasons not the fault of the Contractor, shall not be charged against the contract time.

(2) The Engineer-CPM will not make charges against the contract time prior to the effective date of the notice to proceed.

(3) The Engineer-CPM will begin charges against the contract time on the first working day after the effective date of the notice to proceed.

(4) The Engineer-CPM will not make charges against the contract time after the date of final acceptance Substantial Completion as defined in the subsection titled FINAL ACCEPTANCE of Section 50 in the Contract Documents.

(5) The Contractor will be allowed one (1) week in which to file a written protest setting forth his/her objections to the Engineer-CPM's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

The contract time (stated in the proposal) is based on the originally estimated quantities as described in the subsection titled INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES of Section 20. Should the satisfactory completion of the contract require performance of work in greater quantities than those estimated in the proposal, the contract time shall be increased in the same proportion as the cost of the actually-completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in contract time shall not consider either the cost of work or the extension of contract time that has been covered by change order or supplemental agreement and shall be made at the time of final payment.

b. CONTRACT TIME based on CALENDAR DAYS shall consist of the number of calendar days stated in the contract counting from the effective date of the second notice to proceed and including all Saturdays, Sundays, holidays, and nonwork days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded. The definition of a calendar day shall be further defined as including any day and night work. If the Contractor works a day shift and no more, that shall be counted as a calendar day. If the Contractor works a night shift and no more, that shall be counted as a calendar day. If the Contractor works a day and night shift, that double or triple shift shall be counted as a calendar day.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually-completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in contract time shall not consider either the cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

c. When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially completed.
If the Contractor finds it impossible for reasons beyond his/her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the contract time as extended, make a written request to the Engineer CPM for an extension of time setting forth the reasons which he believes will justify the granting of his/her request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer and CPM finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Owner may extend the time for completion in such amount as the conditions justify. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

80-08 FAILURE TO COMPLETE ON TIME. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this Section) the sum specified in the contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his/her surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in his/her contract.

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<tr>
<th>SCHEDULE</th>
<th>LIQUIDATED DAMAGES COST</th>
<th>ALLOWED CONSTRUCTION TIME</th>
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</table>

The maximum construction time allowed for Schedules [__] will be the sum of the time allowed for individual schedules but not more than [__] days. (Note: this paragraph will be modified for each project.)

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Owner of any of its rights under the contract.

The Contractor shall be charged liquidated damages in the amount shown in the Contract Documents.

80-09 DEFAULT AND TERMINATION OF CONTRACT. The Contractor shall be considered in default of his/her contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons if the Contractor:

The Contractor shall be considered in default of his/her contract and such default will be considered as cause for the Owner to terminate the contract for any of the following, but not limited to, reasons:

a. Fails to begin the work under the contract within the time specified in the "Notice to Proceed," or

b. Fails to perform the work or fails to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the prosecution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or
f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against him unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason hereinbefore, the CPM shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the Engineer CPM of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the prosecution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer CPM will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 TERMINATION FOR NATIONAL EMERGENCIES. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Engineer CPM.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his/her responsibilities for the completed work nor shall it relieve his/her surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 WORK AREA, STORAGE AREA AND SEQUENCE OF OPERATIONS. The Contractor shall obtain approval from the Engineer Owner prior to beginning any work in all areas of the airport. No operating runway, taxiway, or Air Operations Area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate his/her work in such a manner as to insure
safety and a minimum of hindrance to flight operations. All Contractor equipment and material stockpiles shall be stored a minimum of [400] feet from the centerline of an active runway. No equipment will be allowed to park within the approach area of an active runway at any time. No equipment shall be within [250] feet of an active runway at any time.

END OF SECTION 80
SECTION 90

MEASUREMENT AND PAYMENT

90-01 MEASUREMENT OF QUANTITIES. All work completed under the contract will be measured by the Engineer – CPM, or his/her authorized representatives, using United States Customary Units of Measurement or the International System of Units.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meter) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the Engineer and/or CPM.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

In computing volumes of excavation the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inches.

The term "ton" will mean the short ton consisting of 2,000 pounds (907 kilograms) avoirdupois. All materials which are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designated by the Engineer CPM. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material be paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Engineer CPM directs, and each truck shall bear a plainly legible identification mark.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer CPM, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

When requested by the Contractor and approved by the Engineer CPM in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer CPM and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon (liter) or ton (kilogram). When measured by volume, such volumes will be measured at 60 degrees F (15 C) or will be corrected to the volume at 60 degrees F (15 C) using ASTM D 1250 for asphalts or ASTM D 633 for tars.

SPECIAL PROVISION 8
Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

Cement will be measured by the ton (kilogram) or hundredweight (kilogram).

Timber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered by the Engineer CPM in connection with force account work will be measured as agreed in the change order or supplemental agreement (if authorized by the Contract Documents) or CPEAM authorizing such force account work as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of this section.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of 1 percent of the nominal rated capacity of the scale, but not less than 1 pound (454 grams). The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector can safely and conveniently view them.

Scale installations shall have available ten (10) standard 50-pound (2.3 kilogram) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of one-half of 1 percent.
In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the Engineer CPM. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 SCOPE OF PAYMENT. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, subject to the provisions of the subsection titled NO WAIVER OF LEGAL RIGHTS of Section 70.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 COMPENSATION FOR ALTERED QUANTITIES. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 40, will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his/her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 PAYMENT FOR OMITTED ITEMS. As specified in the subsection titled OMITTED ITEMS of Section 40, the Engineer and/or CPM shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the Engineer and/or CPM omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the Engineer's and/or CPM's order to omit or nonperform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the Engineer's and/or CPM's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the Engineer's and/or CPM's order. Such additional costs incurred by the Contractor must be directly related to the
deleted contract item and shall be supported by certified statements by the Contractor as to the nature and the amount of such costs.

**90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK.** Extra work, performed in accordance with the subsection titled EXTRA WORK of Section 40, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement or CPEAM authorizing the extra work. When the change order or supplemental agreement or CPEAM authorizing the extra work requires that it be done by force account, such force account shall be measured and paid for based on expended labor, equipment, and materials plus a negotiated and agreed upon allowance contractually-established fee for Overhead and Profit determined in accordance with the Contract Documents and as follows:

a. **Miscellaneous.** No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

b. **Comparison of Record.** The Contractor and the Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.

c. **Statement.** No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such force account work detailed as follows:

1. Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman including supplemental benefits, payroll taxes, insurance premiums and other reasonable charges that are paid by the Contractor pursuant to existing written agreements with employees and/or labor organizations.

2. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.

For Contractor self-owned equipment, the maximum rate paid for equipment will be determined based upon the following factors:

(i) The base hourly rates shall be the daily rate as listed in the current Rental Rates for Construction Equipment prepared by Associated Equipment Distributors latest edition, divided by eight (8). Where no daily rate is listed, the daily rate will be determined by dividing the monthly rate by 10.

(ii) The first 20 hours will be paid at 90 percent of the above based hourly rate. For 21 to 40 hours, the rate will be 80 percent of the above base hourly rate. For over 40 hours, the rate will be 45 percent of the above base hourly rate.

(iii) The number of hours to be paid for shall be the number of hours that the equipment or plant is actually used on a specified force account job.

(iv) For rented equipment, such equipment will be paid for based upon rental cost as approved by the CPM Invoices showing rental charges must be submitted to the CPM for such payment.

(v) For use of all equipment when, in the opinion of the Contractor and as approved by the Engineer, suitable equipment is not available on the site, the movement of required equipment to and from the site will be paid for at actual cost.
(vi) Equipment to be used by the Contractor shall be specifically described and be of suitable size and suitable capacity required for the work to be performed. In the event the Contractor elects to use equipment of a higher rental value than that suitable for the work, payment will be made at the rate applicable to the suitable equipment. The equipment actually used and the suitable equipment paid for will be recorded as part of the record for force account work. The CPM shall determine the suitability of the equipment. If there is a differential in the rate of pay of the operator of oversize or higher rate equipment, the rate paid for the operator will likewise be that for the suitable equipment.

(vii) In the event that a rate is not established in the Associated Equipment Distributors Rental Rates, latest edition, for a particular piece of equipment or plant, the Owner shall establish a rate for that piece of equipment or plant that is consistent with its cost and use.

(3) Quantities of materials, prices, and extensions.

(4) Transportation of materials to the site.

(5) Cost of property damage, liability and workman's compensation insurance premiums, unemployment insurance contributions, and social security tax.

(6) Profit and Overhead. Profit and overhead amount shall be computed at fifteen (15) percent of the following:

(i) Total Direct Labor Cost (actual hours worked multiplied by the basic hourly wage rate) plus supplemental benefits payments, payroll taxes, insurance payments and other labor related fringe benefit payments as defined in (1) above, but not including the overtime additive payments. Profit and overhead shall not be paid on the premium portion of overtime.

(ii) Total Cost of Materials as defined in (3) and (4) above.

(iii) If any of the work is performed by a subcontractor, the Contractor shall be paid the actual and reasonable cost of such subcontracted work computed as outlined in (4) through (5) above, or on such other basis as may be approved by the Owner. Contractor's profit and overhead on subcontractor's work shall be computed at seventeen and one-half (17.5) percent as limited in this section. Subcontractor's profit and overhead amount shall be computed at seven and one-half (7.5) percent of materials and direct labor to cover the subcontractor's profit, superintendent, administration, insurance and other overhead. For purposes of computing profit and overhead, only one level or tier of subcontractors will be allowed.

(7) Overhead shall be defined to include the following items:

(i) Premium on bond.

(ii) Premium on insurance required by the State, Workmen's Compensation Insurance, public liability and property damage insurance, unemployment insurance, federal old-age benefits, other payroll taxes and such reasonable charges that are paid by the Contractor pursuant to written agreement with his employee.

(iii) All salary and expenses of executive officers, supervising officers or supervising employees.

(iv) All clerical or stenographic employees.

(v) All charges for minor equipment such as small tools, including shovels.
picks, axes, saws, bars, sledges, lanterns, jacks, cables, pails, wrenches, etc., and other miscellaneous supplies and services.

(vi) All drafting room accessories such as paper, blueprinting, etc.

Statements shall be accompanied and supported by a receipted invoice for all materials used and transportation charges. However, if materials used on the force-account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

9.06 PARTIAL PAYMENTS. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates prepared by the Engineer—CPM and Contractor and coordinated with the Engineer of the value of the work performed and materials complete in place in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the subsection titled PAYMENT FOR MATERIALS ON HAND of this section. No partial payment will be made when the amount due the Contractor since the last estimate amounts to less than five hundred dollars.

The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment unless Owner-required timeframe is less, then the more stringent timeframe shall govern. The Owner must ensure prompt and full payment of retainage from the prime contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed unless Owner-required timeframe is less, then the more stringent timeframe shall govern. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed unless otherwise stipulated by Owner requirements.

From the total of the amount determined to be payable on a partial payment, retainage in the amount specified in the General Conditions of the Contract Documents percent of such total amount will be deducted and retained by the Owner until the final payment is made, except as may be provided (at the Contractor's option) in the subsection titled PAYMENT OF WITHHELD FUNDS of this section. The balance (90 percent) of the amount payable, less all previous payments, shall be certified for payment. Should the Contractor exercise his/her option, as provided in the subsection titled PAYMENT OF WITHHELD FUNDS of this section, no such 10 percent retainage shall be deducted.

When at least 95 percent of the work has been completed the Engineer shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done.

The Owner may retain, an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements or CPEAMs, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.
No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in the subsection titled ACCEPTANCE AND FINAL PAYMENT of this section.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner, CPM, QAMT, and Engineer against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

**90 07 PAYMENT FOR MATERIALS ON HAND.** Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the Engineer and CPM at or on an approved site.

b. The Contractor has furnished the Engineer and CPM with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the Engineer and CPM with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at anytime prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of his/her responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

**90 08 PAYMENT OF WITHHELD FUNDS.** At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in Section 90 06 PARTIAL PAYMENTS, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.
b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the 10 percent retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 ACCEPtANCE AND FINAL PAYMENT. — When the contract work has been accepted in accordance with the requirements of the subsection titled FINAL ACCEPTANCE of Section 50 Contract Documents, the Engineer and CPM will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's and CPM's final estimate or advise the Engineer and CPM of his/her objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement or CPEAM. The Contractor, and the Engineer CPM shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within thirty (30) calendar days of the Contractor's receipt of the Engineer's and CPM's final estimate. If, after such 30 day period, a dispute still exists, the Contractor may approve the Engineer's and CPM's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with the subsection titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's and CPM's final estimate, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

Should elements of work require delay in final payment due to seasonal or other reasons, the Owner may retain or withhold an agreed-upon amount from items of work associated with the delay items and hold that retainage, even after final payment less the retained amounts, until the Contractor has fulfilled the elements of work delayed to the satisfaction of the Owner. The Owner shall release the retained amount after all associated work for which the delay item has been accepted by the Owner.

If the Contractor has filed a claim for additional compensation under the provisions of the subsection titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Section 50 or under the provisions of this subsection, such claims will be considered by the Owner in accordance with local laws or ordinances the provisions of the Contract Documents. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

END OF SECTION 90
SECTION 100

CONTRACTOR QUALITY CONTROL PROGRAM

100-01 GENERAL. When the specifications require a Contractor Quality Control Program, the Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The intent of this section is to enable the Contractor to establish a necessary level of control that will:

a. Adequately provide for the production of acceptable quality materials.

b. Provide sufficient information to assure both the Contractor, and the Engineer and CPM that the specification requirements can be met.

c. Allow the Contractor as much latitude as possible to develop his or her own standard of control.

The Contractor shall be prepared to discuss and present, at the preconstruction conference, his/her understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed by the Engineer and CPM and a written finding of no objection to the Quality Control Program is provided by the Engineer and CPM. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed and a written finding of no objection to the Quality Control Program is provided by the Engineer and CPM.

The quality control requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer Owner.

The quality control requirements established herein are specific to the subgrade and other paving materials planned for use on this project. The quality control requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer Owner.

100-02 DESCRIPTION OF PROGRAM.

a. General Description. The Contractor shall establish a Quality Control Program to perform inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable specifications and plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

b. Quality Control Program. The Contractor shall describe the Quality Control Program in a written document which shall be reviewed by the Engineer and CPM prior to the start of any production,
construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer and CPM for review at least [10] calendar days before the preconstruction meeting.

The Quality Control Program shall be organized to address, as a minimum, the following items:

a. Quality control organization;
b. Project progress schedule;
c. Submittals schedule;
d. Inspection requirements;
e. Quality control testing plan;
f. Documentation of quality control activities; and
g. Requirements for corrective action when quality control and/or acceptance criteria are not met.

The Contractor is encouraged to add any additional elements to the Quality Control Program that he/she deems necessary to adequately control all production and/or construction processes required by this contract.

*The cost of development, administration and/or performance of the Contractor Quality Control Program shall not be paid for separately but shall be included in various other items of work.*

*The quality control requirements established herein are specific to the subgrade and other paving materials planned for use on this project.***

100-03 QUALITY CONTROL ORGANIZATION. The Contractor's Quality Control Program shall be implemented by the establishment of a separate quality control organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work. If necessary, different technicians can be utilized for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the Quality Control Program, the personnel assigned shall be subject to the qualification requirements of paragraph 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The quality control organization shall consist of the following minimum personnel:

a. **Program Administrator.** The Program Administrator shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The Program Administrator shall have a minimum of 5 years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as the contract. Additional qualifications for the Program Administrator shall include at least 1 of the following requirements:
(1) Professional engineer with 1 year of airport paving experience acceptable to the Engineer and CPM.

(2) Engineer-in-training with 2 years of airport paving experience acceptable to the Engineer and CPM.

(3) An individual with 3 years of highway and/or airport paving experience acceptable to the Engineer and CPM, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

(4) Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).

(5) Highway materials technician certified at Level III by NICET.

(6) Highway construction technician certified at Level III by NICET.

(7) A NICET certified engineering technician in Civil Engineering Technology with 5 years of highway and/or airport paving experience acceptable to the Engineer and CPM.

The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract plans and technical specifications. The Program Administrator shall report directly to a responsible officer of the construction firm. The Program Administrator may supervise the Quality Control Program on more than one project provided that person can be at the job site within 2 hours after being notified of a problem.

b. Quality Control Technicians. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be either engineers, engineering technicians, or experienced craftsmen with qualifications in the appropriate field equivalent to NICET Level II or higher construction materials technician or highway construction technician and shall have a minimum of 2 years of experience in their area of expertise.

The quality control technicians shall report directly to the Program Administrator and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Section 100-06.

(2) Performance of all quality control tests as required by the technical specifications and Section 100-07.

Certification at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing Levels. The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program shall state where different technicians will be required for different work elements.

100-04 PROJECT PROGRESS SCHEDULE. The Contractor shall submit a coordinated construction schedule for all work activities. The schedule shall be prepared as a network diagram in Critical Path
The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

100-05 SUBMITTALS SCHEDULE. The Contractor shall submit a detailed listing of all submittals (e.g., mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

- Specification item number;
- Item description;
- Description of submittal;
- Specification paragraph requiring submittal; and
- Scheduled date of submittal.

100-06 INSPECTION REQUIREMENTS. Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by Section 100-07.

Inspections shall be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work. These shall include the following minimum requirements:

- During plant operation for material production, quality control test results and periodic inspections shall be utilized to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment utilized in proportioning and mixing shall be inspected to ensure its proper operating condition. The Quality Control Program shall detail how these and other quality control functions will be accomplished and utilized.

- During field operations, quality control test results and periodic inspections shall be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The Program shall document how these and other quality control functions will be accomplished and utilized.

100-07 QUALITY CONTROL TESTING PLAN. As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.

The testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

- Specification item number (e.g., P-401);
b. Item description (e.g., Plant Mix Bituminous Pavements);

c. Test type (e.g., gradation, grade, asphalt content);

d. Test standard (e.g., ASTM or AASHTO test number, as applicable);

e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated);

f. Responsibility (e.g., plant technician); and

g. Control requirements (e.g., target, permissible deviations).

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D 3665. The Engineer and CPM shall be provided the opportunity to witness quality control sampling and testing.

All quality control test results shall be documented by the Contractor as required by Section 100-08.

100-08 DOCUMENTATION. The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the Engineer-CPM daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator.

Specific Contractor quality control records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily Inspection Reports. Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Engineer-CPM. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

(1) Technical specification item number and description;

(2) Compliance with approved submittals;

(3) Proper storage of materials and equipment;

(4) Proper operation of all equipment;

(5) Adherence to plans and technical specifications;

(6) Review of quality control tests; and

(7) Safety inspection.
The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible quality control technician and the Contractor Program Administrator. The Engineer-CPM shall be provided at least one copy of each daily inspection report on the work day following the day of record.

b. Daily Test Reports. The Contractor shall be responsible for establishing a system which will record all quality control test results. Daily test reports shall document the following information:

1. Technical specification item number and description;
2. Test designation;
3. Location;
4. Date of test;
5. Control requirements;
6. Test results;
7. Causes for rejection;
8. Recommended remedial actions; and
9. Retests.

Test results from each day’s work period shall be submitted to the Engineer-CPM prior to the start of the next day’s work period. When required by the technical specifications, the Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Contractor Program Administrator.

100-09 CORRECTIVE ACTION REQUIREMENTS. The Quality Control Program shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications.

The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

100-10 SURVEILLANCE BY THE ENGINEER/CPM. All items of material and equipment shall be subject to surveillance by the Engineer and CPM at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to surveillance by the Engineer and CPM at the site for the same purpose.
Surveillance by the Engineer and CPM does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

100-11 NONCOMPLIANCE.

a. The Engineer and/or CPM will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Engineer and/or CPM or his/her authorized representative to the Contractor or his/her authorized representative at the site of the work, shall be considered sufficient notice.

b. In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer and CPM, the Engineer CPM may:

(1) Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.

(2) Order the Contractor to stop operations until appropriate corrective actions is taken.

END OF SECTION 100
SECTION 110

METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

110-01 GENERAL. When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (X) and sample standard deviation (S_n) of the specified number (n) of sublets for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index(s), Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

IT IS THE INTENT OF THIS SECTION TO INFORM THE CONTRACTOR THAT, IN ORDER TO CONSISTENTLY OFFSET THE CONTRACTOR'S RISK FOR MATERIAL EVALUATED, PRODUCTION QUALITY (USING POPULATION AVERAGE AND POPULATION STANDARD DEVIATION) MUST BE MAINTAINED AT THE ACCEPTABLE QUALITY SPECIFIED OR HIGHER. IN ALL CASES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PRODUCE AT QUALITY LEVELS THAT WILL MEET THE SPECIFIED ACCEPTANCE CRITERIA WHEN SAMPLED AND TESTED AT THE FREQUENCIES SPECIFIED.

110-02 METHOD FOR COMPUTING PWL. The computational sequence for computing the PWL is as follows:

a. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.

b. Locate the random sampling position within the sublot in accordance with the requirements of the specification.

c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.

d. Find the sample average (X) for all sublot values within the lot by using the following formula:

\[ X = \frac{x_1 + x_2 + x_3 + \ldots + x_n}{n} \]

Where:

- \( X \) = Sample average of all sublot values within a lot
- \( x_1, x_2, \ldots, x_n \) = Individual sublot values
- n = Number of sublots
e. Find the sample standard deviation ($S_n$) by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \ldots + d_n^2)/(n-1)]^{1/2}$$

Where:
- $S_n =$ Sample standard deviation of the number of subplot values in the set
- $d_1, d_2, \ldots = $ Deviations of the individual subplot values $x_1, x_2, \ldots$ from the average value $X$ that is: $d_1 = (x_1 - X), d_2 = (x_2 - X) \ldots d_n = (x_n - X)$
- $n =$ Number of sublots

f. For single sided specification limits (i.e., $L$ only), compute the Lower Quality Index $Q_L$ by use of the following formula:

$$Q_L = (X - L) / S_n$$

Where:
- $L =$ specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with $Q_L$, using the column appropriate to the total number ($n$) of measurements. If the value of $Q_L$ falls between values shown on the table, use the next higher value of PWL.

g. For double sided specification limits (i.e., $L$ and $U$), compute the Quality Indexes $Q_L$ and $Q_U$ by use of the following formulas:

$$Q_L = (X - L) / S_n \quad \text{and} \quad Q_U = (U - X) / S_n$$

Where:
- $L$ and $U =$ specification lower and upper tolerance limits

Estimate the percentage of material between the lower ($L$) and upper ($U$) tolerance limits (PWL) by entering Table 1 separately with $Q_L$ and $Q_U$, using the column appropriate to the total number ($n$) of measurements, and determining the percent of material above $P_L$ and percent of material below $P_U$ for each tolerance limit. If the values of $Q_L$ fall between values shown on the table, use the next higher value of $P_L$ or $P_U$. Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where:
- $P_L =$ percent within lower specification limit
- $P_U =$ percent within upper specification limit
EXAMPLE OF PWL CALCULATION

Project: Example Project
Test Item: Item P-401, Lot A.

A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.
   - A-1 96.60
   - A-2 97.55
   - A-3 99.30
   - A-4 98.35
   - \( n = 4 \)

2. Calculate average density for the lot.
   \[ X = \frac{(x_1 + x_2 + x_3 + \ldots + x_n)}{n} \]
   \[ X = \frac{(96.60 + 97.55 + 99.30 + 98.35)}{4} \]
   \[ X = 97.95 \text{ percent density} \]

3. Calculate the standard deviation for the lot.
   \[ S_n = \sqrt{\frac{(96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2}}{4} \]
   \[ S_n = \sqrt{\frac{1.82 + 0.16 + 1.82 + 0.16}{3}} \]
   \[ S_n = 1.15 \]

4. Calculate the Lower Quality Index \( Q_L \) for the lot. (\( L = 96.3 \))
   \[ Q_L = \frac{X - L}{S_n} \]
   \[ Q_L = \frac{97.95 - 96.30}{1.15} \]
   \[ Q_L = 1.4348 \]

5. Determine PWL by entering Table 1 with \( Q_L = 1.44 \) and \( n = 4 \).
   \[ \text{PWL} = 98 \]
B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.
   
<table>
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<tr>
<th>Sample</th>
<th>Voids</th>
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<tr>
<td>A-1</td>
<td>5.005.0</td>
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<tr>
<td>A-2</td>
<td>3.743.7</td>
</tr>
<tr>
<td>A-3</td>
<td>2.302.3</td>
</tr>
<tr>
<td>A-4</td>
<td>3.253.2</td>
</tr>
</tbody>
</table>

2. Calculate the average air voids for the lot.
   
   \[ X = \frac{(x_1 + x_2 + x_3 \ldots + x_n)}{n} \]
   
   \[ X = \frac{(5.00 + 3.74 + 2.30 + 3.25)}{4} \]
   
   \[ X = 3.57 \text{ percent} \]

3. Calculate the standard deviation \( S_n \) for the lot.
   
   \[ S_n = \left( \frac{[(3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2)}{(4 - 1)} \right)^{\frac{1}{2}} \]
   
   \[ S_n = \left( \frac{(2.04 + 0.03 + 1.62 + 0.10)}{3} \right)^{\frac{1}{2}} \]
   
   \[ S_n = 1.12 \]

4. Calculate the Lower Quality Index \( Q_L \) for the lot. \( L = 2.0 \)
   
   \[ Q_L = \frac{(X - L) S_n}{S_n} \]
   
   \[ Q_L = \frac{(3.57 - 2.00)}{1.12} \]
   
   \[ Q_L = 1.3992 \]

5. Determine \( P_L \) by entering Table 1 with \( Q_L = 1.41 \) and \( n = 4 \).
   
   \[ P_L = 97 \]

6. Calculate the Upper Quality Index \( Q_U \) for the lot. \( U = 5.0 \)
   
   \[ Q_U = \frac{(U - X)}{S_n} \]
   
   \[ Q_U = \frac{(5.00 - 3.57)}{1.12} \]
   
   \[ Q_U = 1.2702 \]

7. Determine \( P_U \) by entering Table 1 with \( Q_U = 1.27 \) and \( n = 4 \).
   
   \[ P_U = 93 \]

8. Calculate Air Voids PWL
\[ PWL = (P_l + P_u) - 100 \]
\[ PWL = (97 + 93) - 100 = 90 \]

**EXAMPLE OF OUTLIER CALCULATION (Reference ASTM E 178)**

Project: Example Project
Test Item: Item P-401, Lot A.

**A. Outlier Determination for Mat Density.**

1. Density of four random cores taken from Lot A arranged in descending order.
   - A-3 99.30
   - A-4 98.35
   - A-2 97.55
   - A-1 96.60

2. Use \( n = 4 \) and upper 5 percent significance level to find the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.
   a. For measurements greater than the average:
      - If: \( \frac{(\text{measurement} - \text{average})}{\text{standard deviation}} \) is less than test criterion,
        Then: the measurement is not considered an outlier
      - for A-3 Check if \( \frac{(99.30 - 97.95)}{1.15} \) greater than 1.463
        \( 1.174 \) is less than 1.463, the value is not an outlier
   b. For measurements less than the average:
      - If: \( \frac{(\text{average} - \text{measurement})}{\text{standard deviation}} \) is less than test criterion,
        Then: the measurement is not considered an outlier
      - for A-1 Check if \( \frac{(97.95 - 96.60)}{1.15} \) greater than 1.463
        \( 1.0 \) is less than 1.463, the value is not an outlier

**NOTE:** In this example, a measurement would be considered an outlier if the density was:
   - greater than \( (97.95 + 1.463 \times 1.15) \) = 99.63 percent or,
   - less than \( (97.95 - 1.463 \times 1.15) \) = 96.27 percent
ROUNDING RULES

A. If the digit following the last digit to be kept is 0, 1, 2, 3, or 4, strike out that digit and all the following digits.

Example: For the number 28.69248539, if only three decimal places are being kept the number becomes 28.692.

B. If the digit following the last digit to be kept is 6, 7, 8, or 9, increase the last digit to be kept by 1 and strike out all the following digits.

Example: For the number 28.69248539, if only one decimal place is being kept the number becomes 28.7.

C. If the digit following the last digit to be kept is 5 and there are digits other than zero to the right of 5, increase the last digit to be retained by 1 and strike out all following digits.

Example: For the number 28.69248539, if five decimal places are being kept the number becomes 28.69249.

D. If the digit following the last digit to be kept is 5 and there are no digits other than zero beyond 5, increase the last digit to be retained by 1 if it is odd or leave it unchanged if it is even.

Example: For the number 28.69248500, if five decimal places are being kept the number becomes 28.69248.
<table>
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<tr>
<th>Percent Within Limits</th>
<th>Positive Values of $Q (Q_L$ and $Q_U)$</th>
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</thead>
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### Table 1. Table for Estimating Percent of Lot Within Limits (PWL) (Cont'd)

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<th>Percent Within Limits $P_L$ and $P_U$</th>
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<td>Percent Within Limits P_L and P_U</td>
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<td>Percent Within Limits PL and PU</td>
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END OF SECTION 110
SECTION 120
NUCLEAR GAUGES

120-01 TESTING. When the specifications provide for nuclear gauge acceptance testing of material for Items P-152, P-154, P-208, and P-209, the testing shall be performed in accordance with this section. At each sampling location, the field density shall be determined in accordance with ASTM D 6938 using the Direct Transmission Method. The nuclear gauge shall be calibrated in accordance with ASTM D 6938. Calibration and operation of the gauge shall be in accordance with the requirements of the manufacturer. The operator of the nuclear gauge must show evidence of training and experience in the use of the instrument. The gauge shall be standardized daily in accordance with ASTM standards.

When using the nuclear method, ASTM D 6938 shall be used to determine the moisture content of the material. The calibration curve furnished with the nuclear gauges shall be checked in accordance with ASTM standards. The calibration checks shall be made at the beginning of a job and at regular daily intervals.

The material shall be accepted on a lot basis. Each Lot shall be divided into eight (8) sublots when ASTM D 6938 is used.

120-02. When PWL concepts are incorporated, compaction shall continue until a PWL of 90 percent or more is achieved using the lower specification tolerance limits (L) below.

The percentage of material within specification limits (PWL) shall be determined in accordance with the procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for density shall be:

<table>
<thead>
<tr>
<th>Specification Item Number</th>
<th>Specification Tolerance (L) for Density, (percent of laboratory maximum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item P-152</td>
<td>90.5 for cohesive material, 95.5 for non-cohesive</td>
</tr>
<tr>
<td>Item P-154</td>
<td>95.5</td>
</tr>
<tr>
<td>Item P-208</td>
<td>97.0</td>
</tr>
<tr>
<td>Item P-209</td>
<td>97.0</td>
</tr>
</tbody>
</table>

If the PWL is less than 90 percent, the lot shall be reworked and recompacted by the Contractor at the Contractor's expense. After reworking and recompaction, the lot shall be resampled and retested. Retest results for the lot shall be reevaluated for acceptance. This procedure shall continue until the PWL is 90 percent or greater.

120-03 VERIFICATION TESTING. (For Items P-152 and P-154 only.) The Engineer CPM will verify the maximum laboratory density of material placed in the field for each lot. A minimum of one test will be made for each lot of material at the site. The verification process will consist of; (1) compacting the material and determining the dry density and moisture-density in accordance with [ASTM-D-698 for aircraft-gross-weights-less-than-60,0000-pounds] [ASTM D 1557 for aircraft gross weights 60,000 pounds or more], and (2) comparing the result with the laboratory moisture-density curves for the material being
placed. This verification process is commonly referred to as a "one-point Proctor". If the material does not conform to the existing moisture-density curves, the Engineer will establish the laboratory maximum density and optimum moisture content for the material in accordance with [ASTM D 698 for aircraft gross weights less than 60,000 pounds] [ASTM D 1557 for aircraft gross weights 60,000 pounds or more].

Additional verification tests will be made, if necessary, to properly classify all materials placed in the lot.

The percent compaction of each sampling location will be determined by dividing the field density of each sublot by the laboratory maximum density for the lot.

END OF SECTION 120
NOT USED
NOT USED
Airport Security Program and Aviation Regulations

Contractor agrees to observe all security requirements and other requirements of the Federal Aviation Regulations applicable to Contractor, including without limitation, all regulations of the United States Department of Transportation, the Federal Aviation Administration and the Transportation Security Administration, and the Contractor agrees to comply with the County’s Airport Security Program and the Air Operations area (AOA) Vehicle Access Program, and amendments thereto, and to comply with such other rules and regulations as may be reasonably prescribed by the County, and to take such steps as may be necessary or directed by the County to insure that subleases, employees, invitees and guests observe these requirements. If required by the Aviation Department, Contractor shall conduct background checks of its employees in accordance with applicable Federal Regulations. If as a result of the acts or omissions of Contractor, its subleases, employees, invitees or guests, the County incurs any fines and/or penalties imposed by any governmental agency, including without limitation, the United States Department of Transportation, the Federal Aviation Administration or the Transportation Security Administration, or any expense in enforcing any federal regulations, including without limitation, airport security regulations, or the rules or regulations of the County, and/or any expense in enforcing the County’s Airport Security Program, then Contractor agrees to pay and/or reimburse the County all such costs and expenses, including all costs of administrative proceedings, court costs, and attorneys’ fees and all costs incurred by County in enforcing this provision. Contractor further agrees to rectify any security deficiency or other deficiency as may be determined as such by the County or the United States Department of Transportation, Federal Aviation Administration, the Transportation Security Administration, or any other federal agency. In the event Contractor fails to remedy any such deficiency, the County may do so at the cost and expense of Contractor. The County reserves the right to take whatever action is necessary to rectify any security deficiency or other deficiency.

(a) Operation of Vehicles on the AOA: Before the Contractor shall permit any employee of Contractor or any subcontractor to operate a motor vehicle of any kind or type on the AOA (and unless escorted by an Aviation Department approved escort), the Contractor shall ensure that all such vehicle operators possess current, valid, and appropriate Florida driver’s licenses. In addition, any motor vehicles and equipment of Contractor or of any subcontractor operating on the AOA must have an appropriate vehicle identification permit issued by the Aviation Department, which identification must be displayed as required by the Aviation Department.

(b) Consent to Search/Inspection: The Contractor agrees that its vehicles, cargo, goods and other personal property are subject to being inspected and searched when attempting to enter or leave and while on the AOA. The Contractor further agrees on behalf of itself and its subcontractor that it shall not authorize any employee or other person to enter the AOA unless and until such employee other person has executed a written consent-to-search/inspection form acceptable to the Aviation Department. Contractor acknowledges and understands that the forgoing requirements are for the protection of users of the Airport and are intended to reduce
incidents of cargo tampering, aircraft sabotage, thefts and other unlawful activities at the Airport. For this reason, Contractor agrees that persons not executing such consent-to-search/inspection form shall not be employed by the Contractor or by any subcontractor at the Airport in any position requiring access to the AOA or allowed entry to the AOA by the Contractor or by any subcontractors.

(c) The provisions hereof shall survive the expiration or any other termination of this Agreement.
Broward County Aviation Department (BCAD) Electronic Media Submittal Requirements

The BCAD will be utilizing electronic media as the principal way it develops, communicates and archives information concerning its various construction programs. To that end, County’s standard Professional Services Agreements for Consultant/Contractor services require submittal of documents produced on electronic media. Requirements for that media are presented below. Certain requirements may not applicable to all contracted services and should be verified via checklist and with the contract administrator during the development of the scope of services.

ELECTRONIC MEDIA

(A) General Requirements:

1) All Work, including surveying work, drawings, maps, details or other drawing information to be provided in electronic media by Consultant/Contractor shall be accomplished and developed using computer-aided design (CAD), geographic information system (GIS), and other software and procedures conforming to the following criteria. Electronic data submittals shall also include PDF versions of pages and documentation. The Consultant/Contractor shall expect to produce three primary sets of electronic deliverables:

   CAD – Engineering Design Drawings

   GIS – FAA AGIS Submittal, eALP, and BCAD GIS Use

   PDF – Electronic Document Review and Storage/As-Builts

(B) CAD and GIS Formats:

1) Provide all CAD data in Autodesk, Inc.’s AutoCAD release 2010 or higher for Windows in native .dwg electronic digital format. Provide copies of all drawing sheets or other CAD produced documents intended for hardcopy plotting or printing in plot (.plt) and drawing web format (.dwf) versions of all sheets/documents formatted to fit BCAD standard cover sheet and title block (Refer to Section (C)(1) below). All GIS shall be delivered in ESRI ArcGIS version 9.3 or higher. Specific format/s (Shape file, Layer files, geodatabase, and/or other file type/structure shall be of the Aviation BCAD’s choosing and must also conform to FAA and BCAD). All deliverables shall include appropriate Metadata conforming to BCAD and FAA standards.
Consultant/Contractor will be required to ensure that all data is formatted and in compliance for submission to the FAA AGIS system without any additional changes required by BCAD staff. Consultant/Contractor must ensure compliance with all standards set forth in latest versions of FAA Advisory Circulars (A/C): 150/5300-16, 150/5300-17, and 150/5300-18.

2) Target platform: Windows operating system.

3) Ensure that all digital files and data (e.g., constructs, elements, base files, prototype drawings, reference files, blocks, attribute links, and other files external to the drawing itself) are compatible with the BCADs target CAD and GIS systems (i.e., basic and advanced CAD and GIS software, platforms, database software(s), geodatabases, etc.), and adhere to the standards and requirements specified herein.

4) The term "compatible" means that data can be accessed directly by the target CAD and GIS systems without translation, pre-processing, or post-processing of the electronic digital data files. It is the responsibility of Consultant/Contractor to ensure this level of compatibility.

5) Any non-graphical database delivered with prepared drawings: provide in relational database format compatible with Microsoft Access 2007 or higher, and other (if requested by the BCAD) compatible format. Data shall be delivered in an ESRI Geodatabase format of BCAD's choosing upon request. GIS and CAD data deliverable shall conform to the latest BCAD and FAA standards, including but not limited to, AC 5300/150-16.17, and 18, and US National CAD Standards.

6) Maintain all linkages of non-graphical data with graphic elements, relationships between database tables, and report formats. Consultant/Contractor should work with BCAD to ensure linkages will conform/match those already in place or generated to create such links.

7) All database tables: conform to the structure and field-naming guidance provided upon request by BCAD. Specifically, all database tables shall conform to all FAA and BCAD standards. All databases shall be compliant with at least MS Access 2007 and/or other format (SQL, ESRI Geodatabase, other) as requested by BCAD. Formats may change, at BCADs request, depending on the particulars of the project. Consultant/Contractor shall inform BCAD of the most suitable format for a given project and explain, in writing, the benefits of that format versus alternatives. BCAD has the final decision as to format regardless of Consultant's/Contractor's written explanation.
8) All CAD and GIS files shall meet FAA/NGS spatial accuracy requirements and be georeferenced as follows:

   North American Datum (NAD) 83, HARN, Feet
   State Plane Florida East
   North American Vertical Datum (NAVD) 88

9) All data collected shall meet or exceed data acquisition standards established in AC 5300/150-16, 17, and 18, if applicable.

(C) Standards:

1) Standard plotted drawing size: 22 inch x 34 inch sheets unless otherwise specified by BCAD. All drawings shall be formatted to use the BCAD standard Cover Page and Title Block.

2) Coordinate with BCAD concerning the standard file naming protocol to be utilized. Consultant/Contractor may be required to submit drawing files with several naming conventions to satisfy various submittal requirements.

3) Unless otherwise stated, all CAD files shall conform to US National CAD standards (BCADs adopted CAD standard) in addition to FAA standards for submission into the FAA AGIS system.

   a. All building floor plans/elevations shall be drawn and provided in Architectural Units (unless otherwise requested by BCAD).

   b. All other plans (site plans, airfield plans, ALPs, etc.) shall be submitted in Engineering Units (unless otherwise requested by BCAD).

4) Layering:

   a. Conform to the guidelines defined by the US National CAD Standards, appropriate FAA Advisory Circulars and standards, and BCAD standards.

   b. Provide an explanatory list of which layer is used at which drawing and an explanatory list of all layers which do not conform to the standards listed above. Submission of layers that do not conform to the standards listed above will require advance BCAD approval.

   c. Raster: All raster files (aerial photography, TIN, DEM, etc.) shall be delivered in georeferenced SID and TIFF formats as defined by BCAD. If files must be tiled, a reference map will be provided depicting the location of each tile image. All raster files shall be tiled if file size reaches a size in excess of that BCAD finds difficult to use.
5) Attribute Definitions:

a. Obtain latest guidance from BCAD concerning attribute definition, database linking and other information embedding requirements prior to production of documents. All database information shall conform to the latest versions of FAA A/Cs 150/5300-16, 17, and 18, and other BCAD standards. Additional attributes may be required at the discretion of BCAD.

6) Conformance:

a. Submit a written request for approval of any deviations from the established CAD/GIS standards. Pre-coordinate the development, use and submittal of 3-D modeling, Building Information Models (BIM), photo-realistic renderings, animations, presentations and other visualization/information tools utilized during the design and construction process to ensure compatibility of submittal with County’s uses and information systems.

b. No deviations from BCADs established CAD/GIS standards will be permitted unless prior written approval of such deviation has been received from BCAD.

(D) Non-CAD/GIS Graphic Format: Provide digital photography files (unless required in an alternate format such as that needed for CAD/GIS) and other miscellaneous graphics in JPEG and TIFF formats. Photos shall be georeferenced in accordance with BCAD standards, if applicable.

(E) Non-Graphic Format:

1) Provide word processing files in Microsoft Word 2007 compatible file formats including all fonts, typefaces, bit-map and vector graphics and other information necessary for remote printing.

2) Provide spreadsheet files in Microsoft Excel 2007 for windows compatible file formats including all fonts, typefaces, bit-map and vector graphics and other information necessary for remote printing.

Provide database files in relational database format compatible with Microsoft Access 2007 or higher, and/or other compatible SQL format database including all tables, form and report formats, fonts, typefaces, bit-map and vector graphics and other information necessary for remote printing. Ensure integrity of relational database structure. Consultant/Contractor may be required to ensure that database formats conform and can be integrated with other BCAD legacy applications and systems.

(F) Delivery Media and Format: Submit copies of all CADD/GIS/PDF data and other electronic files developed

1) under this contract on electronic digital media as required for project phase submittals.

2) Provide electronic digital data and files shall be provided on DVD/CD or via secure file transfer protocol (FTP) site.
3) The electronic digital media shall be in the format which can be read and processed by the BCAD's target CAD/GIS systems.

4) The external label for each electronic digital media shall contain, as a minimum, the following information:

   a. The Project Number, Project Title and date.
   b. The Facility Name
   c. The format and version of operating systems software.
   d. The name and version of utility software used for preparation, (e.g., compression/decompression) and copying files to the media.
   e. The sequence number of the digital media.
   f. A list of the filenames.
   g. All requirements to meet or exceed FAA and BCAD standards.

5) Before all files are placed on the delivery electronic digital media, the following procedures shall be performed:

   a. Ensure that drawing sheets, viewports, paperspace, line weights, fonts, and other drawing components are correctly configured for BCAD's viewing and plotting.
   b. Make sure all reference files are attached without device or directory specifications.
   c. Compress and reduce all design files using compatible file compression/decompression software approved by BCAD. If the file compression/decompression software is different from that specified above, then an electronic digital media copy of the file compression/decompression software shall be purchased for BCAD and provided to BCAD with the delivery media.
   d. Include all files, both graphic and non-graphic, required for the project. All blocks not provided as BCAD-furnished materials must be provided to BCAD as a part of the electronic digital deliverables.
   e. Make sure that all support files such as those listed above are in the same directory and that references to those files do not include device or directory specifications.
   f. Include any standard sheets (i.e., abbreviation sheets, standard symbol sheets, or other listing) necessary for a complete project. These shall conform to BCAD standard Cover sheet and title block pages.
g. Document any fonts, tables, or other similar customized drawing element developed by Consultant/Contractor or not provided among BCAD- furnished materials. The contractor shall obtain BCAD’s approval before using anything other than BCAD’s standard fonts, line types, tables, blocks, or other drawing elements available from BCAD.

(G) Drawing Development Documentation: Provide the following information for each finished drawing:

a. How the data were input (e.g., keyed in, downloaded from a survey total station instrument (include name and model), and other identification data).

b. Brief drawing development history (e.g., date started, modification date(s) with brief description of item(s) modified, author's name, and other identifying data).

c. The names of the reference, blocks, symbols, details, tables, and schedule files required for the finished drawing.

d. Layer assignments and lock settings.

e. Text fonts, line styles/types used, and GIS layer file settings.

f. Any additional information per FAA A/Cs and BCAD standards.

(H) Submittal:

1) Submit as Project Record Documents specified above and as required for project phase submittals and project record documents.

2) Submit electronic media with a transmittal letter containing, as a minimum, the following information:

a. The information included on the external label of each media unit (label), along with the total number being delivered, and a list of the names and descriptions of the files on each one.

b. Brief instructions for transferring the files from the media.

c. Certification that all delivery media are free of known computer viruses. A statement including the name(s) and release date(s) of the virus-scanning software used to analyze the delivery media, the date the virus-scan was performed, and the operator’s name shall also be included with the certification. The release or version date of the virus-scanning software shall be the current version which has detected the latest known viruses at the time of delivery of the digital media.
d. The following “File Development and Project Documentation Information” as an enclosure or attachment to the transmittal letter provided with each electronic digital media submittal.

1. Documentation of the plot file for each drawing which will be needed to be able to duplicate the creation of the file by BCAD at a later date. This documentation shall include configuration settings (e.g., drawing size and configuration), and any other special instructions.

2. List of any deviations from BCAD’s standard layer/level scheme and file-naming conventions.

3. List of all new symbol blocks created for project, which was not provided to Consultant/Contractor with the BCAD-furnished materials.

4. List of all new figures, symbols, tables, schedules, details, and other blocks created for the project, which were not provided to Consultant/Contractor with the BCAD-furnished materials, and any associated properties.

5. List of all database files associated with each drawing, as well as a description and documentation of the database format and schema design. All information shall conform to FAA and BCAD standards.

6. All metadata per BCAD, FAA, FDOT, or other entity standards.

(I) Ownership:

1) County will have ownership of all information and materials developed under these and other contractual requirements including but not limited to reports, and listings, and all other items pertaining to the work created or developed in connection with the services provided pursuant to the agreement with Broward County including any copyright.

2) Ownership rights under the contract are rights to use, re-use, duplicate, or disclose text, data, drawings, and information, in whole or in part in any manner and for any purpose whatsoever without compensation to or approval from Consultant/Contractor.

3) BCAD will at all reasonable times have the right to inspect the work and will have access to and the right to make copies of the above-mentioned items.

4) All text, electronic digital files, data, and other products generated under this contract shall become the property of County except where otherwise limited within the Contract.

5) All files/drawings shall be furnished to BCAD upon request from BCAD.
6) No portion of any "application" (e.g. database, GIS portal, web application, or customized document or tool) developed for BCAD shall be used as a template for non Broward County projects unless the prior approval in writing is obtained from BCAD.

(J) BCAD-Furnished Materials to the Consultant/Contractor:

1) BCAD and Consultant/Contractor may make various electronic files available to the Contractor during the Pre-Construction and Construction phases of the Project. To this end, Consultant/Contractor shall make the following information available to the Contractor in electronic format:

a. Work-files: Selected work product files, reports, spreadsheets, databases, specifications, drawings and other documentation of Consultant's/Contractor's work in progress may be provided to the Contractor, Managing General Contractor, or other County consultant on an as required basis. Consultant/Contractor shall cooperate and facilitate the exchange of these electronic media documents.

b. Where electronic media submittals of final site surveys are required: Provide electronic copies of any existing site survey data already on electronic media.

c. Where Electronic Project Record Documents are required, Consultant will provide the Contractor one set of AutoCAD electronic file format contract drawings, to be used for as-built drawings at the Contractor's option. Make electronic file drawings available on DVD/CD ROM media.

d. BCAD will supply Consultant/Contractor with all necessary BCAD standard cover page and title block files and formats.

(K) Other Digital Information:

1) A variety of digital information may be generated by participants in the design process including BCAD, Consultant, sub consultants, Contractor, subcontractors; BCAD's commissioning authority, local jurisdictional authorities and other project team members.

2) Consultant/Contractor shall facilitate and participate wherever possible in this digital exchange of information by conforming to the standards expressed above.
SPECIAL PROVISION 13: CONTRACTOR AND SUBCONTRACTORS FORMS AND AFFIDAVITS

Forms begin on the next page.
FORM GC-1: MONTHLY DBE UTILIZATION REPORT

OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT
MONTHLY DBE UTILIZATION REPORT

<table>
<thead>
<tr>
<th>CONTRACT#</th>
<th>CONTRACT AMT.</th>
<th>DATE FORM SUBMITTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJECT TITLE</td>
<td>PROJECT COMPLETION DATE</td>
<td></td>
</tr>
<tr>
<td>PRIME CONTRACTOR</td>
<td>PERIOD ENDING</td>
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<tr>
<td>CONTACT PERSON</td>
<td>TELEPHONE #: ( )</td>
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</tbody>
</table>

SUBCONTRACTING INFORMATION
TO BE SUBMITTED MONTHLY TO BROWARD COUNTY OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

<table>
<thead>
<tr>
<th>DBE Subcontractor</th>
<th>Address</th>
<th>Description of Work</th>
<th>Original Agree. Price</th>
<th>Revised Agree. Price</th>
<th>% of Work Completed To Date</th>
<th>Amt. Paid This Period</th>
<th>Amt. Paid To Date</th>
<th>Gender</th>
<th>Ethnic Category</th>
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Total Amt. Paid to DBE Firms

<table>
<thead>
<tr>
<th>NON-DBE Subcontractor</th>
<th>Address</th>
<th>Description of Work</th>
<th>Original Agree. Price</th>
<th>Revised Agree. Price</th>
<th>% of Work Completed To Date</th>
<th>Amt. Paid This Period</th>
<th>Amt. Paid To Date</th>
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</tbody>
</table>

Total Amt. Paid to Non-DBE Firms

Black American – B; Hispanic American – H; Asian American – A; Native American – NA; Non-Minority Woman – W

I certify that the information submitted in this report is true and correct to the best of my knowledge.

Signature: ____________________________

Date: ____________________________

Note: The Information provided herein is subject to verification by the Office of Economic and Small Business Development.

OESBD Compliance Form DBE/MUR 3/20113

SPECIAL PROVISION 13
Z1145017C1 / Terminal 4 Apron Expansion
Page 192 of 267
CON-3-15-2013
# FORM GC-2: FINAL DBE UTILIZATION REPORT

**OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT**

**FINAL DBE UTILIZATION REPORT**

*(To be submitted with the final invoice)*

<table>
<thead>
<tr>
<th>Contract#:</th>
<th>Contract Amt.:</th>
<th>Date Form Submitted:</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Prime Contractor:</th>
<th>Project Completion Date:</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Contact Person:</th>
<th>Telephone #:</th>
<th>Fax #:</th>
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<tbody>
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## SUBCONTRACTING INFORMATION

All payments made to DBE Firms must be reported on this form.

<table>
<thead>
<tr>
<th>DBE Subcontractor</th>
<th>Address</th>
<th>Description of Work</th>
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**Total Amt. Paid to DBE Firms**

**Total Amt. paid to Non-DBE Firms**

**SPECIAL PROVISION 13**

- Hispanic American – H
- Asian American – A
- Native American – NA
- Non-Minority Woman – W

I attest that the information submitted in this report is true and correct to the best of my knowledge.

<table>
<thead>
<tr>
<th>Signature</th>
<th>Title</th>
<th>Date</th>
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Note: The information provided herein is subject to verification by the Office of Economic and Small Business Development.

OESBD Compliance Form DBEUR 2013-13
FORM GC-3: STATEMENT OF COMPLIANCE (DAVIS BACON WAGE RATE)

No. ____________________
Contract No. ____________________
Project Title ________________________________________________

The undersigned CONTRACTOR hereby swears under penalty of perjury that, during the period covered by the application for payment to which this statement is attached, all mechanics, laborers, and apprentices, employed or working on the site of the Project, have been paid at wage rates, and that the wage rates of payments, contributions, or costs for fringe benefits have not been less than those required by Broward County Ordinance No. 83-72 (not federally funded) or Davis Bacon Act (federally funded) and the applicable conditions of the Contract.

Dated ________________, 20__

______________________________
Contractor

By __________________________
(Signature)

By __________________________
(Name and Title)

STATE OF ______
COUNTY OF ______

The foregoing instrument was acknowledged before me this ______ day of ________________, 20__, by ____________________________ who is personally known to me or who has produced ____________________________ as identification and who did/did not take an oath.

WITNESS my hand and official seal, this ______ day of ________________, 20__.

______________________________
(Signature of person taking acknowledgment)

______________________________
(Print Name of officer taking acknowledgment)

______________________________
(Title or rank)

My commission expires: ____________________________
(Serial number, if any)
FORM GC-4 CONSENT OF SURETY – SUBCONTRACTOR CLAIMS
Consent of Surety to Pay Application for Payment

PROJECT NAME: ___________________ PROJECT NO.: ______
CONTRACTOR: ____________________________
A/E CONSULTANT: ____________________________

Attachment to Application for Payment No. ___________ dated ___________
in the amount of $ ____________________________________________________

TO: BROWARD COUNTY BOARD OF COUNTY COMMISSIONERS

The Surety Company, (insert full name or legal title and address of Surety) on the Bond of the Contractor listed above, hereby approves this payment to the Contractor. Said payment shall not relieve the Surety Company of any of its obligations to Broward County, including the Security from any and all liens, claims, or demands whatsoever that may now exist or be made in the future by any Subcontractor or material suppliers against this project and Contract.

This Consent of Surety recognizes that claims have been made by the following Subcontractors and material suppliers against the Contract in the amounts listed below:

<table>
<thead>
<tr>
<th>Subcontractor/material supplier name and telephone number</th>
<th>amount of claim</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

( ) attached find additional listed names/amounts on pages 2 thru ______

The Surety recognizes that releases of lien or releases and assignment of claim have not been requested or received from all the Subcontractors and material suppliers for this facility.

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand this _____ day of ___________________ , 20_____.

Attest:
Witnesses: __________________________________________ Signature of Authorized Representative __________________________________________ Title: __________________________________________

Attachment: Surety Power of Attorney

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FORM GC-5 CONSENT OF SURETY – CHANGE ORDER

CONSENT OF SURETY AND INCREASE OF PENALTY

1. CONTRACT NUMBER
2. MODIFICATION NUMBER
3. DATED

4. The surety (co-sureties) consents (consent) to the foregoing contract modification and agrees (agree) that its (their) bond or bonds shall apply and extend to the contract as modified or amended. The principal and surety (co-sureties) further agree that on or after the execution of this consent, the penalty of the performance bond or bonds is increased by $______ and the penalty of the payment bond or bonds is increased by $_______. However, the increase of the liability of each co-surety resulting from this consent shall not exceed the sums shown below.

5. NAME OF SURETY(IES)
6. INCREASE IN LIABILITY
7. INCREASE IN LIABILITY

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>PERFORMANCE BOND</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>PAYMENT BOND</td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

A. BUSINESS ADDRESS
B. SIGNATURE

(Affix Seal)

C. TYPED NAME AND TITLE
D. DATE THIS CONSENT EXECUTED

6. INDIVIDUAL
PRINCIPAL

A. CORPORATE NAME AND BUSINESS ADDRESS
B. PERSON EXECUTING CONSENT (Signature)

BY

C. TYPED NAME AND TITLE
D. DATE THIS CONSENT EXECUTED

(Affix Corporate Seal)

7. CORPORATE
PRINCIPAL

A. CORPORATE INDIVIDUAL SURETY’S NAME AND ADDRESS
B. PERSON EXECUTING CONSENT (Signature)

BY

C. TYPED NAME AND TITLE
D. DATE THIS CONSENT EXECUTED

(Affix Seal)

10. CORPORATE/INDIVIDUAL SURETY (CO-SURETIES)

A. CORPORATE INDIVIDUAL SURETY’S NAME AND ADDRESS
B. PERSON EXECUTING CONSENT (Signature)

BY

C. TYPED NAME AND TITLE
D. DATE THIS CONSENT EXECUTED

(Affix Seal)

Add similar signature blocks on the back of this form if necessary for additional co-sureties.
FORM GC-6: CERTIFICATE OF SUBSTANTIAL COMPLETION

To (COUNTY): _______________________________________________________

Consultant: _______________________________________________________

Contractor: _______________________________________________________

Contract No. __________________________

Project (Name and Address): _________________________________________

Notice to Proceed Date: _______________ Date of Issuance: _______________

Project or Designated Portion Shall Include:

_________________________________________________________________

The Work performed under this Contract has been reviewed and found to be substantially complete and all documents required to be submitted by CONTRACTOR under the Contract Documents have been received and accepted. The Date of Substantial Completion of the Project or portion thereof designated above is recommended as:

A list of items to be completed or corrected, prepared by Consultant and approved by COUNTY is attached hereto. The failure to include any items on such list does not alter the responsibility of CONTRACTOR to complete all work in accordance with the Contract Documents.

CONSULTANT _______________ BY _______________ DATE _______________

In accordance with Section 3.2 of the Contract, CONTRACTOR will complete or correct the work on the list of items attached hereto within _______________ from the above Date of Substantial Completion.

CONTRACTOR _______________ BY _______________ DATE _______________

COUNTY, through the County Representative, has determined the Work or portion thereof designated by COUNTY is substantially complete and will assume full possession thereof at _______________ (time) on _______________ (date).

BROWARD COUNTY BOARD
OF COUNTY COMMISSIONERS By County Representative DATE _______________

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FORM GC-7: CERTIFICATION OF PAYMENTS TO SUBCONTRACTOR

Contract No. ____________________________

Project Title ________________________________

The undersigned CONTRACTOR hereby swears under penalty of perjury that:

1. CONTRACTOR has paid all subcontractors all undisputed contract obligations for labor, services, or materials provided on this project within the time period set forth in Section 218.735, Florida Statutes.

2. The following subcontractors have not been paid because of disputed contractual obligations; a copy of the notification sent to each, explaining the good cause why payment has not been made, is attached to this form:

<table>
<thead>
<tr>
<th>Subcontractor name and address</th>
<th>Date of disputed invoice</th>
<th>Amount in dispute</th>
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<td>Dated ___________<em><strong>, 20</strong></em></td>
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By ____________________________  By ____________________________
(Signature)                     (Name and Title)

STATE OF ____________________________
COUNTY OF ____________________________

Acknowledged before me this _______ day of ____________, 20__, by ____________________________ who is personally known to me or who has produced ____________________________ as identification and who did/did not take an oath.

WITNESS my hand and official seal, this ______ day of ____________, 20__.

(SIGNATURE)
(Print Name of officer taking acknowledgment)

(TITLE OR RANK)

My commission expires: ____________________________
(Serial number, if any)
FORM GC-8: SUBCONTRACTOR PARTIAL RELEASE OF CLAIM

Broward County, Florida

The undersigned subcontractor, pursuant to the terms of Contract No. ________________ between Broward County, Florida and ___________________________ (Contractor) for
located at: ____________________________________________________________, hereby releases Broward County and Contractor from any and all claims arising under or by virtue of said subcontract or any modification or change thereof through __________ (date), except as follows: (Here list any claims against the Contractor and the amounts thereof. If none, so state.)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Witness the signature and seal of the undersigned this _____ day of ______________, 20___.

WITNESS:

(Signature)

Printed Name

(Signature)

Printed Name

SUBCONTRACTOR

(Seal)

Company Name

(Signature)

Printed Name & Title

Printed Name

SPECIAL PROVISION 13
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FORM GC-8.1: CONTRACTOR PARTIAL RELEASE OF CLAIMS

Broward County, Florida

The undersigned Contractor, pursuant to the terms of Contract No. ________ between Broward County, Florida and ________________________________ (Contractor) for located at: ________________________________, hereby releases Broward County from any and all claims arising under or by virtue of said contract or any modification or change thereof through __________ (date), except as follows:

(Here list any claims against the County and the amounts thereof. If none, so state.)

Witness the signature and seal of the undersigned this ____ day of ________________, 20__

WITNESS:

(Signature)

Printed Name

(Seal)

Company Name

(Signature)

Printed Name & Title

(Signature)

Printed Name

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FORM GC-8.2: SUBCONTRACTOR FINAL RELEASE OF CLAIMS

Broward County, Florida

The undersigned subcontractor, pursuant to the terms of Contract No. ________ between Broward County, Florida and _________________________ (Contractor) for located at: ___________________________, and in consideration of the receipt of Final Payment in the amount of $ __________, hereby releases Broward County and Contractor from any and all claims arising under or by virtue of said subcontract or any modification or change thereof.

Witness the signature and seal of the undersigned this ___ day of __________, 20__

______________________________

WITNESS: ______________________________

(Signature) ______________________________

Printed Name ______________________________

(Signature) ______________________________

Printed Name ______________________________

SUBCONTRACTOR ______________________________

(Seal) Company Name ______________________________

(Signature) ______________________________

Printed Name & Title ______________________________

Printed Name ______________________________
FORM GC-8.3: CONTRACTOR FINAL RELEASE OF CLAIMS

Broward County, Florida

The undersigned Contractor, pursuant to the terms of Contract No. between Broward County, Florida and _______________ (Contractor) for located at: and in consideration of the receipt of Final Payment in the amount of $, hereby releases Broward County from any and all claims arising under or by virtue of said contract or any modification or change thereof.

Witness the signature and seal of the undersigned this ___ day of ______________, 20__

__________________________

WITNESS:

__________________________

CONTRACTOR

__________________________

(Signature)

Company Name

__________________________

(Signature)

Printed Name & Title

__________________________

Printed Name

__________________________

Printed Name

__________________________

Printed Name
FORM GC-9: FINAL LIST OF CERTIFIED (DBE) AND NON-CERTIFIED SUBCONTRACTORS AND SUPPLIERS

To: CONTRACTOR Name

From: Broward County Purchasing Division

Subject: Final List of Subcontractors/Sub-vendors

Re: Project Title, Contract Number

For tracking purposes, the attached list of subcontractors/sub-vendors have performed or provided services to the COUNTY for the referenced contract. Non-certified subcontractors/sub-vendors are any subcontractors/sub-vendors whose services under the contract were not approved to meet the COUNTY's participation goal established for this contract and whose participation was not listed on the prime vendor's "Schedule of Participation" and/or not approved as substitutes or additions by the Broward County Office of Economic Small Business Development Division toward meeting the established goal.

The Prime Vendor certifies the following:

☐ There were no other subcontractors/sub-vendors who provided a service to the COUNTY for the referenced contract. All participants on the contract are listed on the attached list.

THE UNDERSIGNED VENDOR HEREBY CERTIFIES THAT THE INFORMATION PROVIDED HEREIN IS TRUE AND CORRECT.

The foregoing instrument was acknowledged before me this ___ day of __________, 2__,

By____________________________ (Print Name) as __________________ (Title)

of _____________________________ (Prime Vendor), known to me to be the person described herein, or who produced _____________________________ as identification, and who did/did not take an oath.

Notary Public:

_____________________________ (Signature)

_____________________________ (Print Name)

(Seal)

Commission No: _____ Expires: ___/___/___

State of ______________________ at Large
<table>
<thead>
<tr>
<th>SUBCONTRACTOR NAME</th>
<th>CERTIFIED CBE/DBE</th>
<th>NON CERTIFIED</th>
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FORM GC-10: PERFORMANCE BOND

BY THIS BOND, We __________________________, as Principal, hereinafter called CONTRACTOR, and __________________________, as Surety, are bound to the Board of County Commissioners of Broward County, Florida, as Obligee, hereinafter called COUNTY, in the amount of __________________________ Dollars ($__________) for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, CONTRACTOR has by written agreement entered into a Contract, Bid/Contract No.: __________, awarded the ________ day of ______________, 20__, with COUNTY which Contract Documents are by reference incorporated herein and made a part hereof, and specifically include provision for Liquidated Damages, and other damages identified, and for the purposes of this Bond are hereafter referred to as the "Contract";

THE CONDITION OF THIS BOND is that if CONTRACTOR:

1) Performs the Contract between CONTRACTOR and COUNTY for construction of __________________________, the Contract being made a part of this Bond by reference, at the times and in the manner prescribed in the Contract; and

2) Pays COUNTY all losses, Liquidated Damages, expenses, costs and attorney's fees including appellate proceedings, that COUNTY sustains as a result of default by CONTRACTOR under the Contract; and

3) Performs the guaranties of all work and materials furnished under the Contract for the time specified in the Contract; then THIS BOND IS VOID, OTHERWISE IT REMAINS IN FULL FORCE AND EFFECT.

Whenever CONTRACTOR shall be, and declared by COUNTY to be, in default under the Contract, COUNTY having performed COUNTY obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

a) Complete the Project in accordance with the terms and conditions of the Contract Documents; or

b) Obtain a bid or bids for completing the Project in accordance with the terms and conditions of the Contract Documents, and upon determination by Surety of the lowest responsible Bidder, or, if COUNTY elects, upon determination by COUNTY and Surety jointly of the lowest responsible Bidder, arrange for a contract between such Bidder and COUNTY, and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract Price," as used in this paragraph, shall mean the total amount payable by COUNTY to CONTRACTOR under the Contract and any
amendments thereto, less the amount properly paid by COUNTY to CONTRACTOR.

No right of action shall accrue on this bond to or for the use of any person or corporation other than COUNTY named herein.

The Surety hereby waives notice of and agrees that any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the Contract or the changes does not affect Surety's obligation under this Bond.

Signed and sealed this _____ day of __________________, 20____.

INSURANCE COMPANY: Agent and Attorney-in-Fact

Address, City, State, Zip Code

Telephone Number

CORPORATE SECRETARY ATTEST: CONTRACTOR:
(affix Corporate Seal or 2 Witnesses below)

(Name of Contractor)

(Signature)

(Print Name and Title of Signer)

Day of _________________, 20__
FORM GC-11: PAYMENT BOND

Bid No. __________

BY THIS BOND, We ________________________________, as Principal, hereinafter called CONTRACTOR, located at:

Business Address: ________________________________

Phone: ________________________________

and ________________________________, as Surety, under the assigned Bond Number ________________________________, are bound to the Board of County Commissioners of Broward County, Florida, as Obligee, hereinafter called COUNTY, in the amount of ________________________________ Dollars ($________________) for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, CONTRACTOR has by written agreement entered into a Contract, Bid/Contract No.: ________________________________, awarded the ____ day of ________________________________, 20____, with COUNTY which Contract Documents are by reference incorporated herein and made a part hereof, and specifically include provision for liquidated damages, and other damages identified, and for the purposes of this Bond are hereafter referred to as the "Contract";

THE CONDITION OF THIS BOND is that if CONTRACTOR:

1) Pays COUNTY all losses, liquidated damages, expenses, costs and attorney's fees including appellate proceedings, that COUNTY sustains because of default by CONTRACTOR under the Contract; and

2) Promptly makes payments to all claimants as defined by Florida Statute 255.05(1) for all labor, materials and supplies used directly or indirectly by CONTRACTOR in the performance of the Contract;

SPECIAL PROVISION 13
FORM GC-11: PAYMENT BOND (continued)

THEN CONTRACTOR'S OBLIGATION SHALL BE VOID; OTHERWISE, IT SHALL REMAIN IN FULL FORCE AND EFFECT SUBJECT, HOWEVER, TO THE FOLLOWING CONDITIONS:

a) A claimant, except a laborer, who is not in privity with CONTRACTOR and who has not received payment for its labor, materials, or supplies shall, within forty-five (45) days after beginning to furnish labor, materials, or supplies for the prosecution of the work, serve notice to CONTRACTOR that it intends to look to the bond for protection.

b) A claimant who is not in privity with CONTRACTOR and who has not received payment for its labor, materials, or supplies shall no earlier than 45 days, but within ninety (90) days after performance of the labor or after complete delivery of the materials or supplies, serve notice to CONTRACTOR and to the Surety, of the performance of the labor or delivery of the materials or supplies and of the nonpayment.

c) No action for the labor, materials, or supplies may be instituted against CONTRACTOR or the Surety unless the notices stated under the preceding conditions a) and b) have been given.

d) Any action under this Bond must be instituted in accordance with the Notice and Time Limitations provisions prescribed in Section 255.05(2), Florida Statutes.

The Surety hereby waives notice of and agrees that any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the Contract or the changes does not affect the Surety's obligation under this Bond.

Signed and sealed this _____ day of ______________________, 20____.

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FORM GC-11: PAYMENT BOND (continued)

ATTEST:
__________________________
Secretary
(CORPORATE SEAL)

(Name of Corporation)
By__________________________
(Signature and Title)
(Type Name and Title Signed Above)

IN THE PRESENCE OF:
__________________________
 _______________________
__________________________

INSURANCE COMPANY:
By__________________________
Agent and Attorney-in-Fact
Address: ________________________
(Street)
__________________________
(City/State/Zip Code)
Telephone No.: __________________

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FORM GC-11: CERTIFICATE AS TO CORPORATE PRINCIPAL

I, ___________________________________________ , certify that I am the Secretary of the corporation named as Principal in the foregoing Performance and Payment Bond; that ______________________, who signed the Bond on behalf of the Principal, was then ___________________ of said corporation; that I know his/her signature; and his/her signature thereto is genuine; and that said Bond was (were) duly signed, sealed and attested to on behalf of said corporation by authority of its governing body.

_________________________ (Seal) as Secretary of

(Name of Corporation) (SEAL)

STATE OF FLORIDA )

) SS.

COUNTY OF BROWARD )

Before me, a Notary Public duly commissioned, qualified and acting personally, appeared ___________________, to me well known, who being by me first duly sworn upon oath says that he/she has been authorized to execute the foregoing Performance and Payment Bond on behalf of CONTRACTOR named therein in favor of COUNTY.

Subscribed and Sworn to before me this _____ day of ____________, 20____.

My commission expires:

Notary Public, State of Florida at Large

Bonded by_____________________

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SECTION 5 – Addenda
<table>
<thead>
<tr>
<th>SECTION</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>01039</td>
<td>COORDINATION OF WORK</td>
</tr>
<tr>
<td>01315</td>
<td>PROGRESS SCHEDULES (COMPUTERIZED CPM)</td>
</tr>
<tr>
<td>01340</td>
<td>SHOP DRAWINGS, PRODUCT DATA AND SAMPLES</td>
</tr>
<tr>
<td>01770</td>
<td>PROJECT CLOSEOUT</td>
</tr>
</tbody>
</table>

END OF SECTION
DIVISION 1 SPECIFICATIONS - SECTION 01039 COORDINATION OF WORK

PART 1 - GENERAL

1.01 COORDINATION OF WORK

A. All areas of Project site will remain in operation during the course of construction. Coordination of access and scheduling of work near Customs and Border Protection (CBP), baggage, airside and passenger areas shall be identified and reviewed on a daily basis with COUNTY.

B. Coordinate scheduling, submittals, and Work of the various sections of specifications to assure efficient and orderly sequence and installation of interdependent construction elements.

C. Verify that the utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements and sequence of installation of mechanical and electrical work, which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; document final routing on as-built drawings. Utilize spaces efficiently to maximize for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean up of work of separate Sections in preparation for Substantial Completion.

G. After COUNTY occupancy of premises, coordinate access to site for remaining Work to minimize disruption of COUNTY’s activities and Airport operations.

1.02 COORDINATION OF SPECIFICATIONS - Not Used

1.03 CONTRACT TIME, PROJECT MILESTONES, INCLEMENT WEATHER DAYS and OBSERVED LEGAL HOLIDAYS

A. Contract Time.

Time limits stated in the Contract Documents are the essence of the Contract. By executing the Agreement the CONTRACTOR confirms that the Contract Time is a reasonable period for performing the Work. The CONTRACTOR shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the time for completion.
B. Project Phasing and Milestones.

The Project phasing plan is specified in Plan Sheets C02.01 through C02.07. Interim Project Milestone durations and associated liquidated damages are set forth in the Section 2 Summary of Terms and Conditions.

C. Inclement Weather Days and Observed Legal Holidays.

The Contract Time and phase durations set forth in the Contract Documents include inclement weather days normally encountered at the Project site, as well as observed holidays defined below. The Contractor shall be charged for each Calendar Day during the term of construction including Observed Legal Holidays defined below and inclement weather days normally encountered at the Project site. Normal inclement weather days shall be established by the Contractor obtaining the previous ten (10) years of inclement weather data at the Airport from the National Oceanographic and Atmospheric Administration (NOAA) and averaging the previous ten (10) years of each type of inclement weather for each month and comparing it to each month of construction activities to determine if the number of inclement weather days occurring in any given month exceeds the average for that month over the past ten (10) years for that type of inclement weather, i.e. rain, snow, etc. If the Contractor is unable to work at least 50% of the normal work day on pre-determined controlling work items due to abnormal inclement weather conditions, the Contractor may not be charged a Calendar Day provided the Contractor submits data and records to justify not charging a Calendar Day for that specific day. Contract Time shall be based upon Calendar Days counting from the effective date of the Second Notice-to-Proceed (Construction Period) and including Saturdays, Sundays, Observed Legal Holidays defined below, and other non-work days.

Observed Legal Holidays for which a Calendar Day shall be charged but on which the Contractor shall not be allowed to work are as follows:

- New Year's Day
- Martin Luther King Day
- Memorial Day and the Saturday prior to Memorial Day
- Independence Day (July 4th)
- Labor Day and the Saturday prior to Labor Day
- Veteran's Day
- Thanksgiving and the Friday and Saturday after Thanksgiving
- Christmas Day

1.04 DISCREPANCIES, INTERPRETATION AND OMISSIONS – Not Used

1.05 DEFINITIONS

Applicable to all sections of the Division 1 Documents:

- County Representative and Consultant includes their consultants and
Subconsultants.

B. Furnish: To supply and deliver, unload, inspect for damage (same as supply).

C. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, and make ready for use.

D. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work. Products may also include existing materials or components required for reuse.

E. Provide: To furnish or supply, plus install.

F. Supply: To supply and deliver, unload, inspect for damage (same as furnish).

PART 2 – PRODUCTS - Not Used

PART 3 – EXECUTION - Not Used

END OF SECTION 01039 - COORDINATION OF WORK
DIVISION 1 SPECIFICATIONS
SECTION 01315 – PROGRESS SCHEDULES (COMPUTERIZED CPM)

PART 1 - GENERAL

1.0 DEFINITIONS

A. Definitions applicable to this Section include the following:

1. **Activity** - An element of the Work or task performed during the course of the project. Each schedule activity shall be a clearly defined and manageable task depicting an expected duration, an expected cost, and expected resource requirements.

2. **Baseline Schedule** - The original work plan approved by the COUNTY's representative as the Project Schedule. The Baseline Schedule shall indicate a clear, continuous path between the Notice to Proceed No. 2 Date of the Project and the Substantial Completion Date (Contract Time), as defined in the Contract Documents.

3. **Constraint** - A scheduling restriction imposed on the start or finish of an activity. Only contractual/owner-designated constraints are allowed.

4. **Critical Path** - The Project primary critical path is defined as the path with the least amount of total float which constitutes the longest, continuous path of interrelated activities depicting project work from notice to proceed (NTP) to project completion. All reports and graphics indicating the Critical Path shall depict the longest path of interrelated activities. Unless otherwise approved by the COUNTY's representative, the Baseline Schedule Critical Path shall use all allotted Contract time.

5. **Critical Path Method** - A scheduling technique utilizing activities, durations, and interrelationships/dependencies (logic) such that all activities are interrelated with logic ties from the beginning of the project to the completion of the project.

6. **Data Date** - The data date of each schedule update shall be the Saturday at 8:00 a.m. following the last Friday of each month.

7. **Float** - Is the difference between the planned early finish dates and the planned late finish dates; the amount of time an activity can be delayed without affecting the Substantial Completion Date. Float is considered a project commodity jointly shared between the COUNTY and the CONTRACTOR and shall be used in the best interest of completing the Project on time.

8. **Float Suppression** - utilization of zero free float constraints which allows an activity to start as late as possible by using all it's available free float. This technique allows activities to appear more critical than if the activity's total float was based on early dates. Assigning zero free float prevents true sharing of total float between the COUNTY and the CONTRACTOR.

9. **Fragnet** - A subset group of interrelated activities representing only a portion of the CPM schedule.

10. **Key Plans** - Key Plans are graphic representations on prints of the Contract Documents of the CONTRACTOR's planned 'breakdown of the project for scheduling purposes. The key plans will clearly define the boundaries of the work for each designated area. The alphanumeric codes on the key plans shall match the code values for the activity code "Area" in the Project schedule.
11. **Network Plan** - The Network Plan is the entire database of activities, logic, durations, and all items relating to any activity input into the scheduling software and is the complete representation of the Project Schedule prepared using the Critical Path Method and graphically shown in a time-scaled form. The network shows the sequence and interdependence of the activities, and planned and actual progress by activity, required for complete performance of the Work.

12. **Project Group** - A means used in Primavera Project Planner to divide a large project into smaller projects but allow resources and costs to be used across all projects. Establishing a Project Group reporting can be summarized or detailed across one or all projects. A project within a Project Group may include procurement activities.

13. **Project Schedule** - The Project Schedule includes the Preliminary Schedule, the approved Baseline Schedule (developed based on the Preliminary Schedule), and all subsequent Schedule Updates, Schedule Revisions, Recovery Schedules, and As-Built Schedule.

14. **Recovery Schedule** - A schedule depicting the CONTRACTOR's plan for recovery of time lost on the project.

15. **Schedule Revision** - A schedule in which the sequence/logic for the work is revised. A Schedule Revision is required when the current schedule no longer represents the actual or planned prosecution of the Work.

16. **Schedule Update** - A schedule in which only progress is updated from the prior data date to the current data date. No revisions to logic ties will be permitted in a Schedule Update.

17. **Time Impact Analysis** - A technique to demonstrate the comparison of the time impact for each schedule revision or proposed revision against the current approved Project Schedule.

1.01 **REQUIREMENT INCLUDED**

A. Procedures of preparation and submittal of schedules, updated progress schedules and periodic updating. The CONTRACTOR shall prepare and maintain a schedule in accordance with the requirements of this Section. The requirement for a schedule is included to:

1. Assure adequate planning and execution of the Work by the CONTRACTOR.

2. Assure coordination of the Work of the CONTRACTOR with other contractors, subcontractors, and suppliers.

3. Assure coordination of the work between the CONTRACTOR and COUNTY.

4. Assure coordination of any adjacent Work being performed for COUNTY.

5. Allow the CONTRACTOR and COUNTY representative to evaluate:


   b. Monitor Monthly Work Progress / Progress Payments
c. Proposed changes to Contract or schedule.

B. The CONTRACTOR shall participate in joint schedule review meetings.

C. All updated progress schedule submittals shall be in accordance with Subsection 1.06 of Division 1 Section 01315.

D. Within ten calendar days after Notice to Proceed No. 1 the CONTRACTOR shall meet with the COUNTY's representatives including, Consultant, CPM, and the BCAD Project Manager to conduct a joint review meeting to evaluate the CONTRACTOR's schedule, the CPM's Master Schedule and controlling items of Work to assure mutual understanding of the Work constraints. Some activities may be contemplated, even though those activities are without specific start/stop dates or durations, for purposes of developing the schedule(s). Such activities shall consider reasonable estimated start/stop times and durations, (e.g. Early Investigative Work), while conforming to the Substantial Completion and intermediate milestone dates.

E. The CONTRACTOR shall be responsible for assuring all work sequences are logical and the schedule shows a coordinated plan for complete performance of the Work. Failure of the CONTRACTOR to include any element of work required for performance of the Contract in the schedule shall not excuse the CONTRACTOR from completing all Work within the Contract Time.

F. CONTRACTOR is responsible for monitoring the accuracy and updating the schedules as of the end of each month, or as required by the COUNTY's representative, to validate current schedule. The updated schedule shall be included in the monthly report.

1.02 GENERAL

A. The construction of the project shall be planned, recorded and updated utilizing the Critical Path Method Scheduling. The CONTRACTOR shall use scheduling software Primavera (P6). It will be used for coordination, monitoring and payment of all work under the Contract including all activities of the CONTRACTOR, subcontractors, vendors and suppliers.

B. The CONTRACTOR's and/or Subcontractor's timely execution or performance of all construction related activities shall be in strict compliance with the approved Baseline Schedule. Means and methods of construction in accordance with the Contract Documents will remain the sole responsibility of the CONTRACTOR.

C. SCHEDULE REPRESENTATIVE / QUALIFICATIONS

Within ten calendar days after Notice to Proceed No. 1, the CONTRACTOR shall designate in writing a schedule representative in the CONTRACTOR's organization who shall be responsible for coordinating with the COUNTY's representative during preparation and maintenance of the schedule. The CONTRACTOR shall submit documentation stating their scheduling representative has minimum of five years experience in scheduling construction work of a complexity comparable to this project. Contractor's scheduler shall have a minimum of 5 years of experience developing, reviewing and analyzing Critical Path Method schedules, and shall possess
demonstrated proficiency in Critical Path Method schedule methodology and utilization of Primavera (P6). The Contractor's project superintendent, and the scheduling representative and, to the extent applicable, the personnel responsible for developing and inputting information into the Project Schedule shall attend schedule related meetings and monthly update meetings throughout the duration of the Project.

D. COMPUTER PRODUCED SCHEDULE

1. The Schedule shall be developed with software compatible with Primavera (P6) in order to facilitate the Precedence Diagram Method (PDM).

2. CONTRACTOR shall use the following "Schedule / Level Calculation Options:"
   a. When scheduling activities apply Retained logic
   b. Calculate start-to-start lag from Early start
   c. Show open-ends as non-critical
   d. Schedule durations as Contiguous
   e. Calculate total float as Finish float

3. The CONTRACTOR shall use the following "Automatic Cost / Resource Calculation Rules:"
   a. Subtract actual from EAC (Estimate At Completion)
   b. When quantities change, use current unit prices to recompute costs: Budget and Estimate to Complete
   c. Link actual to date and actual this period
   d. Link budget and EAC for non-progressed activities; calculate variance as Budget – EAC.

1.03 REVIEW AND REVISION PROCEDURES

A. CONTRACTOR is solely responsible for the preparation, revision and updating of the Baseline Schedule, updated Progress Schedule and all 2-week look-ahead schedules in the form and content prescribed in this Section. The timely execution or performance of all construction related activities and the duration and sequencing of those activities in accordance with the approved schedules is the CONTRACTOR's responsibility.

B. The COUNTY may review the Preliminary Baseline Schedule, Baseline Schedule, Progress Updates Schedule and 2 week look-ahead schedule, for compliance with the contract requirements, including but not limited to, staging, phasing and time of completion. Acceptance of these schedules does not imply the COUNTY
representative's or the COUNTY's endorsement or responsibility of activity durations or sequence of activities.

C. The Baseline Schedule may be revised from time to time as conditions require, and if accepted by the COUNTY, provided that nothing in this Section should be construed as authorizing or approving any extension of time, or increase in Contract Price. It is expressly understood and agreed that Contract Time extensions, or increase in the Base Amount or Contract Price, if any, will only be granted in accordance with the applicable requirements for CPEAM or Change Orders, respectively, in accordance with the Contract Documents.

D. The currently approved schedule will be the basis for interpreting any and all Contract Time associated provisions of the Agreement.

1.04 FORMAT

A. The schedules shall conform to the following:

1. Activities identified by Early Start and Early Finish date and total duration in work days (not exceeding 15 work days) for each activity

2. Beginning and end date and total duration in calendar days for each Area or portion thereof shall be established and specified for each contract and interface milestones

3. Contractual & Interface milestones, including, but not limited to those directed by the COUNTY.

4. Identification of each contractor and subcontractor for each work activity or station.

5. Specific location of each work activity (i.e. runway, taxiway, apron, phase or subphase).

6. Detailed schedule of all "Utility Shut-downs" which could impact BCAD, airlines, tenants and other building operations or functions including but not limited to: power, telephone, airline computers, communication systems, air conditioning systems, fire sprinklers, alarm systems, domestic water systems and sanitary sewer systems.

7. Detailed schedule of all procurement activities including Request for Bid (RFB), tabulation, selection, COUNTY approval and contract execution.

8. The CONTRACTOR shall also provide the following information: work days per week, holidays, number of hours per shift, number of shifts per day, work hours, and proposed schedule of "Utility Shut-downs". The CONTRACTOR shall notify the COUNTY's representative if more than one shift is planned to work on the project. The CONTRACTOR shall also indicate work activities that must be performed during restricted or special working hours and the work that must be performed by others to maintain the project schedule.
9. Schedules shall show the sequence and interdependence of all activities required for complete performance of all items of work under this contract, including shop drawing submittals and approvals and fabrication and delivery activities.

10. Construction activities shall be broken down into recognizable sub-activities so that the activity or sub-activity is no longer than twenty work days.

11. The Baseline Schedule submitted by the CONTRACTOR shall be cost and resource loaded.

12. Trade Codes shall be assigned to each activity corresponding to the trade responsible for performing the work described by the activity. Additional Trade coverage shall be added by CONTRACTOR or as required by the COUNTY’s representative and incorporated into the CONTRACTOR’s schedule. These additional codes shall follow the general CSI Divisions for all Vertical and Horizontal construction.

13. Responsibility Codes shall be assigned to each activity corresponding to the organization responsible for completing the work described by the activity description. As a minimum, a separate responsibility code shall be used for each subcontractor.

14. Schedule File Name Structure: The CONTRACTOR’s Construction Contract Schedule (CCS) P6 files will be numbered as follows:

304-BR00-UD00.0

304- (Denotes: Work Package Number);

   -i.e. 404 Terminal 4 Apron Expansion - West

   BR00- (Denotes: Current Baseline Rev#);

   UP00 (Denotes: Update Number);

   .0 (Denotes: Submittal Rev#).

15. Schedule Activity Identification #

(ID) Number Structure and

Primary Activity ID Prefix:

The CONTRACTOR’s Construction Contract Schedule (CCS) activity identification numbers will always start with the Work Package designator prefix and then a hyphen. This is to facilitate coordination with the CPM’s Schedule and other project Contractor.

Primary Activity ID Prefix:

Z1145017C1 / Terminal 4 Apron Expansion
404-XXXXXX

404- (Denotes: Work Package Number)
- i.e. 404 – Terminal 4 Apron Expansion - West;
XXXXXX (Denotes: ID numbering);

16. Schedule Activity Identification 
(ID) Number Structure and 
Secondary Activity ID Prefix.
404-CM-XXXXXX

404- (Denotes: Work Package Number);
- i.e. 404 – Terminal 4 Apron Expansion - West;
CM- (Denotes: Contract Milestone);
XXXXXX (Denotes: ID numbering);

Schedule Start and Finish Milestone Activities:
- CM- Contract Milestones
- IM- Interface Milestones
  (links to other entities activities)
- SM- Schedule Milestones
  (All other milestones)

Level of Effort Activities
- LOE- Level of Effort Activity

1.05 PREPARATION GUIDELINES
A. The Baseline Schedule shall represent a practical plan to complete the work within the 
Contract Time.

1. A schedule extending beyond the Contract Time will not be acceptable.
2. Use of float suppression techniques, such as: preferential sequencing (arranging critical path through activities more susceptible to government caused delay), lag logic restraints, zero total or free float constraints, extended activity times, or imposing constraint dates other than as required by the contract, shall be cause for rejection of the project schedule or its updates. The use of Resource Leveling (or similar software features) used for the purpose of artificially adjusting durations to consume float and influence the critical is expressly prohibited.

3. Float available in the schedule, at any time shall not be considered for the exclusive use of either the COUNTY or the Contractor. During the course of contract execution, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Efficiencies gained as result of favorable weather within a calendar month, where the number of days of normally anticipated weather is less than expected, will also contribute to reserve of float. A schedule showing work completing in less time than the Contract time, and accepted by the COUNTY, will be considered to have Project Float. Project Float will be a resource available to both the COUNTY and the Contractor.

4. The Baseline Schedule shall indicate a clear, continuous path between the Notice to Proceed No. 2 Date of the Project and the Substantial Completion Date (Contract Time), as defined in the Contract Documents.

B. The Updated Progress Schedule shall:

1. Be in sufficient detail to assure adequate planning and execution of the work.

2. Be suitable, in the judgment of the COUNTY’s representative, to allow monitoring and evaluation of progress in the performance of the Work.

3. Be a calendar time-scaled logic diagram with a graphical layout illustrating logic ties with an accompanied activity listing identifying detailed predecessors and successors.

4. Include time for the COUNTY’s representative and Consultant to review submittals or inspect the work.

5. Identify the activities, which constitute the controlling items of work or critical path.

C. COST CORRELATION - EARNED VALUE ANALYSIS - Not Used

1.06 SCHEDULE SUBMITTALS

A. GENERAL SCHEDULE SUBMITTAL FORMAT:

1. Logic drawings shall be submitted flat (11" x 17") and reproducible as copies without loss of legibility. Size of plot and number of copies shall be at the discretion of the COUNTY's representative.
2. Hard copies of listings shall be prepared on separate sheets of 11” x 17” or legal size paper; include three copies of each report.

3. Electronic Format: All project files in the Primavera (P6) file format backup, as well as pdf file format, shall be copied and submitted on a (CD) compact disk. A project CD shall accompany all CONTRACTOR submissions.

B. PRELIMINARY BASELINE SCHEDULE

1. Within 10 calendar days of Notice to Proceed (NTP No.1), Contractor shall submit a Preliminary Schedule detailing planned work/operations for the first 90 calendar days of the Project with sufficient detail to allow progress payments to be made from the Preliminary Schedule while the Baseline Schedule is being developed and approved, and summary level activities representing major components of work included in the Contract for the balance of the Project performance period through to the Substantial Completion Date. All activities shown in the Preliminary Schedule shall be cost and resource loaded, including the summary level activities.

2. The Preliminary Baseline Schedule must show in detail the activities to be accomplished through the Second Notice to Proceed (NTP) as well as an overall preliminary schedule indicating a comprehensive overview of the Work including an activity line for each major element of the work segments.

3. Within 10 calendar days of receipt of the Preliminary Baseline Schedule, the Contractor and CPM shall meet to discuss the results of CPM's schedule review. To the extent that revisions are required, the Contractor shall resubmit the Preliminary Baseline Schedule to the CPM for approval within five (5) calendar days of receipt of CPM's comments.

4. The Data Date for the preliminary baseline schedule submittal shall be the same as the date of the Notice to Proceed (NTP No.1).

C. BASELINE SCHEDULE DEVELOPMENT

1. The Contractor shall submit the Baseline Project Schedule within 45 calendar days after Notice to Proceed (NTP No. 1). The baseline Schedule shall be the Contractor's detailed plan for ALL work from NTP to the Substantial Completion Date, as established in the Contract. All punchlist work shall be completed on, or prior to, the Contract Completion Date. Except for certain procurement activities (not including fabrication or delivery), each Activity representing a portion of the work shall be cost and resource loaded, unless otherwise approved by CPM.

2. Construct the Baseline Schedule to indicate a logical sequence of work activities and durations developed from the joint review meeting and COUNTY comments. Incorporate major restrictions from the availability and use of manpower, material, and equipment. Utilize the Baseline Schedule in planning, scheduling, coordinating and performing the Work under this CONTRACT (including all...
activities of subcontractors, equipment vendors, suppliers, and relevant third parties – BCAD, FPL, related / adjacent projects, or others).

3. Early Start and Early Finish date and total duration in work days (not exceeding 15 work days) for each activity.

4. Beginning and end date and total duration in calendar days for each Area or portion thereof.

5. Contractual milestones, including, but not limited to those directed by the COUNTY's representative and BCAD Project Manager.

6. Identification of each contractor and subcontractor for each work activity or station.

7. Specific location of each work activity (i.e. runway, taxiway, apron, phase or subphase).

8. Detailed schedule of all "Utility Shut-downs" which could impact FAA, BCAD, airlines, tenants and other building operations or functions including but not limited to: power, telephone, airline computers, communication systems, air conditioning systems, fire sprinklers, alarm systems, domestic water systems and sanitary sewer systems.

9. Detailed schedule of all procurement activities including Request for Bid (RFB), tabulation, selection, COUNTY's representative and BCAD Project Manager approval and contract execution.

10. The CONTRACTOR shall also provide the following information: work days per week, holidays, number of hours per shift, number of shifts per day, work hours, and proposed schedule of "Utility Shut-downs". The CONTRACTOR shall notify the COUNTY's representative if more than one shift is planned to work on the project. The CONTRACTOR shall also indicate work activities that must be performed during restricted or special working hours and the work that must be performed by others to maintain the project schedule.

11. Schedules shall show the sequence and interdependence of all activities required for complete performance of all items of work under this contract, including shop drawing submittals and approvals and fabrication and delivery activities.

12. Construction activities shall be broken down into recognizable sub-activities so that the activity or sub-activity is no longer than twenty work days.

13. The Baseline Schedule submitted by the CONTRACTOR shall be cost and resource loaded, accompanied by a computer generated and plotted cash flow diagram, unless otherwise approved by COUNTY. CONTRACTOR shall exercise sufficient care to produce clear, legible and accurate diagrams. The Baseline Schedule shall group activities related to specific physical areas on the diagram for ease of understanding.
14. Trade Codes shall be assigned to each activity corresponding to the trade responsible for performing the work described by the activity. Additional Trade coverage shall be added by CONTRACTOR or as required by the COUNTY’s representative and incorporated into the CONTRACTOR's schedule. These additional codes shall follow the general CSI Divisions for all Vertical Construction and Contract Schedule of Values for Horizontal construction.

15. Responsibility Codes shall be assigned to each activity corresponding to the organization responsible for completing the work described by the activity description. As a minimum, a separate responsibility code shall be used for each subcontractor.

16. The Baseline Schedule shall provide sufficient detail and clarity of form and technique so that the Work can be properly monitored by the COUNTY’s representative. The Baseline Schedule shall comply with the various limits imposed by the Scope of Work and by any contractually specified intermediate milestone dates and completion dates. The degree of detail shall be to the satisfaction of the COUNTY's representative and shall be sufficient to identify:

   a. Structural breakdown of the project
   b. Types of work being performed
   c. Labor trades involved in performing work
   d. Submittal, review, procurement, fabrication, delivery, installation, and testing of major materials and equipment
   e. Delivery / Installation of COUNTY furnished equipment
   f. Interfaces and dependencies with preceding, concurrent, and follow-on contractors
   g. Plans for subcontract work
   h. Manpower, material and equipment restrictions
   i. Commissioning / Close Out Processes
   j. Contract milestones and phasing
   k. Allow for holidays, vacations and non-work days applicable to the schedule

17. COUNTY’s acceptance of the Baseline Schedule is a precondition of COUNTY processing any CONTRACTOR pay request.

D. TWO WEEK LOOK-AHEAD SCHEDULE
E. SCHEDULE REVIEW AND APPROVAL

1. The CONTRACTOR and the COUNTY's representative shall meet within ten calendar days of receipt of the CONTRACTOR's Preliminary Baseline Schedule Submittal for joint review of the proposed Preliminary Baseline Schedule. The CONTRACTOR shall revise any areas, which, in the opinion of the COUNTY's representative, conflict with either the intent of this Section or the timely completion of the Project.

2. In the event the CONTRACTOR fails to define any element of work activity or logic currently designed and the COUNTY's representative review does not detect this omission or error, such omission or error, when discovered by the CONTRACTOR or the COUNTY's representative, shall be corrected by the CONTRACTOR.

3. Within five calendar days after the joint review between the CONTRACTOR and the COUNTY's representative, the CONTRACTOR shall revise the Preliminary Baseline Schedule in accordance with agreements reached during the joint review and submit the revised Preliminary Baseline Schedule in the same form and detail as the Preliminary Baseline Schedule Submittal.

4. The Contractor shall submit the Baseline Project Schedule within 45 calendar days after Notice to Proceed (NTP No.1). The baseline Schedule shall be the Contractor’s detailed plan for ALL work from NTP to the Final Completion Date, as established in the Contract. All punchlist work shall be completed on, or prior to, the Contract Completion Date. Except for certain procurement activities (not including fabrication or delivery), each Activity representing a portion of the work shall be cost and resource loaded, unless otherwise approved by CPM.

5. The COUNTY's representative will review all schedule submissions (Preliminary Baseline Schedule, Baseline Schedule, and monthly Updated Progress Schedules) and return reviewed copy within ten calendar days after receipt. If required, the CONTRACTOR will resubmit the schedule within seven calendar days after return of reviewed copy. COUNTY's acceptance of the CONTRACTOR's Baseline Schedule will supersede the Preliminary Baseline Schedule.

6. Acceptance of the Baseline Schedule by the COUNTY's representative does not relieve the CONTRACTOR of any of its responsibility for the accuracy or feasibility of the Schedule.

F. UPDATED PROGRESS SCHEDULES

1. After the Preliminary Baseline Schedule is accepted, it shall be updated monthly until the Baseline Schedule is approved.
2. After the Baseline Schedule is accepted, the Schedule shall be updated monthly until Final Completion.

3. The Baseline Schedule shall be updated monthly and this monthly update should generate a report that indicates the remaining duration and percent completion for each activity. This report shall be included in the CONTRACTOR's monthly report and is required as a pre-condition of approval of the CONTRACTOR's Request for Payment. Updated Progress Schedules shall:

a. Indicate progress of each activity to date of submittal and projected completion date of each activity.
   i. Actual dates for activities started and / or completed
   ii. Percentage of work completed by activity
   iii. Estimated remaining duration for each activity in progress
   iv. Cost Percentage Complete

b. Identify activities modified since previous submittal, major changes in scope and other activities.

c. Provide narrative report to define problem areas, anticipated delays and impact on schedule.

d. Report corrective action taken or proposed, and its effect including the effect of changes on schedules of separate contracts, if any.

All of the above will be subject to approval by the COUNTY.

4. The data date for each Monthly Update schedules shall be the Saturday at 8:00 a.m. following the last Friday of each month.

5. Each request for payment must be accompanied by a monthly report, which shall include an updated report of both time and costs, together with all required sorts and compact disk copies, based on the Updated Progress of the approved Baseline Schedule. Requests for payment will not be processed unless properly submitted as specified.

6. A draft-copy of the monthly Updated Progress Schedule shall be forwarded to the COUNTY’s representative with the Draft-copy of the Application for Payment.

7. A final-copy of the monthly Updated Progress Schedule shall be included in the monthly report and forwarded to the COUNTY’s representative with the Final-copy of the Application for Payment.

8. The Updated Progress Schedule in the monthly report shall include the following:
   a. Sorts and Groups: Activity listings shall be provided sorted by activity identification number and shall include the following fields:
i. Activity ID

ii. Early start and Early finish

iii. Description

iv. Late start and Late finish

v. Calendar #

vi. Baseline start

vii. Duration

viii. Baseline finish

ix. Codes (as required)

x. Total float

xi. Percent Completion (Periodic Reports)

xii. Remaining duration (Periodic Reports)

xiii. Successor ID, Relationship Type and Lag

xiv. Predecessor ID, Relationship Type and Lag

b. A written narrative report describing the work physically completed during the progress period; percentage of work physically completed; milestone summary status; plan for the forthcoming report period; discussion of current critical paths; problem areas, current and anticipated; delaying factors and their impact; explanation of corrective actions taken or proposed; and anticipated outcome if corrective action is taken. This written narrative progress summary describing the following:

i. Physical progress during the report period.

ii. Plans for the forthcoming report period.

iii. Potential delays and problems and their estimated effect on performance schedule and overall completion and an explanation of corrective action taken or proposed and its expected effect.

iv. Identity of current Critical Path items and those items of work with less than fifteen work days of float listed by early completion.

v. Current Projected start and completion dates.

vi. Percentage progress during the last period of each major activity.
vii. Percentage of Change Order completion.
viii. Percentage of total schedule period consumed.
ix. Whether the project is on, ahead of or behind schedule.
x. Amount of remaining schedule float.
xi. Goals for next reporting period (such as progress on activities, or problems).

xii. Proposed revisions to logic and relationships of non-critical activities.

xiii. A financial report with cash expenditure curves and other appropriate graphics from Primavera (P6). The CONTRACTOR shall submit the narrative progress report to the COUNTY's representative once a month or on established dates as scheduled by the COUNTY.

c. Periodic Reports: Periodic reporting frequency shall be as specified. The following reports shall be prepared by the CONTRACTOR:

i. Activity progress and updating information report. This report shall be comprised of an activity listing showing percent completion, remaining duration and actual start and finish dates. Submit monthly with the updated schedule.

ii. Schedule modification report. This report documents all changes made to project schedule information, i.e. changes in logic, durations, descriptions, etc. If the type and quantity of modifications become significant, the COUNTY may request a new logic diagram at no additional cost to the COUNTY. Submit monthly with the updated schedule.

iii. Current Updated Progress Schedule Activity vs. Baseline Schedule Report. This report documents all activities and its early and late drift or variance from the Baseline early and late dates. Submit monthly with the updated schedule.

iv. The CONTRACTOR may improve its progress by performing sequential activities concurrently, by performing activities more quickly than planned, or by revising schedule logic to reflect a work around sequence. The CONTRACTOR may make minor logic changes, which are required to reflect actual work as it is performed, pertaining to out-of-sequence work. The minor logic changes shall be included in the monthly updated progress schedule report in a format similar to that provided by Claim Digger software or Schedule Analyzer Enterprise software.
9. If the CONTRACTOR's monthly Updated Progress Schedule reflects, or the COUNTY's representative determines, that the CONTRACTOR is at least fifteen or more work days behind the recognized Baseline Schedule for the Project Milestones or an item of work on which is on the critical path, then the CONTRACTOR shall submit with the monthly Updated Progress Schedule, or within seven calendar days of a written request from the COUNTY's representative, his proposed plan for bringing the work back on schedule and completing the work by the contract completion date(s).

10. If the monthly Updated Progress Schedule is rejected, the CONTRACTOR shall resubmit the update for approval within seven calendar days. If the resubmittal of the schedule does not occur within seven calendar days, the withholding of progress payments may occur.

1.07 REVISIONS TO BASELINE SCHEDULE

A. Updating the Schedule to reflect actual progress to date shall not be considered a revision of the Schedule.

B. With the COUNTY's approval, the CONTRACTOR shall revise the Baseline Schedule when one or more of the following conditions occur:

1. When a change or delay significantly affects any specified intermediate milestone or completion dates.

2. When the CONTRACTOR elects to change any sequence of activities affecting the critical path or to significantly change the previously approved work plan.

3. When, in the opinion of the COUNTY's representative, the status of the work is such that the Baseline Schedule and supporting analysis no longer accurately represents the Work for planning and progress evaluation purposes.

4. Upon issuance of additional Notices to Proceed.

5. When CONTRACTOR receives COUNTY approval to change the logic per section 1.10 of this section (01315).

C. Submit any revised Baseline Schedule in the same form and detail as the Baseline Schedule submittal requirements.

D. Changes in the Progress Updates Schedule to reflect revisions in the method of operating and scheduling of work shall be made by notifying the COUNTY's representative in writing, stating reason for the proposed revision(s). CONTRACTOR shall submit to CPM an audit trail report that has been prepared using schedule comparison software (i.e., Claim Digger, Project Investigator, etc.).

E. Reasonable requests for revisions from the COUNTY's representative shall be implemented by the CONTRACTOR.
F. Revisions to the Baseline Schedule requested by the COUNTY's representative will require written response from the CONTRACTOR within fourteen calendar days of the requested revision.

1.08 ADJUSTMENT OF TIME FOR COMPLETION

A. Time for Completion will be adjusted only in accordance with this Clause and the Contract Documents.

B. Each time impact analysis shall provide information justifying the request and stating extent of adjustment requested for each specific change or alleged delay. Each Analysis shall be on form and content acceptable to the COUNTY's representative, and shall include, but not be limited to, the general information set forth in this section appropriate to the type of request (change or alleged delay) plus the following:

1. Fragnet schedule illustrating how the change, or the alleged delay, is proposed to be incorporated into the current updated Baseline Schedule.

2. Identification of activities in current updated Baseline Schedule which are proposed to be amended due to change or alleged delay, together with engineering estimates and other appropriate data justifying proposal.

3. Supporting documentation in the form of technical documents, correspondence, daily reports, directives or other forms of documentation relevant to the change or alleged delay.

C. Seasonal weather conditions shall be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures, wind, precipitation and / or saturated soil, to ensure completion of all Work within the Contract Time. Seasonal weather conditions shall be determined by an assessment of mean historical climatic conditions based upon the preceding ten year records published for the locality by the U.S. Weather Bureau Service.

1.09 TIME IMPACT ANALYSIS

A. When requesting an extension to the Contract Time, the CONTRACTOR shall submit to the COUNTY's representative a written time impact analysis illustrating the influence of each change, delay, or request on any specified intermediate milestone date and the current projected Contract Completion date.

1. Each time impact analysis shall include a fragnet indicating all necessary logic, duration, impacts on costs and resources, and demonstrating how the CONTRACTOR proposes to incorporate the change or delay into the Baseline Schedule and any additional supporting evidence / documentation that the COUNTY deems necessary, per section 1.08.

2. The event times used in the analysis shall be those included in the latest updated progress schedule or as adjusted by mutual agreement to reflect project status at the time the delay occurred or notification of the change was issued.
B. Where the COUNTY has not yet made a final determination as to the amount of time extension, or the parties are unable to agree as to the amount of time extension to be reflected, the CONTRACTOR shall reflect that amount of time extension in the updated progress schedule as the COUNTY’s representative may determine to be appropriate for such interim purpose. It is understood and agreed that any such interim determination for the purpose of this paragraph shall not be binding upon either party for any other purpose and that, after the COUNTY’s representative has made a final determination as to any time extension, the CONTRACTOR shall revise the Baseline Schedule prepared thereafter in accordance with the final decision.

C. It is understood that Schedule Float is not for the exclusive use of either the COUNTY or the CONTRACTOR. Delay to a task does not entitle CONTRACTOR to an extension of Contract Time, and extensions of time for performance under any and all of the provisions of this Contract will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float along the critical path involved at the time a delay occurred or notification of a change was issued. It is expressly agreed and understood that the CONTRACTOR shall not be entitled to any compensation or damages on account of potential delays which can be avoided by resequencing activity times or logic used to sequester float.

D. Upon concurrence by the COUNTY’s representative of the time impact analysis to any extension of time for completion of any intermediate contract milestone, time(s) for completion of such milestone(s) will be adjusted by Change Order whether or not time for completion of the Baseline Schedule is changed accordingly. The agreed upon impact to the Work shall be incorporated into the updated progress schedule at the next monthly update.

E. Submit three copies of each time impact analysis within the timeframe specified in the General Conditions. Also submit source files of the time impact analysis to COUNTY.

F. Time impact analyses related to Change Order or CPEAM Work and/or Contract Time extensions shall be incorporated into and attached to the applicable Change Order or CPEAM. Upon receipt of an approved Change Order or CPEAM modifying the contract completion date, the CONTRACTOR shall issue a new Baseline schedule, without status data, to serve as a modified baseline schedule.

1.10 RESPONSIBILITY FOR COMPLETION

A. The CONTRACTOR shall furnish sufficient resources, offices, facilities and equipment, and shall work such hours including night shift and overtime operations, as necessary to ensure the prosecution of the Work in accordance with the current monthly updated progress schedule. If, in the opinion of the COUNTY, the CONTRACTOR, due to its own action, falls behind in meeting the Baseline Schedule as presented in the current monthly updated progress schedule, the CONTRACTOR shall take such steps as may be necessary to improve its progress, and the COUNTY may require the CONTRACTOR to increase the hours of work, the number of shifts, the amount of supervision, overtime operations or the amount of construction equipment without additional cost to the COUNTY. The provisions of this section shall not be construed as prohibiting work on Saturdays, Sundays, and holidays, if the CONTRACTOR so elects and gives reasonable notice to the COUNTY’s representative.
1.11 PARTIAL PAYMENTS

Requests for partial payment must be accompanied by the updated progress schedule. Requests for payment will not be processed unless properly submitted as specified.

PART 2 - PRODUCTS - Not Used
PART 3 - EXECUTION - Not Used

END OF SECTION 01315 - PROGRESS SCHEDULES
DIVISION 1 SPECIFICATIONS

SECTION 01340 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART - GENERAL

1.01 DESCRIPTION

A. Work-Related Submittals:

1. The provisions of the Section apply to those required submittals that are related to individual units of Work, not to administrative submittals, such as payment requests, insurance certificates and progress reports.

2. In addition to specific provisions of the General Conditions regarding Work-related submittals, the Technical Specifications Sections contain submittal requirements.

3. Specific requirements in other Contract Documents sections shall take precedence over the general requirements contained in this Section.

1.02 SUBMISSION AND APPROVAL SCHEDULE

A. Within ten calendar days of the First NTP, prepare complete schedule of work-related submittals, including shop drawings, product data, samples, and operating and maintenance manuals. Correlate Submittal Schedule with listing of principal subcontractors, with listing of products or procurements schedule.

B. The CONTRACTOR shall prepare and submit in electronic Excel Format and hard copies in triplicate each to the Consultant and County’s representative a completely itemized Schedule of Shop Drawings, Product Data and Samples, listing each and all such items as required under the specifications. Schedules shall indicate for each required item:

1. Prepare Schedule in chronological sequence of first submittals.

2. Show category of submittal, generic description of work covered, activity or event number on progress schedule, scheduled date for first submission, and blank columns for actual date of submittal, resubmittal, and final release or acceptance by Consultant.

3. Identification as to pertinent Specification Division.

4. Item(s) involved.

5. Name of pertinent Subcontractor or supplier and the name of pertinent manufacturer.

6. Schedule date of delivery of pertinent items to the Project.
1.03 PROCEDURE REQUIREMENTS

A. Coordination: Coordinate the preparation and processing of submittals with the performance of the Work. Coordinate each separate submittal with other submittals and related activities such as testing, purchasing, fabrication, delivery and similar activities that require sequential activity.

1. Coordinate the submittal of different units of interrelated Work so that one submittal will not be delayed by either the County’s representative or the Consultant’s need to review a related submittal. The Consultant and County’s representative reserve the right to withhold action on any submittal.

2. Scheduling: In each appropriate administrative submittal, such as the Construction Schedule, show the principal Work-related submittals and time requirements for coordination of submittal activity with related Work.

3. Coordination of Submittals Times: Prepare and transmit each submittal to the County’s representative and Consultant sufficiently in advance of the scheduled performance of related Work and other applicable activities. Transmit different kinds of submittals for the same unit of Work so that processing will not be delayed by the County’s representative and the Consultant’s need to review submittals concurrently for coordination.

4. Coordinate both procedural timing and listing, including naming and sequencing, or reports and activities required by provisions of this Section and other Sections, to afford consistency and logical coordination between submitted reports or lists. Maintain coordination and correlation between separate reports by updating at monthly or shorter time intervals. Make appropriate distribution of each report and updated report to entities involved in Work.

5. Review Time: Allow time as provided below so that the installation will not be delayed as a result of the time required to properly process submittals, including time for resubmittal, if necessary.

   a. Allow a minimum of fifteen calendar days for the County’s representative and Consultant’s initial processing of each submittal. The County’s representative and the Consultant will advise the CONTRACTOR promptly when it is determined that a submittal being processed must be delayed for coordination. Note that the County’s representative and the Consultant will not make color; texture, pattern and similar finish selections until all initial submittal requirements for all finish selections have been fulfilled.

   b. Allow a minimum of fourteen calendar days for reprocessing each submittal.
c. No Contract Time extension shall be authorized because of the CONTRACTOR’s failure to transmit submittals to the County’s representative and the Consultant sufficiently in advance of the Work and in accordance with the approved submittal schedule.

6. No claim shall be allowed on account of failure of the Consultant to furnish Drawings, Specifications or instructions or to return Shop Drawings or Samples, pursuant to paragraph 4 above, until five calendar days after receipt by the Consultant and County’s representative by registered or certified mail, of written demand for such instructions, Drawings, or Samples, and not then unless such claim can be factually supported, as provided by the terms of this contract.

B. SUBMITTAL PREPARATION:

1. Mark each submittal with a permanent label for identification. Provide the following information on the label for proper processing and recording of action taken.

   - Project name.
   - Date.
   - Name and address of Consultant.
   - Name and address of Contractor.
   - Name and address of Subcontractor.
   - Name and address of Supplier.
   - Name of Manufacturer.
   - Number and title of appropriate specification section.
   - Drawing number and detail references, as appropriate.
   - Similar definitive information as necessary.

2. Provide a space on the label for the CONTRACTOR’s review and approval markings, and a space for the Consultant’s and the County’s representative “Action” marking.

C. SUBMITTAL TRANSMITTAL:

1. Package each submittal appropriately for transmittal and handling. Transmit each submittal from the CONTRACTOR to the County’s representative and the Consultant and to other destinations as indicated, by use of a transmittal form. Submittals received from sources other than the CONTRACTOR will be returned to the sender “without action”.

   a. Record relevant information and requests for data on the transmittal form. On the transmittal form, or on a separate sheet attached to the form, record proposed deviations from the requirements of the Contract Documents, if any, including variations and limitations.
D. SUBMITTAL NUMBERING:

1. To facilitate review, the CONTRACTOR shall number consecutively each submittal. This numbering system shall be in order of submittal. Any resubmittal required shall have the same number as the original submittal followed by notation signifying that this is a second (or third, etc.) submittal; example: SUB# - SPEC # - REV #.

2. In addition, all submittals shall have the following information placed on them by the CONTRACTOR and review of a particular submittal will be undertaken only if such information is provided.

   a. Shop Submittal Number: ________________________
   b. Deviations: None_________; as listed_________
   c. Reference Specification Number: ________________________
   d. Reference Drawing Number: ________________________
   e. Space Requirement: As designed ________________
      Different, As listed______________________
   f. Contractor has reviewed and submitted for review.
      Signature: ________________________________
      Date: ________________________________

E. ADDITIONAL COPIES:

   Provide additional copies of submittals required by Governing Authorities that are in addition to copies specified for submittal to the County’s representative and the Consultant.

1.04 SPECIFIC SUBMITTAL REQUIREMENTS

A. GENERAL

1. Where it is necessary to provide intermediate submittals between the initial and final submittals, provide and process intermediate submittals in the same manner as for initial submittals.
2. Shop Drawings, Product Data and Samples submitted to the County's representative and the Consultant for review shall first be checked and approved by the CONTRACTOR. Shop Drawings, Product Data and Samples received without the CONTRACTOR's "check and approved" stamp will be cause for immediate return without further action.

3. Specific submittal requirements for individual units of Work are specified in the applicable specification section. Except as otherwise indicated in the individual specification sections, comply with the requirements specified herein for each type of submittal.

4. In submitting shop drawings, product data, and similar items for review, at least seven copies shall be submitted, five to the Consultant and two to the County's representative. This number includes two for return to the CONTRACTOR. If the CONTRACTOR desires more than two copies returned to him, he shall submit to the Consultant with the initial and subsequent transmittals the additional number desired up to a maximum of an additional three copies. If the Consultant requires additional copies, he will so inform the CONTRACTOR upon return of the reviewed material. Additional copies of shop drawings will be requested in the case where the subject matter shown thereon requires coordination of two or more Prime Contracts.

5. Shop and setting drawings shall present complete and accurate information relative to all working dimensions, equipment weight assembly and sectional view, all necessary details pertaining to coordinating the Work of the Contract, lists of materials and finishes, parts lists and the description thereof, lists of spare parts and tools where such parts or tools are required, no-scale control diagrams for control wiring and control piping, and all other items of information that are required to demonstrate detail compliance with the Drawings and Specifications.

6. If the CONTRACTOR proposes equipment requiring materially different layout from that shown on the Drawings and if such substitution is acceptable to the County's representative and the Consultant, the CONTRACTOR shall submit engineered drawings showing the revised layout of all affected structures, piping and equipment.

7. The County's representative's and the Consultant's review of the CONTRACTOR's shop drawings signifies only that such drawings appear to be in conformity with the Contract Documents or with the County's representative's or Consultant's instructions. Such review does not indicate approval of every detail of the drawings nor of the Work methods of the CONTRACTOR which are indicated thereon.

8. Regardless of the corrections made in, or reviews given to such drawings by the County's representative or the Consultant, the CONTRACTOR will nevertheless be responsible for the accuracy of such drawings, for their
conformity to the Drawings and Specifications, and for the proper fitting and construction of the Work.

B. SHOP DRAWINGS:

1. Composite Shop Drawings shall be prepared by the CONTRACTOR where the County’s representative determines them to be required for coordination of the Work, including but not limited to:

   a. Where Work by separate entities requires off-site fabrication of products and materials which must be accurately interfaced and closely intermeshed to produce required results, prepare composite drawings to indicate how work shown by separate shop drawings will be interfaced, intermeshed and sequenced for installation.

   b. Prepare drawings to indicate how Work shown by separate civil, structural, mechanical, and electrical shop drawings shall be interfaced, intermeshed and sequenced for installation.

   c. Prepare drawings for window walls showing integration of structural systems, glass, plaster, and other items making up principal wall system.

   d. At least three weeks before materials are fabricated or Work has begun, CONTRACTOR shall submit to County’s representative and Consultant complete, composite, blackline drawings. Prepare using 1/4” minimum scale with congested areas and sections through shafts at 3/8” minimum scale. Submit total sleeving drawings.

   e. CONTRACTOR shall be responsible for coordination of Work. Each architectural, civil, structural, mechanical, and electrical subcontractor shall be responsible for coordination of their portions of the Work with Contract and with each affected trade.

   f. CONTRACTOR shall resolve conflicts, certify blackline drawings with signature of authorized person, and submit blackline drawings to Consultant through the County’s representative.

   g. Composite drawings for Consultant’s, County’s representative and Subcontractor’s use during construction shall not be construed as replacing any shop drawing or other Project Record Documents.

   h. County’s representative’s or Consultant’s review of composite drawings shall not relieve the CONTRACTOR from overall responsibility for coordination of work performed pursuant to Contract or from other requirements of Contract.
2. Information required on shop drawings includes, dimensions, identification of specific products and materials which are included in the Work, compliance with specified standards and notations of coordination requirements with other Work. Provide special notation of dimensions that have been established by field measurement. Highlight, encircle or otherwise indicate deviations from the Contract Documents on the shop drawings.

3. Coordination Drawings: Provide coordination drawings where required for the integration of the Work, including Work first shown in detail on shop drawings or product data. Show sequencing and relationship of separate units of Work, which must inter face in a restricted manner to fit in the space provided, or function as indicated. Coordination drawings are considered shop drawings and must be definitive in nature.

4. Preparation: Submit newly prepared information, drawn to accurate scale on sheets not less than 8-1/2’’ x 11’’; except for actual pattern or template type drawings, the maximum sheet size shall not exceed 30’’ x 42’’. Indicate the name of the firm that prepared each shop drawing and provide appropriate project identification in the title block. Provide a space not less than 20 sq. in. beside the title block for marking the record of the review process and the Consultant’s “Action” marking.

   a. Do not reproduce Contract Documents or copy standard printed information as the basis of shop drawings.

5. Provide five prints to the Consultant and two prints to the County’s representative plus two additional prints where required for maintenance manuals, plus the number of prints needed by the County’s representative for distribution to others. Two prints will be returned; the remainder will be retained. One of the prints returned is to be marked up and maintained by the CONTRACTOR as a “Record Document”.

C. PRODUCT DATA:

1. General information required specifically as product data includes manufacturer’s standard printed recommendations for application and use, compliance with recognized standards of trade associations and testing agencies, and the application of their labels and seals (if any), special notation of dimensions which have been verified by way of field measurement, and special coordination requirements for interfacing the material, product or system with other Work.

2. Preparation: Collect required product data into a single submittal for each unit of Work or system. Mark each copy to show which choices and options are applicable to the project. Where product data has been printed to include information on several similar products, some of which are not required for use on the project, or are not included in this submittal, mark the copies to show clearly that such information is not applicable.
a. Where product data must be specially prepared for required products, materials, or systems, because standard printed data is not suitable for use, submit data as "shop drawings" and not as "product data".

b. Clearly mark each copy to identify pertinent products or models.

c. Show performance characteristics and capacities.

d. Show dimensions and clearances required.

e. Show wiring or piping diagrams and controls.

f. Indicate finish.

g. Supplement standard information to furnish information specifically applicable to Work.

h. Modify drawings and diagrams to delete information, which is not applicable to Work.

3. Submittals: Product data submittal is required for information and record and to determine that the products, materials, and systems comply with the provisions of the Contract Documents. Therefore, the initial submittal is also the final submittal, except where the Consultant observes that there is non-compliance with the provisions of the Contract Documents and returns the submittal promptly to the CONTRACTOR marked with the appropriate "Action".

a. Provide two preliminary single-copy submittals where required, for selection of options by the County's representative and the Consultant.

4. Submit four copies to the Consultant and two copies to the County's representative of each required product data submittal, plus two additional copies where required for maintenance manuals. Two copies will be returned to the CONTRACTOR, marked with "Action" and corrections or modifications as required, the remainder will be retained.

a. Do not submit product data or allow its use on the project, until compliance with the requirements of the Contract Documents has been confirmed by the CONTRACTOR.

5. Final Distribution: Furnish copies of product data to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities and others as required for proper performance of the Work. Show distribution on transmittal forms.

6. Installation Copy: Do not proceed with installation of materials, products and systems until a copy of product data applicable to the installation is in the possession of the Installer. Do not permit the use of unmarked copies of product data in connection with the performance of the Work.
D. SAMPLES:

1. Submit samples for the Consultant's visual review of general generic kind, color, pattern, and texture, and for a final check of the coordination of these characteristics with other related elements of the Work. Samples are also submitted for quality control comparison of these characteristics between the final sample submittal and the actual Work as it is delivered and installed.

   a. Refer to individual Work sections for additional sample requirements, which may be intended for examination or testing of additional characteristics. Compliance with other required characteristics is the exclusive responsibility of the CONTRACTOR; such compliance is not considered in the Consultant's review and "Action" indication on sample submittals.

   b. Documentation required specifically for sample submittals include a generic description of the sample, the sample source or the product name or manufacturer, compliance with governing regulations and recognized standards. In addition, indicate limitations in terms of availability, sizes, delivery time, and similar limiting characteristics.

2. Preparation: Where possible provide samples that are physically identical with the proposed material or product to be incorporated in the Work; provide full scale, fully fabricated samples cured and finished in the manner specified. Where variations in color, pattern, or texture are inherent in the material or product represented by the sample, submit multiple units of the sample (not less than 3 units), which show the approximate limits of variations. Where samples are specified for the Consultant's selection of color, texture or pattern, submit a full set of available choices for the material or product. Mount, display, or package samples in the manner specified to facilitate the review of indicated qualities. Prepare samples to match the Consultant's sample where so indicated.

   a. Refer to individual sections of these specifications for samples, which, because of their relatively high cost or other special considerations, are intended to be returned to the CONTRACTOR for incorporation in the Work. Such samples must be in an undamaged condition at the time of use. On the transmittal form to the Consultant, indicate such special requests regarding the disposition of sample submittals.

   b. Submit six sets of samples, two to the County's representative, four to the Consultants, two sets will be returned.
3. Distribution of Samples: Maintain the final submittal sets of samples, as returned by the Consultant, at the project site, available for quality control comparisons throughout the course of performing the Work. In addition, final submittal sets may be used to obtain final acceptance of the Work associated with each set. Prepare and distribute additional sets of samples to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for proper performance of the Work. Show final distribution on transmittal forms.

4. Mock-Ups: Mock-ups are special form of samples, which are too large or otherwise inconvenient for handling in specified manner for transmittal of sample submittals. Mock-ups and similar samples specified in individual Work sections recognized as a special type of sample. Comply with requirements for sample to greatest extent possible, and process transmittal forms to provide records of activity.

   a. Field Samples:

      (1) Construct mock-up for Consultant's and County's representative's visual examination, for quality control, and performance of required testing.

      (2) Erect at location acceptable to County's representative.

      (3) Size of Area: As specified in respective Specification Section.

      (4) Fabricate each sample and mock-up complete and finished using materials, fabrication, and installation methods identical with those indicated for Work.

      (5) Remove mock-ups at conclusion of Work or when acceptable to County's representative if not incorporated into Work.

E. MISCELLANEOUS SUBMITTALS:

1. Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data" depending on whether the report is specially prepared for the project, or a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.

2. Warranties: Refer to Section 01740 - WARRANTIES, for specific general requirements on warranties, product bonds, workmanship bonds and maintenance agreements. In addition to copies desired for the CONTRACTOR's use, furnish two executed copies of such warranties,
bonds, or agreements. Provide two additional copies where required for maintenance manuals.

3. Survey Data: Refer to Section 01040 - PROJECT COORDINATION, for specific general requirements on property surveys, field measurements, and quantitative records of actual Work, damage surveys and similar data required by the individual sections. None of the specified copies will be returned.

4. Standards: Where submittal of a copy of a standard is indicated, and except where copies of standards are specified as an integral part of a "Product Data" submittal, submit a single copy of standards for the Consultant's use. Where workmanship, whether at the project site or elsewhere is governed by a standard, furnished additional copies of the standard to fabricators, installers and others involved in the performance of the Work.

5. Closeout Submittals: Refer to Section 01770 - PROJECT CLOSEOUT, and to individual section of these specifications for specific submittal requirements of project closeout information, materials, tools, and similar items.

6. General Distribution: Provide additional distribution of submittals to subcontractors, suppliers, fabricators, installers, governing authorities, and others as necessary for the proper performance of the Work. Include such additional copies in the submittals to the Consultant where the submittals are required to receive "Action" marking before final distribution. Record distributions on transmittal forms.

1.05 CONTRACTOR'S DUTIES

A. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.

B. Coordinate submittals with requirements of Work and of Contract Documents.

C. Submittals or Accompanying Transmittal Letter Shall Contain:

1. Date of submission and dates of previous submissions when applicable.
2. Project title and number.
4. Names of subcontractor, supplier, and manufacturer.
5. Identification of product with Specification Section number.
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of work of materials.
8. Applicable standards, such as, ASTM or Federal Specification numbers.
9. Identification of revisions on resubmittal.
10. Additional information required by Contract Documents.
11. CONTRACTOR executed review and approval marking or stamp.
12. Blank space for County representative's and Consultant's action marking or stamp.
13. CONTRACTOR to carefully check all submittals and be responsible for dimensions, quantity etc. necessary to make a complete project in compliance with plans and specifications.

D. Clearly identify on submittals, or in writing at time of submission, deviations in submittals from requirements of Contract Documents. CONTRACTOR's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by County's representative's and Consultant's review of submittals unless Consultant furnishes written recommendation of acceptance of specific deviations to the County's representative and the County's representative provides written acceptance to CONTRACTOR.

E. Apply CONTRACTOR's mark or stamp, sign, and date, Signature of CONTRACTOR's authorized person certified verification of products, verification of field measurements and field construction criteria, and coordination of information within submittal with requirements of work and of Contract Documents. Submittals without CONTRACTOR's executed mark or stamp and signature will be returned without disposition.

F. Submittals that are received from sources other than through CONTRACTOR's office will be returned without action. Delays resulting there from shall be CONTRACTOR's responsibility.

G. Package each submittal appropriately for transmittal and handling.

H. Distribute reproductions of shop drawings, copies of product data, and samples, which bear Consultant's stamp of approval, to jobsite file, record documents file, subcontractors, suppliers and other entities requiring information.

I. Do not fabricate products or begin work, which required submittals until return of submittal with Consultant's and County's representative's acceptance.
1.06 COUNTY’S REPRESENTATIVE’S AND CONSULTANT’S ACTION:

A. Where action and return is required or requested, Consultant will review each submittal, mark with action. County’s representative will forward all comments from the Consultant.

1. Where submittal must be held for coordination, CONTRACTOR will be so advised.

2. Return submittals to CONTRACTOR for distribution or for resubmission.

B. Final Unrestricted Release: When submittal is returned marked “No Exceptions Taken”, work may proceed, provided it complies with Contract Documents.

C. Final-But-Restricted-Release: When submittal is returned marked “Note Markings”, Work may proceed, provided it complies with notations and corrections on submittal and with Contract Documents.

D. Returned for Resubmittal:

1. When submittal is returned marked “Revise and Resubmit” or is unmarked, do not proceed with Work.

2. Revise submittal in accordance with notations and resubmit without delay to obtain difference action marking.

E. Other Action: Where submittal is returned for other reasons, with the County’s representatives’ or Consultant’s explanation included, it will be marked “Not Accepted”.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

ATTACHMENTS:

Submittal Transmittal
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<th>Attention:</th>
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</table>

DEVIATIONS: None __________: As Listed __________

SPACE REQUIREMENTS: As Designed __________; Different and as Listed __________

THIS SUBMITTAL CONSISTS OF (SELECT):

- [ ] Product Data
- [ ] Shop Drawings
- [ ] Installation Instructions
- [ ] Material Schedule
- [ ] Maintenance Instructions
- [ ] Manufacturer's Test Report
- [ ] Manufacturer's Approval of Applicator/Installer
- [ ] Others (include list)

Quantity: __________ Description: ___________________________
Samples

Check one of the following:

Submitted □ Resubmitted □

By ________________________________
Date ________________________________

Signature

SUBMITTAL TRANSMITTAL REVIEW

Consultant’s project # ____________________________ Consultant’s tracking # ____________________________

☐ NO EXCEPTIONS TAKEN ☐ NOTE COMMENTS ☐ REJECTED ☐ RESUBMIT

CONSULTANT’S COMMENTS:

__________________________________________________________

__________________________________________________________

__________________________________________________________

By ________________________________ Date ________________________________

Signature

County’s representative’s COMMENTS:

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

By ________________________________ Date ________________________________

Signature

Note: Notations do not authorize changes to contract price or time. If you are authorized to proceed with the work identified in this submittal, it is assumed that no change in the contract amount or completion date is required. If a change in the work affecting your contract price or completion date is involved, notify the PM immediately in accordance with the contract documents.
DIVISION 1 SPECIFICATIONS
SECTION 01770 – PROJECT CLOSEOUT

PART 1: GENERAL

1.01 PRELIMINARY PROCEDURES

A. Before requesting inspection for certification of Substantial Completion, complete the following:

1. All security systems, electrical systems and life safety systems must be completed, tested, approved and demonstrated.

2. Landscape irrigation systems, where applicable, must be completed, tested, approved and demonstrated.

3. Master and grand master keys must be delivered in sealed containers to the Contract Administrator. Keys must be labeled to identify where keys are used for the finished work.

4. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

5. Advise BCAD Risk Manager and Contract Administrator, through the County's representative, of pending insurance change-over requirements.

6. Prepare specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents for submittal to the County’s representative.

7. Obtain and submit releases enabling the Contract Administrator unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.

8. Submit As-built drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, training reports and similar final record information to the County’s representative.

9. Deliver tools, spare parts, extra stock, and similar items as specified in respective specification sections of Divisions 2 through 16.
10. Make final change-over of permanent locks and transmit master and grand master keys to the Contract Administrator.

11. Advise the Contract Administrator's personnel of pending change-over in security provisions.

12. Complete start-up testing of systems, and instruction of the COUNTY's operating and maintenance personnel.

13. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.

14. Complete final clean up requirements.

1.02 CONTRACTOR'S REQUEST FOR INSPECTION

A. When the CONTRACTOR considers that the Work, or a portion thereof which the Contract Administrator agrees to accept separately, is substantially complete, the CONTRACTOR shall prepare and submit to the Consultant a Request for Substantial Completion Inspection including a comprehensive list of items to be completed or corrected. In addition to the contract forms, the following forms are required for Project Closeout:

1. Contractor's Request for Substantial Completion Inspection form – 01770A
2. Notification of Readiness for Substantial Completion Inspection form – 01770B
3. Substantial Completion Inspection form – 01770C
4. Substantial Completion Inspection Punch List form – 01770D
5. Letter Establishing Substantial Completion Date form – 01770E
6. Contractor's Request for Final Completion Inspection form – 01770F
7. Notification of Readiness for Final Completion Inspection form – 01770G
8. Letter Establishing Final Completion Date form – 01770H
9. FAA Construction Project Closeout Checklist form – 01770I

B. The CONTRACTOR shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract Documents.
C. Project Closeout Submittals: Project closeout submittals required by the Contract Documents for the Work, or a portion thereof, shall be submitted by the CONTRACTOR prior to the time of his request.

1.03 COUNTY's REPRESENTATIVE'S DETERMINATION OF READINESS

A. Upon receipt of the CONTRACTOR's Request for Substantial Completion Inspection, form 01770A, the County's representative and Consultant will make a preliminary inspection to determine whether the Work or designated portion thereof is appropriately ready for a Substantial Completion Inspection.

B. The County's representative will notify the Contract Administrator and the CONTRACTOR of the results of his inspection by completing and distributing the Consultant's Notification of Readiness for Substantial Completion Inspection, form 01770B

1. If the County's representative and Consultant's inspection discloses any item, whether or not included on the CONTRACTOR's list, which is not in accordance with the requirements of the Contract Documents and which would preclude beneficial occupancy and would render the Work not Substantially Complete, the CONTRACTOR shall correct such item upon receipt of the County's representative's Notification. The CONTRACTOR shall then submit another request for inspection by the County's representative and Consultant to determine the completion status of the Work or designated portion thereof.

2. When the County's representative and Consultant judges that the Project may be substantially complete in accordance with the terms of the Contract Documents, County's representative will notify the Contract Administrator that the Work, or portion thereof, is ready for the Contract Administrator's Substantial Completion Inspection.

1.04 OCCUPANCY INSPECTION

A. The Municipal or County Building Departments having jurisdiction will conduct an inspection for the purpose of determining that the Work, or portion thereof, is in compliance with the statutes, rules, and codes affecting the health and safety of the occupants.

B. CONTRACTOR shall obtain from the jurisdictional Building Department a Certificate of Occupancy or Certificate of Completion authorizing occupancy of the Work, or portion thereof.
1. The CONTRACTOR shall be responsible for corrections to discrepancies noted by the jurisdictional Building Department, except for items identified which is not part of the requirements of the Contract Documents.

2. Corrections to identified discrepancies which are not part of the requirements of the Contract Documents will be made by the COUNTY.

C. Obtaining a Final Certificate of Occupancy or Certificate of Completion from the Jurisdictional Building Department is a pre-requisite to the CONTRACTOR achieving Substantial Completion.

1.05 SUBSTANTIAL COMPLETION INSPECTION

A. The Contract Administrator, upon notification from the County's representative that the Work, or a portion thereof, may be substantially complete and all project closeout submittals pertaining to the Work, or portion thereof, have been approved and forwarded to the Contract Administrator, will direct the County's representative to schedule and coordinate the Contract Administrator's Substantial Completion Inspection, form 01770 C.

B. The Substantial Completion Inspection will be conducted by the County's representative and Consultant, the Contract Administrator, and the CONTRACTOR.

C. The following CONTRACTOR representatives shall attend and conduct the Substantial Completion Inspection:

1. CONTRACTOR Personnel:
   a. Project Manager
   b. Superintendent
   c. Plumbing Superintendent
   d. Mechanical Superintendent
   e. Electrical Superintendent
   f. Specialty Sub-contractors

D. Inspection Teams:

1. At the direction of the County's representative, inspection teams will be established at the project site based upon the following disciplines:
   a. Architectural/Civil
   b. Plumbing
   c. Mechanical
2. Each inspection team will be composed of specialty representatives of the Contract Administrator, County’s representative, Consultant and CONTRACTOR who will perform independently of each other.

3. Each team will appoint a Team Leader.

4. The County’s representative will provide each Team Leader with:
   a. Copy of the CONTRACTOR’s List of Deficiencies
   b. Floor and site plans (with the remainder of the Contract Documents available to the team).

E. At the Completion of the Substantial Completion Inspection, the County’s representative will issue a Substantial Completion Inspection report, form 01770C and Substantial Completion Punch List, form 01770D. Contract Administrator shall either approve or deny substantial completion of the Work, or portion thereof.

F. If Substantial Completion of the Work, or portion thereof, is denied, the CONTRACTOR shall promptly correct deficiencies noted which caused the denial of substantial completion within 30 calendar days. Upon correcting these deficiencies, the CONTRACTOR shall notify the County’s representative that these deficiencies are ready for re-inspection by submitting a new Request for Substantial Completion, form 01770B, at which time the County’s representative and CONTRACTOR will re-conduct the Contract Administrator’s Substantial Completion Inspection for substantial completion deficiencies only.

G. When Substantial Completion of the Work, or portion thereof, is granted, the County’s representative will issue Letter Establishing Substantial Completion Date form 01770E, to indicate the date of substantial completion.

1.06 READINESS FOR FINAL COMPLETION (ACCEPTANCE) INSPECTION

A. Deficiencies noted on or attached to Substantial Completion Inspection Report and Substantial Completion Inspection Punch List, must be completed prior to the Contract Administrator’s final completion inspection.
B. Upon correction of the punch list, the CONTRACTOR shall notify the County's representative and issue a Request for Final Completion Inspection, that the Work or portion thereof, is ready for the final completion punch list inspection.

C. Upon receipt of the CONTRACTOR's Request for Final Completion Inspection, form 01770F, the County's representative will determine whether the Work or designated portion thereof is complete. The County's representative will notify the CONTRACTOR of the results of his inspection by completing and distributing forms 01770F and 01770G.

1. If the County's representative identifies any item which is not in accordance with the requirements of the Contract Documents and which would render the Work not complete, the CONTRACTOR shall correct such item. The CONTRACTOR shall then submit another request for inspection by the County's representative to determine the completion status of the Work or designated portion thereof.

2. When the County's representative judges that the Project is complete in accordance with the terms of the Contract Documents, he will notify the Contract Administrator that the Work, or portion thereof, is ready for the Contract Administrator's final completion inspection.

1.07 CONTRACT ADMINISTRATOR'S FINAL COMPLETION INSPECTION

A. The Contract Administrator, upon notification from the County's representative that the Work, or a portion thereof, is complete will direct the County's representative to schedule and coordinate the Contract Administrator's final completion punch list inspection.

B. If Final Completion of the Work, or portion thereof, is denied, the CONTRACTOR shall promptly correct deficiencies noted which caused the denial of final completion within 30 calendar days.

C. Upon correcting these deficiencies, the CONTRACTOR shall notify the County's representative that these deficiencies are ready for re-inspection (by submitting a new CONTRACTOR's Request for Final Completion Inspection Punch List at which time the County's representative, Consultant, Contract Administrator, and CONTRACTOR will re-conduct the Contract Administrator's final completion punch list inspection.

1.08 FINAL COMPLETION DATE

A. When Final Completion of the Work, or portion thereof, is granted, the County's representative will issue the Letter Establishing Final Completion Date, form 01770H, to indicate the date of final completion.
B. Upon receipt of Letter Establishing Final Completion Date, the CONTRACTOR may make application for final payment.

C. If correction of Punch List is not fully completed within 60 calendar days, the COUNTY, at its option, may close out the Work or designated portion thereof, by deducting his estimate of the cost to correct the outstanding items and complete with Work.

1.09 FINAL ADJUSTMENTS OF ACCOUNTS

A. Submit a final statement of accounting to the County's representative.

B. Statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum.
2. Additions and deductions resulting from:
   a. Previous Change Orders.
   b. Deductions for uncorrected work.
   c. Deductions for liquidated damages.
   d. Deductions for re-inspection payments.
   e. Other adjustments provided in the Contract Documents.

3. Total Contract Sum, as adjusted.
4. Previous payments.
5. Sum remaining due.
6. The applicable Purchase Order Number issued by the COUNTY.

C. Submit Final Bill of Materials, itemizing all materials, labor, and equipment installed in the Work, including administrative costs, to County's representative.

1.10 FINAL APPLICATION FOR PAYMENT

Submit the final Application for Payment in accordance with procedure and requirements stated in the CONTRACTOR's agreement with the COUNTY.

1.11 REINSPECTION FEES

Should it be necessary for the County's representative to perform re-inspections due to the failure of the Work to comply with the claims of status of completion made by the CONTRACTOR:
1. The COUNTY will compensate the County's representative for such additional services.

2. COUNTY will deduct the amount of such compensation from the Contract Sum due to the CONTRACTOR.

1.12 PUNCH LIST COMPLETION

A. The facilities may be occupied by COUNTY during completion of all or a portion of the Punch List.

B. Complete Punch List work during the COUNTY's normal hours of operation.

C. Make arrangements concerning access and other than normal work hours with the County's representative.

PART 2 PRODUCTS - Not Used
PART 3 EXECUTION - Not Used

(Forms 01770A thru 01770H follow)
Contractor's Request for Substantial Completion Inspection

To:
(�roject Consultant)

Request No.: _____ Date: __________

Full Project
Designated Portion (Attach Description)

I hereby certify that I am an officer of the firm or corporation named herein and have been properly authorized to make the following statements concerning the project named above:

1. The above named project or designated portion thereof will be substantially complete in accordance with the contract requirements and ready (excluding the attached list of deficiencies) for inspection on:

2. The Date of Substantial Completion required by the Contract (as modified by any approved change orders affecting Contract Time) is:

3. I have assembled and attached complete sets of Operations and Maintenance Manuals and other required closeout documents along with my Contractor's List of Deficiencies that will not preclude Substantial Completion. I have also attached my Time Extension Request for any delays related to this portion of the Work.

4. Contractor and all of their subcontractors are up to date with all OCIP required documentation and/or Contractors' certificate of insurance is current and approved by Risk Management.

5. Certificate of Completion was issued on ____________________________

Submitted By:
Company Name &
Address:
Phone:

Distribution
Project Consultant
Field Construction Manager
Contractor's Surety
CPM (if applicable)
PMO (if applicable)

Attachments:
Contractor's List of Deficiencies
Applicable Closeout Documents
Time Extension Request (if applicable)

Notice to Contractor
Submit this form at least 10 calendar days prior to the requested inspection date to allow scheduling of the inspection.

Neither the determination by the Project Consultant that the Work is substantially complete, nor the acceptance thereof by the Owner, shall preclude subsequent claims against the Contractor for Work not meeting the requirements of the Contract or the warranty of the Work.
Notification of Readiness for Substantial Completion Inspection

Instructions for Project Consultant's Use: Provide this completed letter to notify the Owner that the Work, or a designated portion thereof, is ready for the Owner's Substantial Completion Inspection.

To:
(CPM or RPR as applicable)
Project No:
Project Title:
Facility Name:
Contractor:

Contractor's Request No.: Date:
[ ] Full Project
[ ] Designated Portion (Attach Description)

I have completed a preliminary site visit as a result of the Contractor's Request for Substantial Completion inspection and have found that:

[ ] The work, or designated portion thereof, will be ready to receive a Substantial Completion Inspection as requested by the Contractor on:

[ ] The work, or designated portion thereof, is not ready to receive a Substantial Completion Inspection. A listing of items which preclude Substantial Completion is attached to this letter.

Submitted By:
(Project Consultant)
Company Name & Address:
Phone:

Distribution
Aviation Asst Director Airport Development
BCAD PM and CA
CPM (if applicable)
PMO (if applicable)
Project File

Attachments:
Contractor's List of Deficiencies
Substantial Completion Inspection

<table>
<thead>
<tr>
<th>Project No:</th>
<th>Inspection Date:</th>
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</table>

Project Title:  
Facility Name:  

Representation:

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<th>Contractor:</th>
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Using Agency:  

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Airport Development Div:  

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<tr>
<th>CPM or PMO (if applicable):</th>
<th>Phone:</th>
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The attached pages 2 through list "punch items" noted as a result of the Substantial Completion Inspection, completed by the persons listed above.

- The punch list items are of a nature that will allow occupancy of the premises and are issued as a final punch list. If any item on the punch list is inaccurate, notify the Airport Development Division's Project Manager immediately. These punch list items shall be corrected on or before the mutually agreed date of.

- The punch list items are of a nature that precludes occupancy of the premises by the County and Substantial Completion is denied at this time. Items on the attached page 2 must be completed prior to requesting a re-inspection.

Remarks:

Recommended By:

(CPM, Consultant, PMO and RPR as applicable) Signature Title

Firm Name

Approved By [Broward County Airport Development Div]:

(BCAD PM) Signature Title

Accepted By:

(BCAD CA) Signature Title

Distribution: Contractor, Consultant, CPM and PMO, RPR (as applicable), Project File
## Substantial Completion Inspection – Punch List

**Project No:**
**Project Title:**
**Facility Name:**
**Contractor:**

### Inspection Date:
- [ ] Full Project
- [ ] Designated Portion (Attach Description)

- [ ] Preliminary Punch List
- [ ] Final (Edited) Punch List

<table>
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<tr>
<th>No.</th>
<th>Area</th>
<th>Item</th>
<th>Notes</th>
<th>Confirmed Corrections Completed</th>
<th>Date</th>
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</table>

Broward County Aviation Department
Substantial Completion Inspection – Punch List
CMA - Ko053613

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Letter Establishing Substantial Completion Date

Instructions for Project Consultant’s Use: Provide this completed letter to establish the Date of Substantial Completion of the Work or a designated portion thereof.

<table>
<thead>
<tr>
<th>To:</th>
<th>Contractor’s Request No.:</th>
<th>Date:</th>
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<tbody>
<tr>
<td>(Contract Administrator)</td>
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<td>Project No:</td>
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<td>Project Title:</td>
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<td>Facility Name:</td>
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<tr>
<td>Contractor:</td>
<td></td>
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</tbody>
</table>

On _____________ we completed the Substantial Completion Inspection for the project, or designated portion thereof, listed above.

I hereby certify that the General Contractor achieved Substantial Completion and the project, or designated portion thereof, was ready for beneficial occupancy on the following date: _____________ _____________

The date of Substantial Completion is the _____________ last date of Substantial Completion for this project, or a designated portion thereof, requested by the Contractor pursuant to the request number listed above.

By: (Project Consultant)

Firm Name: __________________________
Print Name: __________________________
Signature: __________________________

By: (Contractor)

Firm Name: __________________________
Print Name: __________________________
Signature: __________________________

Distribution:
- Director of Airport Development
- BCAO CA or PM
- Consultant
- Contractor
- Contractor Surety
- CPM (if applicable)
- RPR (if applicable)
- PMO (if applicable)

For Airport Development Division Use Only

☐ Date is acceptable; letter is hereby placed in Project Files as an official record.

________________________
BCAD Project Manager

Broward County Aviation Department
Letter Establishing Substantial Completion Date
CMA - KD 053013

Z1145017C1 / Terminal 4 Apron Expansion   Page 263 of 267   CON-3-15-2013
Contractor's Request for Final Completion Inspection

<table>
<thead>
<tr>
<th>To:</th>
<th>Request No.:</th>
<th>Requested No.:</th>
<th>Full Project</th>
<th>Designated Portion (Attach Description)</th>
</tr>
</thead>
</table>

I hereby certify that I am an officer of the firm or corporation named herein and have been properly authorized to make the following statements concerning the project named above:

1. The above named project or designated portion thereof will be substantially complete in accordance with the contract requirements and ready (including all punch list items) for inspection on:

2. The Date of Final Completion required by the Contract (as modified by any approved change orders affecting Contract Time) is:

3. I have attached a time extension request/change order proposal for any delays related to work required for completion of the punch list.

Submitted By:
Company Name & Address:
Phone:

Distribution:
- Project Consultant
- BODA PM and CA
- Contractor's Surety
- CPM (as applicable)
- PMO (as applicable)
- RPR (as applicable)

Attachments:
- Time Extension Request/Change Order Proposal
  (If applicable)

Notice to Contractor
Neither the determination by the Project Consultant that the Work is finally complete, nor the acceptance thereof by the Owner, shall preclude subsequent claims against the Contractor for Work not meeting the requirements of the Contract or the warranty of the Work.
Notification of Readiness for Final Completion Inspection

Instructions for Project Consultant’s Use: Provide this completed letter to notify the Owner that the Work, or a designated portion thereof, is ready for the Owner’s Final Completion Inspection.

To:

(CPM or RPR as applicable)

Project No:
Project Title:
Facility Name:
Contractor:

Contractor’s Request No.: Date:

☐ Full Project
☐ Designated Portion (Attach Description)

I have completed a preliminary site visit as a result of the Contractor’s Request for Final Completion inspection and have found that:

☐ The work, or designated portion thereof, will be ready to receive a Final Completion Inspection as requested by the Contractor on:

☐ The work, or designated portion thereof, is not ready to receive a Final Completion Inspection. A listing of items which preclude Final Completion is attached to this letter.

Submitted By:
(Project Consultant)
Company Name & Address:
Phone:

Signature
Title

Distribution
Aviation Asst Director Airport Development
Lead Design Consultant
BCAD PM and CA
CPM (if applicable)
PMD (if applicable)
RPR (as applicable)
Project File

Attachments:
Contractor’s List of Deficiencies
Letter Establishing Final Completion Date

Instructions for Project Consultant's Use: Provide this completed letter to establish the Date of Final Completion of the Work or a designated portion thereof.

To:  
(Contract Administrator)  
Project No:  
Project Title:  
Facility Name:  
Contractor:  
Contractor’s Request No.:  
Date:  
[ ] Full Project  
[ ] Designated Portion (Attach Description)

On ______________________________ we completed the Final Completion Inspection for the project, or designated portion thereof, listed above.

I hereby certify that the General Contractor achieved Final Completion and the project, or designated portion thereof, was ready for beneficial occupancy on the following date: ______________________________

The date of Final Completion is the last date of Final Completion for this project, or a designated portion thereof, originally requested by the Contractor. Evidence is provided by our signatures below that the Project Consultant and Contractor agree that this project was ready Finally Complete on the date of Final Completion listed above.

By:  
(Project Consultant)  
Firm Name:  
By:  
(Contractor)  
Firm Name:  

Distribution:  
Aviation Asst Director, Airport Development  
BCAD PM or CA Consultant  
Contractor  
CPM (if applicable)  
PMO (if applicable)  
RPR (if applicable)  
Project file  
Contractor Surety

For Airport Development Division Use Only  
[ ] Date is acceptable; letter is hereby placed in Project Files as an official record.

BCAD Project Manager

Broward County Aviation Department  
Letter Establishing Final Completion Date  
CMA - K5959013  

Document 017704  
Broward County Aviation Department  
Terminal 4 Apron Expansion Page 266 of 267  
CON-3-15-2013
END OF SECTION 01770 – PROJECT CLOSEOUT
FORM 1: BID TENDER

Print Name of Bidder: Tutor Perini Fort Lauderdale - Hollywood Venture

Date Submitted: August 7, 2013

The Board of County Commissioners
Broward County Governmental Center
115 South Andrews Avenue
Fort Lauderdale, Florida 33301

The undersigned, as Bidder, hereby declares that the only persons interested in this bid as principal are named herein and that no person other than herein mentioned has any interest in this bid or in the Contract to be entered into; that this bid is made without connection with any other person, firm, or parties making a bid; and that it is, in all respects, made fairly and in good faith without collusion or fraud.

The Bidder further declares that it has examined the site of the Work and informed itself fully of all conditions pertaining to the place where the Work is to be done; that it has examined the Contract Documents and all addenda thereto furnished before the opening of the bids, as acknowledged below; and that it has satisfied itself about the Work to be performed; and that it has submitted the required Bid Guaranty; and all other required information with the bid; and that this bid is submitted voluntarily and willingly.

The Bidder agrees, if this bid is accepted, to contract with Broward County, a political subdivision of the State of Florida, pursuant to the terms and conditions of the Contract Documents and to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation, and all labor necessary to construct and complete within the time limits specified, the Work covered by the Contract Documents for the Project titled: Terminal 4 Apron Expansion.

The Bidder also agrees to furnish the required Performance Bond and Payment Bond or alternative form of security permitted by COUNTY Procurement Code, each for not less than the total bid price plus alternates, if any, and to furnish the required Certificate(s) of Insurance/enrollment into OCIP.

The undersigned further agrees that the bid guaranty accompanying the bid shall be forfeited if Bidder fails to execute said Contract, or fails to furnish the required Performance Bond and Payment Bond or fails to furnish the required Certificate(s) of Insurance within fifteen (15) calendar days after being notified of the award of the Contract.

In the event of arithmetical errors, the Bidder agrees that these errors are errors which may be corrected by COUNTY. In the event of a discrepancy between the price bid in figures and the price bid in words, the price in words shall govern. Bidder agrees that any unit price listed in the bid is to be multiplied by the stated quantity requirements in order to arrive at the total.
The Bidder certifies that no principals or corporate officers of the firm were principals or corporate officers in another firm at the time such other firm has the bidder, its principals, officers or predecessor organization(s) been debarred or suspended from bidding by any government during the last three (3) years? If yes, provide details:

None

Acknowledgment is hereby made of the following addenda (identified by number) received since issuance of the bid solicitation:

Addendum No. 1, Addendum 2, Addendum 3

Attached is [check section that applies] a Bid Bond( X ), Cash( ), Money Order( ), Unconditional Letter of Credit( ), Treasurer's Check( ), Bank Draft( ), Cashier's Check( ), or Certified Check ( ), No. Bank of ________________ for the sum of 5% of the total bid amount ________________ Dollars ($______________).

The Bidder shall acknowledge this bid by signing and completing the spaces provided below.

Name of Bidder: Tutor Perini Fort Lauderdale - Hollywood Venture

Address: 5555 Anglers Avenue, Suite 1 A

City/State/Zip: Fort Lauderdale, FL 33312

Telephone/Fax No.: (954)964-6027 - Phone (954)964-0935 - Fax

Email Address: Hcheung@perini.com / Smithd@bakerconcrete.com

Federal I.D. No.: 45-332-4734 Dun and Bradstreet No.: 005442

(If applicable) If a partnership, names and addresses of partners:

Kevin J. Woods, 1000 Main Street, New Rochelle, NY 10801

Daniel Baker, 5555 Anglers Avenue, Fort Lauderdale, FL 33312
(Sign below if not incorporated)

WITNESSES:

(Sign below if incorporated)

ATTEST:

Secretary

(CORPORATE SEAL)

Incorporated under the laws of the State of

---

Tutor Perini Fort Lauderdale-Hollywood Venture

(Type or Print Name of Bidder)

Kevin J. Woods

(Signature)

Daniel L. Baker

(Signature and Title)

Incorporated under the laws of the State of
Bid Bond

CONTRACTOR:
(Tenue, legal status and address)
Tutor Perini Fort Lauderdale-Hollywood Venture
3575 NW 53rd Street
Fort Lauderdale, FL 33309

SURETY:
(Name, legal status and principal place of business)
Travelers Casualty and Surety Company of America
One Tower Square
Hartford, CT 06183

OWNER:
(Name, legal status and address)
Broward County Florida
115 S. Andrews Avenue, Room 212
Fort Lauderdale, FL 33301

BOND AMOUNT: $ 5% Five Percent of Amount Bid

PROJECT:
(Name, location or address and project number, if any)
Terminal 4 Apron Expansion - Bid/Contract No. Z1145017C1

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for any extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 22nd day of July, 2013

Tutor Perini Fort Lauderdale-Hollywood Venture
(Principal)

By:

(Witness)

Travelers Casualty and Surety Company of America
(Surety)

By:

(Witness)

FL Non Resident License No. W001277
POWER OF ATTORNEY

Farrington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

Surety Bond No. Bid Bond

Principal: Tutor Perini Fort Lauderdale-Hollywood Venture

OR

Project Description: Terminal 4 Apron Expansion - Bid/Contract
No. ZI145017C1

Obligee: Broward County Florida

KNOW ALL MEN BY THESE PRESENTS: That Farrington Casualty Company, St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, are corporations duly organized under the laws of the State of Connecticut, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc. is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint Nicole Roy of the City of Boston, State of MA, their true and lawful Attorney-in-Fact, to sign, execute, seal and acknowledge the surety bond(s) referenced above.

IN WITNESS WHEREOF, the Companies have caused this Instrument to be signed and their corporate seals to be hereto affixed, this 10th day of September, 2012.

State of Connecticut
City of Hartford ss.

By: ____________________________
Robert L. Raney, Senior Vice President

On this the 10th day of September, 2012, before me personally appeared Robert L. Raney, who acknowledged himself to be the Senior Vice President of Farrington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing Instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereto set my hand and official seal.

My Commission expires the 30th day of June, 2016.

Marie C. Tetreault, Notary Public
This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-In-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-In-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-In-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 22nd day of July 2013.

Kevin E. Hughes, Assistant Secretary

To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at www.travelersbond.com. Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.
Bid No.: Z1145017C1
Bid Title: Terminal 4 Apron Expansion
Using Agency: Aviation Department
Purchasing Agent: Sarah Townsend

Addendum 1 dated 7/18/13
REVISED Electronic Bid Pricing Sheets

Note: Complete ALL of the highlighted cells; unit prices entered will automatically calculate the total prices and total bid price. Refer to the Instructions to Bidders, Schedule of Prices Bid for further instructions. Unit prices provided are to be no more than two (2) decimal places.

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<td>1</td>
<td>G103-4.1</td>
<td>FAA CHANGE ALLOWANCE ACCOUNT</td>
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The values for Allowance Accounts are included in the awarded Contract Price, but are not chargeable against the Contract Price unless and until the Contractor is directed to perform work contemplated in the Allowance Accounts by a written CPEAM(s) issued by the County.

Continued on next page

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<td>PERFORMANCE &amp; PAYMENT BONDS</td>
<td>LS</td>
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Addendum 1 dated 7/18/13
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Bidding Division
www.brownrd.org/purchasing

**Bid No.: Z1145017C1**
**Bid Title: Terminal 4 Apron Expansion**
**Using Agency: Aviation Department**
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**Name of Bidder:** Tutor Perini Fort Lauderdale-Hollywood Venture
**Address of Bidder:** 5555 Anglers Avenue - Suite 1A
**Address of Bidder:** Fort Lauderdale, FL 33312

The Performance and Payment Guaranty (Pay Item G-100-4.1) and Mobilization & Non-OCIP Insurance (Pay Item G-100-4.2) prices bid are not to exceed 3% of the total amount bid. The 3% ceiling for Pay Items G-100-4.1 and G-100-4.2 is not a reflection of responsiveness; it is only the instruction on the maximum amount the County will pay for these items. Any amount in excess of 3% for Pay Items G-100-4.1 and G-100-4.2 shall be moved into Pay Item G-100-4.3.

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Bid No.: Z1145017C1  
Bid Title: Terminal 4 Apron Expansion  
Using Agency: Aviation Department  
Purchasing Agent: Sarah Townsend

### Addendum 1 dated 7/18/13  
REVISED Electronic Bid Pricing Sheets

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<td>21</td>
<td>P-151-4.1c</td>
<td>DEMO OF EXISTING PASSANGER BOARDING BRIDGE FOUNDATIONS</td>
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<td>23</td>
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**Addendum** dated 7/18/13

**REVISED Electronic Bid Pricing Sheets**

Bid No.: Z1145017C1

**Bid Title:** Terminal 4 Apron Expansion

Using Agency: Aviation Department

Purchasing Agent: Sarah Townsend

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**Note:** Complete ALL of the highlighted cells; unit prices entered will automatically calculate the total prices and total bid price. Refer to the instructions to Bidders, Schedule of Prices Bid for further instructions. Unit prices provided are to be no more than two (2) decimal places.

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**Name of Bidder:** Tutor Perini Fort Lauderdale-Hollywood Venture

**Address of Bidder:** 5555 Angola Avenue - Suite 1A

**Address of Bidder:** Fort Lauderdale, FL 33312

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Page 6 of 18
<table>
<thead>
<tr>
<th>Item No.</th>
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Note: Complete ALL of the highlighted cells; unit prices entered will automatically calculate the total prices and total bid price. Refer to the Instructions to Bidders, Schedule of Prices Bid for further instructions. Unit prices provided are to be no more than two (2) decimal places.
Addendum 1 dated 7/18/13
REVISED Electronic Bid Pricing Sheets

Purchasing Division
www.broward.org/purchasing

Bid No.: Z145017C1
Bid Title: Terminal 4 Apron Expansion
Using Agency: Aviation Department
Purchasing Agent: Sarah Townsend

Note: Complete ALL of the highlighted cells; unit prices entered will automatically calculate the total prices and total bid price. Refer to the instructions to Bidders, Schedule of Prices Bid for further instructions. Unit prices provided are to be no more than two (2) decimal places.

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<th>Item No.</th>
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<th>Unit of Measure</th>
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Name of Bidder: Tutor Perini Fort Lauderdale-Hollywood Venture
Address of Bidder: 5555 Anglers Avenue - Suite 1A
Fort Lauderdale, FL 33312
Note: Complete ALL of the highlighted cells; unit prices entered will automatically calculate the total price and total bid price. Refer to the instructions to Bidders, Schedule of Prices Bid for further instructions. Unit prices provided are to be no more than two (2) decimal places.

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Addendum 1 dated 7/18/13
REVISED Electronic Bid Pricing Sheets

Bid No.: Z1145017C1
Bid Title: Terminal 4 Apron Expansion
Using Agency: Aviation Department
Purchasing Agent: Sarah Townsend

Note: Complete ALL of the highlighted cells; unit prices entered will automatically calculate the total prices and total bid price. Refer to the instructions to Bidders, Schedule of Prices Bid for further instructions. Unit prices provided are to be no more than two (2) decimal places.

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Addendum 1 dated 7/18/13
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Bid No.: Z1145017C1
Bid Title: Terminal 4 Apron Expansion
Using Agency: Aviation Department
Purchasing Agent: Sarah Townsend

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Name of Bidder: Tutor Perini Fort Lauderdale-Hollywood Venture
Address of Bidder: 5555 Anglers Avenue - Suite 1A
Address of Bidder: Fort Lauderdale, FL 33312

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<td>Hand excavate, provide and install 4W4'' schedule 40 PVC concrete encased ductbank in earth/existing pavement/new pavement/PCC, complete in place.</td>
<td>LF</td>
<td>3,750</td>
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<td>16001-8</td>
<td>Core drill existing communications concrete pullbox in earth/existing pavement and connect to new ductbank system</td>
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<td>Provide and install new 60''x60''x60'' internal dimensions aircraft rated communications concrete pullbox installed in existing pavement/new pavement/PCC.</td>
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<td>Provide and install new 60&quot;x60&quot;x60&quot; internal dimensions H20 communications concrete pullbox installed in earth.</td>
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<td>Install FPL provided 98&quot;x163&quot; concrete pullbox installed in earth/existing pavement/new pavement/PCC.</td>
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<td>One 2&quot; schedule 40 PVC conduit concrete encased in earth/existing pavement/new pavement/PCC complete in place</td>
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<td>Directional bore 4W4&quot; HDPE schedule 40 conduits, 48&quot; deep beneath existing pavements/earth, complete in place</td>
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<td>Directional bore FPL provided 6W6&quot; HDPE schedule 40 conduits, 48&quot; deep beneath existing pavements/earth for FPL systems, complete in place.</td>
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Bid Title: Terminal 4 Apron Expansion
Using Agency: Aviation Department
Purchasing Agent: Sarah Townsend

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<tr>
<td>183</td>
<td>16001-23</td>
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<td>Provide and Install new 80' apron lighting pole and luminaires installed in earth/new pavement/PCC, complete in place.</td>
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<td>New security gate electrical, electrical pedestal and gate distribution system, complete in place.</td>
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<td>New wall mounted security camera electrical distribution system, complete in place.</td>
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<td>$7,108.00</td>
<td>$31,200.00</td>
</tr>
<tr>
<td>188</td>
<td>L-108-5.1</td>
<td>Hand excavate minimum 8&quot; wide x 28&quot; deep trench in earth.</td>
<td>LF</td>
<td>100</td>
<td>$42.27</td>
<td>$4,227.00</td>
</tr>
<tr>
<td>189</td>
<td>L-108-5.2</td>
<td>Hand excavate minimum 18&quot; wide x 36&quot; deep trench in earth.</td>
<td>LF</td>
<td>100</td>
<td>$56.28</td>
<td>$9,628.00</td>
</tr>
<tr>
<td>190</td>
<td>L-108-5.3</td>
<td>3/4&quot; x 20' ground rods connected to counterpoise wire.</td>
<td>EA</td>
<td>18</td>
<td>$188.00</td>
<td>$3,348.00</td>
</tr>
<tr>
<td>191</td>
<td>L-108-5.4</td>
<td>3/4&quot; x 10' additional ground rods sections.</td>
<td>EA</td>
<td>5</td>
<td>$62.00</td>
<td>$310.00</td>
</tr>
<tr>
<td>192</td>
<td>L-108-5.5</td>
<td>#6 bare solid AWG counterpoise conductor installed over new conduit system, complete.</td>
<td>LF</td>
<td>5,800</td>
<td>$810.00</td>
<td>$5,974.00</td>
</tr>
<tr>
<td>193</td>
<td>L-108-5.6</td>
<td>#8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/concrete pullbox system.</td>
<td>LF</td>
<td>12,800</td>
<td>$828.00</td>
<td>$17,152.00</td>
</tr>
<tr>
<td>194</td>
<td>L-108-5.7</td>
<td>#6, 600V, green insulated conductor installed in new and existing conduit/ductbank/concrete pullbox system.</td>
<td>LF</td>
<td>6,400</td>
<td>$312.00</td>
<td>$6,592.00</td>
</tr>
<tr>
<td>195</td>
<td>L-110-5.1</td>
<td>One 2&quot; schedule 40 PVC conduit concrete encased in new shoulder pavement/PCC complete in place.</td>
<td>LF</td>
<td>4,200</td>
<td>$555.00</td>
<td>$34,692.00</td>
</tr>
</tbody>
</table>

Name of Bidder: Tutor Perini Fort Lauderdale-Hollywood Venture
Address of Bidder: 5555 Anglers Avenue - Suite 1A
Fort Lauderdale, FL 33312
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Spec. No.</th>
<th>Item Description</th>
<th>Unit of Measure</th>
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<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>196</td>
<td>L-110-5.2</td>
<td>One 2&quot; schedule 40 PVC conduit concrete encased in earth, complete in place.</td>
<td>LF</td>
<td>1,100</td>
<td>$6.20</td>
<td>$6,820.00</td>
</tr>
<tr>
<td>197</td>
<td>L-110-5.3</td>
<td>One 2&quot; schedule 40 PVC conduit concrete encased in existing full strength pavement, complete in place.</td>
<td>LF</td>
<td>100</td>
<td>$12.20</td>
<td>$1,239.00</td>
</tr>
<tr>
<td>198</td>
<td>L-110-5.4</td>
<td>One 2&quot; HDPE schedule 40 PVC conduit directional bored 48&quot; deep beneath existing full strength and shoulder pavements complete in place.</td>
<td>LF</td>
<td>550</td>
<td>$11.00</td>
<td>$6,050.00</td>
</tr>
<tr>
<td>199</td>
<td>L-110-5.5</td>
<td>Locate and intercept existing conduit system and connect to new conduit system.</td>
<td>EA</td>
<td>5</td>
<td>$10.00</td>
<td>$130.00</td>
</tr>
<tr>
<td>200</td>
<td>L-115-5.1</td>
<td>New L-867 16&quot; light base can with 1/2&quot; steel cover installed in earth, complete.</td>
<td>EA</td>
<td>3</td>
<td>$72.00</td>
<td>$2,169.00</td>
</tr>
<tr>
<td>201</td>
<td>L-115-5.2</td>
<td>Intercept existing light base can in earth/existing paved shoulder, connect to conduit system and extend circuit accordingly.</td>
<td>EA</td>
<td>4</td>
<td>$80.00</td>
<td>$332.00</td>
</tr>
<tr>
<td>202</td>
<td>L-125-5.1</td>
<td>New L-861T(L) taxiway elevated edge light and new L-867 base can installed in earth/new paved shoulder.</td>
<td>EA</td>
<td>42</td>
<td>$1138.00</td>
<td>$47,712.00</td>
</tr>
<tr>
<td>203</td>
<td>L-125-5.2</td>
<td>New L-861T(L) taxiway elevated edge light and new L-867 base can installed in existing paved shoulder.</td>
<td>EA</td>
<td>1</td>
<td>$1,652.00</td>
<td></td>
</tr>
<tr>
<td>204</td>
<td>L-125-5.3</td>
<td>Intercept existing circuit conductors in existing base can/concrete pullbox/junction can and extend circuits accordingly.</td>
<td>EA</td>
<td>16</td>
<td>$124.00</td>
<td>$1,984.00</td>
</tr>
<tr>
<td>205</td>
<td>L-125-5.4</td>
<td>Identification of cables, ductbanks and lighting fixtures per FAA specifications.</td>
<td>LS</td>
<td>1</td>
<td>$300.00</td>
<td>$300.00</td>
</tr>
<tr>
<td>206</td>
<td>L-125-5.5</td>
<td>Provide and maintain temporary wiring and conduits for lighting, signage and NAVAIDS during construction.</td>
<td>LS</td>
<td>1</td>
<td>$1,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>207</td>
<td>L-125-5.6</td>
<td>Removal of existing junction can/light base can in earth/existing pavement, complete.</td>
<td>EA</td>
<td>32</td>
<td>$30.00</td>
<td>$960.00</td>
</tr>
<tr>
<td>208</td>
<td>L-125-5.7</td>
<td>Removal of existing aircraft rated/FAA concrete pullbox in earth/existing shoulder pavement, complete.</td>
<td>EA</td>
<td>1</td>
<td>$155.00</td>
<td></td>
</tr>
</tbody>
</table>
Addendum 1 dated 7/18/13
REVISED Electronic Bid Pricing Sheets

Broward County
Purchasing Division
www.broward.org/purchasing

Bid No.: Z1145017C1
Bid Title: Terminal 4 Apron Expansion
Using Agency: Aviation Department
Purchasing Agent: Sarah Townsend

Note: Complete ALL of the highlighted cells; unit prices entered will automatically calculate the total prices and total bid price. Refer to the Instructions to Bidders, Schedule of Prices Bid for further instructions. Unit prices provided are to be no more than two (2) decimal places.

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<td>209</td>
<td>L-125-5.8</td>
<td>New L-810 led obstruction lighting and grounding system for new blast fence, complete in place.</td>
<td>LS</td>
<td>1</td>
<td>$20,700.00</td>
<td>$20,700.00</td>
</tr>
<tr>
<td>210</td>
<td>L-126-5.1</td>
<td>New size 3, 2 module guidance sign and concrete base installed in earth/new paved shoulder.</td>
<td>EA</td>
<td>3</td>
<td>$7,800.00</td>
<td>$23,400.00</td>
</tr>
<tr>
<td>211</td>
<td>L-126-5.2</td>
<td>New size 3, 3 module guidance sign and concrete base installed in earth/new paved shoulder.</td>
<td>EA</td>
<td>3</td>
<td>$81,000.00</td>
<td>$39,000.00</td>
</tr>
<tr>
<td>212</td>
<td>L-126-5.3</td>
<td>New size 3, 4 module guidance sign and concrete base installed in earth/new paved shoulder.</td>
<td>EA</td>
<td>1</td>
<td>$19,600.00</td>
<td>$9,800.00</td>
</tr>
<tr>
<td>213</td>
<td>L-126-5.4</td>
<td>Removal of Existing 2 Module Guidance Sign and Concrete Base, Complete.</td>
<td>EA</td>
<td>1</td>
<td>$300.00</td>
<td>$300.00</td>
</tr>
<tr>
<td>214</td>
<td>L-126-5.5</td>
<td>Removal of Existing 3 Module Guidance Sign and Concrete Base, Complete.</td>
<td>EA</td>
<td>4</td>
<td>$400.00</td>
<td>$1,600.00</td>
</tr>
</tbody>
</table>

BID ITEMS SUBTOTAL (LINES 8 THRU 214) $33,097,250.00

Total Bid Amount (Allowance Items 1 thru 7 and Bid Items 8 thru 214) $37,964,000.00

Abbreviations:
Allow. = Allowance CF = Cubic Foot CY = Cubic Yard EA = Each ED = Each Day F & I = Furnish and Install FT = Foot GAL = Gallon HT = Height IN = Inch LF = Linear Foot N/A = Not Applicable SY = Square Yard SF = Square Foot TON = Ton LS = Lump Sum

DATE PREPARED: August 7, 2013
PREPARED BY (NAME OF PREPARER): Kevin J. Woods
Addendum 1 dated 7/18/13
REVISED Electronic Bid Pricing Sheets

Bid No.: Z1145017C1
Bid Title: Terminal 4 Apron Expansion
Using Agency: Aviation Department
Purchasing Agent: Sarah Townsend

Note: Complete ALL of the highlighted cells; unit prices entered will automatically calculate the total prices and total bid price. Refer to the Instructions to Bidders, Schedule of Prices Bid for further instructions. Unit prices provided are to be no more than two (2) decimal places.

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Name of Bidder: Tutor Perini Fort Lauderdale-Hollywood Venture
Address of Bidder: 5555 Anglers Avenue - Suite 1A

NAME OF COMPANY: Tutor Perini Fort Lauderdale-Hollywood Venture
AUTHORIZED SIGNATURE:

By signing this bid pricing sheet, your firm is agreeing to the terms and conditions of this bid.
**ADDENDUM NO. 3**

**Solicitation No.:** Z1145017C1  
**Solicitation Title:** Terminal 4 Apron Expansion  

**Date Of Addendum:** July 26, 2013

**Attention all potential bidders:**

☑ **Must Addendum:** Read carefully and follow all instructions. Information included in this Addendum will have a material impact on the submittal for this solicitation. All “MUST” addenda are considered a matter of responsiveness. “MUST” addenda must be returned with your Bid Submittal or acknowledged on the Bid Tender Form. Failure of a Submitter to acknowledge the addendum shall be cause for rejection of the bid.

☑ Return Addendum with Bid Submittal or Acknowledge on the Bid Tender Form

To all prospective bidders, please note the following changes and clarifications:

Words in strikethrough type are deletions from existing text. Words in **bold underlined** type are additions to existing text.

1. **The Bid Opening Date has been revised as follows:** August 7, 2013 at 2:00 p.m. Location remains the same. In accordance with the Instructions to Bidders, there shall be no obligation on the part of the County to respond to questions received less than 14 calendar days prior to bid opening. In order to maintain the project schedule, further Requests for Information will not be addressed.

2. Some of the following Request for Information (RFI) questions have been condensed for clarity.

3. **Question:** Bid Item 28 “Unsuitable Excavation” – further clarification of the area in question (in any given location within the former dump site/landfill area east edge of project). If we are able to excavate to subgrade, without encountering any unsuitable material, and then achieve the appropriate density requirements, will that be considered an acceptable situation? Will we only be directed to remove any unsuitable material when it is encountered or at any time will we be directed to remove any “anticipated” unsuitable material (that which may be reflected on the soil borings which would be separated by an unspecified layer of good (suitable) material)? If we are directed to remove any “anticipated” unsuitable material, which is below subgrade and separated by a layer of good (suitable) material, how will we be compensated for the excavation of the good (suitable) material volume prior to reaching the unsuitable material? Related to the previous question: Please clarify how both the replacement of the unsuitable material (disposed of) and the replacement of that layer of good (suitable) material (removed and stockpiled in order to access the unsuitable material) will be compensated?

**Answer:** All anticipated unsuitable material as shown in the provided geotechnical borings shall be
removed. Removal of this material shall be compensated under Item P-152-4.2 Unsuitable Excavation. Removal and replacement of suitable material which is encountered in removing the unsuitable material may be stock piled and will be compensated for under Item P-152-4.1 Unclassified Excavation. No payment shall be made for double handling of suitable material paid for under P-152-4.1, this price shall be full compensation for removal, stockpile, and reuse on site or removal from the site. Replacement on the unsuitable material which cannot be accomplished utilizing stockpiled on-site unclassified excavation shall be paid for under Item P-152-4.3 Borrow Excavation.

4. **Question:** There is a 10.5" Limerock Base thickness reflected in the typical sections (HMA Pavement Section (Temp) & Type BT – Buried Transition Joint). Will you be providing an additional bid line item for this?
   **Answer:** Refer to Addendum No. 2 Item Nos. 2 and 3.

5. **Question:** Bid Item 33 “Contaminated Soil Disposal” – The technical specification section P-159-4 addresses the removal and disposal of the material. If required and necessary how will the replacement of that material be compensated?
   **Answer:** Replacement of the removed contaminated soil which cannot be accomplished utilizing stockpiled on-site P-152-4.1 Unclassified Excavation shall be paid for under Item P-152-4.3 Borrow Excavation.

6. **Question:** In addendum #1 the answer to question #26 regarding the restriction of non slip form paving to less than 500 square yards affirms the owner/engineer have determined it is in their best interest to keep that restriction in place. In further reviewing the contents of addendum #1, more specifically the DBE Goal Methodology Statement (GMS), the logic for the 22% DBE goal is detailed. On the second page, the bottom paragraph entitled STEP 2 BASE GOAL ADJUSTMENT, therein is described the adjustments due to the specialized nature of portions of the work. Therein are listed "Bonds and Mobilization, Allowance Accounts, and Concrete Paving & Base Course"...do not provide subcontracting opportunities. In addition, the copes for Maintenance of Traffic and Grading, Excavation lack DBE availability..." Although weighted availability for all scopes is 51.28%, this number is not representative..." The exclusion of the four (4) scopes of work results in a total DBE subcontracting potential of 29.06%." This is not mathematically correct based upon the numbers contained in "Table 1". Bonds and Mobilization has a weighted value of 0.17%, Concrete Paving & Base Course a weighted value of 35.04%, Maintenance of Traffic a weighted value of 0.08%, Grading and Excavation a weighted value of 5.29%, and there is no calculation for the $4,866,750 for the Allowance Accounts. Subtracting the aforementioned weighted values from the 51.28% total weighted availability, results in a total DBE subcontracting potential of 10.7% not the "total subcontracting potential of 29.06%" calculated. If the same logic is continued, using the 75% factor due to FAA grant funding, the end result is an 8.025% DBE goal for the project. Please make the requisite corrections to the DBE goal for the project.
   **Answer:** The calculations made in establishing the 22% DBE goal are mathematically correct. The calculations shown in the bidder’s RFI are not reflective of the methodology used in setting the DBE goal. The adjusted percentages in the scopes of work available for subcontracting total 29.06%; modified by the expected federal contribution of 75%, this number is adjusted to 21.80% and rounded to 22%. The assigned 22% DBE goal applies to the entire value of the award amount, including allowances. The DBE goal for this solicitation will not be modified.

7. **Question:** In addendum #1 the answer to question #24 regarding unsuitable excavation is to refer to the soil borings indicating construction debris, peat, etc. specifically Soil Boring TB-AP-43 as an example. Per the specifications section 152-1.3 included herein "152-1.3 Unsuitable Excavation. Any
material containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction and disposed of offsite. Material, when approved by the Engineer as suitable to support vegetation, may be used on the embankment slope." This specification clearly does not include debris. As previously stated the soil borings clearly show the existence of a dump site, not unsuitable excavation as per the specifications. Additionally the bid quantity stated is 100,000 cy. As stated in addendum #1 "To ensure competitiveness, bidders are to utilize the quantities identified in the electronic bid sheets included in the solicitation." Provide a revised bid quantity for this item.

**Answer:** ADD to Specification Section P-152-1.3 the **bold underlined text:**

Unsuitable Excavation. Any material containing vegetable or organic matter, such as muck, peat, organic silt, debris or sod shall be considered unsuitable for use in embankment construction and disposed of offsite. Material, when approved by the Engineer as suitable to support vegetation, may be used on the embankment slope.

Contractor may re-use stockpiled on-site suitable material paid for under Item P-152-4.1 Unclassified Excavation or P-152-4.3 Borrow Material to backfill removed unsuitable material as needed to meet final grades as shown in the design plans. No change to the bid quantity.

8. **Question:** In addendum #1 the answer to question #25 regarding unsuitable subsurface materials is "An estimated quantity of unsuitable materials is included in Bid Item No. 28 based on existing boring logs contained in the contract documents. It is the contractor's responsibility to excavate and dispose of unsuitable materials as indicated in specifications section P-159-2.1." First, as shown above the unsuitable excavation specification does not include debris. Second, specification section P-159 deals with contaminated soil. Is the engineer stating that the existing dump site is contaminated? If that is the engineer's speculation then provide the laboratory analytical results of the soil samples collected. Either this dump site is contaminated or it contains unsuitable subsurface material (debris) that will need to be excavated and disposed of. Provide a bid item with revised quantities for unsuitable subsurface material.

**Answer:** The only known contaminated soil is located at the South Terminal Site as shown in the Terminal 4 Apron Expansion Volume 3 (East Sheets) ENV Series plan sheets. No change to bid items or quantities.

9. **Question:** In addendum #1 the answer to question #28 regarding remediation activities location is to refer to the east sheets ENV 01.00. Plan sheet ENV 01.00 shows a number of irregular dotted, dashed, dotted and dashed and solid lines which appear to be within FLL only by inclusion in the contract documents. The question asked was for the engineer to provide the location of the area to be remediated. Provide the actual location based upon the coordinate data that the rest of the project is based on. As to performing this work during phase E, the limits of phase E will need to be extended to include this area.

**Answer:** The limits of anticipated contamination are provided based on the results from sampling events associated with the preparation and acceptance of the Remedial Action Plan. As stated on Sheet ENV01.02 Note 1 Prior to remediation activities, the contractor is required to present a summary of current monitoring well data. Bid shall be based on approximate limits of contamination as shown.

10. **Question:** In addendum #1 the answer to question #21 regarding the proposed schedule for construction of Terminal 4 is that a schedule is not available. At the pre-bid conference a statement was made that a schedule would be available. The terms and conditions state that the time stops after phase A-2 and E are substantial complete and will resume no earlier than April 1, 2015. After the resumption date there are numerous milestones and durations which compiled in total shows an...
earliest final completion date of December 2017. Without a schedule for Terminal 4 which is directly related to the resumption date shown in the terms and conditions there isn't any way to anticipate when this project will finally be completed. Provide an accurate date of resumption or provide a means for cost escalation if the resumption date is not met.

Answer: Construction Contract Documents Section 2 – Summary of Terms and Conditions outlines the Project Milestones, Milestone Durations, and applicable Liquidated Damages.

11. Question: In addendum #1 the answer to question #17 regarding providing a bid item for 24" Compacted Subgrade as shown in the pavement details is to utilize Bid Item Nos. 30 and 31. The answer to question 31 regarding subgrade preparation is "For bid item 30 - the contractor shall create 24" of subgrade using existing limerock to achieve a CBR of 13.2 or better. Bid Item 31 includes areas where limerock is not present and the 24" of subgrade will need to meet CBR 13.2 by blending rock with native materials if acceptable or import CBR 13.2 materials for the 24". Basically it appears that the engineer intends for the bidder to prepare a 24" subgrade achieving a CBR of 13.2 or better. Is this correct? The terminology "Subgrade Preparation With Surface Compaction and Subgrade Preparation With 24" Deep Compaction" first and only appeared during the bidding process for WP-304, WP-305 which is the runway project. These new bid items were conceived to address the areas of the runway where the subgrade has been placed by others. Reference the plan details that clearly show 24" Compacted 100% Max Density P-152 Spec. Reference P-152 Specification section 152-1.4 SUBGRADE PREPARATION. Subgrade preparation shall consist of compaction of the subgrade under paved areas to meet the compaction requirements outlined within this specification and depicted on the typical plan sections. This item will include the removal and recompaction of the in-place subgrade material to meet the density requirements in the top 24-inches of subgrade under the pavement section. This item does not include the placement of any subbase or base material. Furthermore the P-152 Specification section 152-3.4 The quantity for Subgrade Preparation with Surface Compaction to be paid for shall be the number of square yards of existing subgrade not requiring additional compaction effort to meet the density requirements as specified after testing (by the Contractor) in cut areas in accordance with P-152-2.11. Testing in cut areas by the Contractor is incidental to this work. The above answer to question 31 contradicts P-152 Specification section 152-3.4. Is the engineer's intention that the bidder provides a 24" subgrade which is defined as the top 24" of material immediately under the proposed pavement section as shown in the documents and that this section shall consist of a homogenous blend of materials achieving a CBR of 13.2 or better? If that is the case provide a bid item for 24" Compacted Subgrade or delete the typical section shown on the plan sheets. Will the FAA accept surface testing as representative of a 24" subgrade and pay accordingly.

Answer: The Engineer's Intent is to provide a 24" compacted subgrade under all proposed pavement that achieves a minimum CBR of 13.2 and meets the required density. As can be seen in the Contract Documents, a majority of the proposed paving work will be performed over existing pavement surface. It is anticipated that the areas under existing pavement cut areas will meet these requirements, thus not requiring further compaction. For areas under existing pavement where the existing subgrade does not meet these requirements, required improvements to the subgrade (i.e. subgrade preparation) as required to provide a 24" compacted subgrade with a minimum CBR of 13.2 and the required density will be compensated for under Item P-152-4.5. Any fill areas shall be compensated under P-152-4.1 Unclassified Excavation utilizing on-site stockpile suitable material if available or P-152-4.3 Borrow Excavation. For both items P-152-4.1 Unclassified Excavation and P-152-4.3 Borrow Excavation subgrade preparation is consider incidental.
12. Question: Please clarify whether or not the concrete needs to be produced in a central mix plant and delivered in non-agitating trucks, according to section 501-1.1.
Answer: Refer to Addendum No. 2 Item No. 6.

13. Question: Please clarify the joint width on detail 7&8 on page C11.33.
Answer: Joint width for Detail 7 Contraction Joint and Detail 8 Construction Joint on Volume 2 Terminal 4 Apron Expansion (West Sheets) and Volume 3 Terminal 4 Apron Expansion (East Sheets) C11.33 shall be 3/8" ± 1/16". Sheet C11.33 has been revised accordingly.

14. Question: There is a discrepancy between the dowels on C11.33. Detail 2&4 state a 1/4" diameter x 20" long x 15" center. The chart at the bottom of the page states 1-1/2" diameter dowel x 20" length x 18" Spacing. Please clarify the dowel size and spacing.
Answer: Dowel size and spacing shall be as shown in the table. Volume 2 Terminal 4 Apron Expansion (West Sheets) and Volume 3 Terminal 4 Apron Expansion (East Sheets) C11.33 has been revised accordingly.

15. Question: Do the fittings for water, sewer and the pump station have to be Buy America?
Answer: Steel and manufactured goods shall meet Buy America standards. In addition, water, sewer and pump station goods shall meet Broward County Water and Wastewater Services standards. Refer to www.dot.gov/highlights/buyamerica.com for more information on Buy America.

16. Question: Where do we get paid for installing the 2" water service and fitting?
Answer: Include in Bid Item No. 136 15060-55 Lift Station 31-NEW.

17. Question: Is an on-site batch plant required or can we purchase from a ready mix plant close by?
Answer: Refer to Addendum No. 2 Item No. 6.

18. Question: Plan sheet East C05.01 shows 2" K Copper, 2" Gate Valve & Box, 2" 90. Which pay item will this work be measured and paid?
Answer: Include in Bid Item No. 136 15060-55 Lift Station 31-NEW.

Answer: Refer to Addendum No. 1 Item Nos. 10 and 13.

20. Question: Bid Item # 68 Cleaning of Existing 84"/96" RCP start and end points for proposed cleaning are not clear. Can start and end points for proposed cleaning be provided?
Answer: Existing 84"/96" RCP shall be cleaned within the project work area as indicated by Specification Section D-751-6 Cleaning Out of New and Existing Structures, Paragraph 751-3.14.

21. Question: Bid Item # 71 Repairs to 84"/96" Joints- locations of joints to be repaired are not clear. Can repair joint locations be provided?
Answer: Joint information was provided in the Industrial Divers Inspection Report (Appendix A) included with the Bid Documents.

22. Question: No detail for capping the abandoned jet fuel lines are provided when and if conflicts require section removal. Can capping detail be provided if required?
Answer: The existing fuel lines will be abandoned by others as indicated by Note No. 3 on Volume 2 Terminal 4 Apron Expansion (West Sheets) C02.21 through C02.25 and Note No. 2 on Volume 3 Addendum Form 3 (rev 08/2012)
Terminal 4 Apron Expansion (East Sheets) C02.22 through C02.26 by grout filling. Capping of the lines shall not be required by the Apron Expansion Contractor. Contractor shall remove the abandoned fuel line, when encountered, as indicated by the Legend on Volume 2 Terminal 4 Apron Expansion (West Sheets) and Volume 3 Terminal 4 Apron Expansion (East Sheets) Utility Demolition Plan.

23. **Question:** Sheets C13.01 through C13.05 in Volume II and sheets C13.01 through C13.06 in Volume III contain the drawings for "Pavement Marking and Signage Plans"; however, temporary markings are not noted in the plans. Preformed thermoplastic pavement markings are not shown in the plans either. Can drawings with both temporary markings and preformed thermoplastic pavement markings specified be provided?

**Answer:** These bid items are provided in the event temporary markings and/or thermoplastic pavement markings are required due to final airfield phasing and MOT Plans developed by the Contractor.

24. **Question:** The Lift Station Information is not clear. Does the "existing lift station to be removed" shown on sheet C 02.33 (East set) need to have any equipment salvaged? Can this lift station be filled and abandoned in keeping with the other utilities in the area?

**Answer:** Specification Section 02750 Paragraph 1.02-B states that "Unless specifically shown to be salvaged, or at the request of the CPM, all pipe, valves, fittings, and appurtenances associated with the portions of the existing water and wastewater utilities which are to be removed shall be disposed of off-site by the Contractor. Disposal shall be in accordance with all applicable local, State and Federal regulations. The cost of disposal shall be borne by the Contractor." The lift station shall be removed in its entirety.

25. **Question:** The DBE Methodological Statement posted in Addendum 1 identifies concrete paving as the largest potential contributor toward meeting the project goals and ninety-eight (98) local firms qualified to perform the work. The Instruction to bidders Section 3, Paragraph 2-"The Prime Contractor shall have a work experience history of at least three (3) airfield concrete pavement construction projects with airfield electrical components, having placed approximately 20,000 square yards of Portland Cement Concrete (P-501) for Runway, Taxiway, or Apron Construction. The project must have been completed within the last ten (10) years or must be in the substantially complete phase. Work must have been performed at a large or medium hub airport as defined by the USDOT Air Traffic Hubs 2011." Being that the minimum Concrete Paving Experience is cited in the specifications. Do any of these ninety-eight (98) firms have the qualifications to utilize a centrally batch concrete, delivery by non-agitated trucks to slip form paving equipment for an airport operations area paving program such as those required in the Contract Documents?

**Answer:** The DBE Methodological Statement clearly identifies the scope of work for Concrete Paving & Base Course as having been excluded from consideration for purposes of establishing the DBE goal. The DBE goal for this solicitation will not be modified. All respondents are required to comply with the OESBD requirements as set forth in Addendum No. 1 to the solicitation document. It is the responsibility of the respondents to check the qualifications of the selected DBE firms for the scope of work to be performed.

26. **Question:** The pay Item number 24 "Abandonment/Removal of existing monitoring wells" has a bid quantity of 47, it appears that a plan sheet is missing that shows the additional wells that are to be abandoned/removed. Sheet ENV 01.02 shows 24 monitoring wells. Are the Recovery wells to be abandoned/removed as well? Only the 4 wells indicated on sheet ENV 01.05 need to replaced? Can the size and depth of the existing monitoring wells be provided?

**Answer:** The remaining monitoring wells are located within the National Car Rental Site to be
demolished as shown on Volume 3 Terminal 4 Apron Expansion (East Sheets) C02.23. Wells to be replaced as shown on the Contract Documents. Size and depth of wells are unknown.

27. **Question:** The Combined project drawings show a legend with AOA Fence and Yodock Barrier (see detail sheet C02.15), The West project drawings show a legend with low profile barricade and the East project drawings show a legend with proposed Yodock Barrier with AOA Fence. The Yodock Barrier reference detail sheet C02.15 does not exist. Yodock Barrier detail is shown on sheet C02.14. Is the C02.14 the detail to be used for Yodock Barrier? The combined sheets differ from the West and East sheets for type of devices. Which sheets should be used for MOT devices? The West drawings legend shows low profile barrier and detail sheet C02.14 show Low Profile Barrier detail, but no Low Profile Barrier is shown on these plans. Is Low Profile Barrier required? The East legend shows proposed Yodock Barrier with AOA Fence, but no detail is provided for Yodock Barrier with AOA Fence. Can a detail for Yodock Barrier with AOA Fence be provided? The Combine drawings legend shows AOA Fence, but no detail is provided for AOA Fence. Can a detail for AOA Fence be provided?

**Answer:** The Construction Phasing Plans in the Volume 1 Terminal 4 Apron Expansion (Combined Sheets) shall govern for MOT devices. See Note 11 on Sheets C02.01 and C02.02 and Note 5 on Sheet C02.03, C02.06 and C02.07 in Volume 1 Terminal 4 Apron Expansion (Combined Sheets) for locations of proposed Low Profile Barrier. Detail for Low Profile Barrier is provided on Volume 2 Terminal 4 Apron Expansion (West Sheets) C02.14 and Volume 3 Terminal 4 Apron Expansion (East Sheets) C02.16. The detail for the Temporary AOA Fence installed on barrier is provided on Volume 3 Terminal 4 Apron Expansion (East Sheets) C02.16. Temporary AOA Fence shall be installed on a FDOT 415 Tempory Concrete Barrier and not on a Yodock Barrier.

28. **Question:** An existing AOA Fence by others runs thru Phase E construction limits for this project. This fence appears on the combine drawing C02.01 and C02.02. How do we access and construct our work with this fence in the way? Are we required to relocate the AOA Fence by others?

**Answer:** The existing AOA Fence shown along the south end of Phase E is a Temporary AOA Fence installed by others. The AOA Construction Access Gate 504 is located north of the Temporary AOA Fence and will serve as the entrance and exit point to all construction activities required airside. To access Phase E, Contractor will utilize the Canal Crossing Landside Access Point which is also used to access Gate 504, however, as noted on Sheet C02.01 and C02.02 in the Terminal 4 Apron Expansion Volume 1 Combined Sheets, Contractor shall maintain vehicular access to AOA Construction Access Gate 504 at all times.

29. **Question:** East plan sheet C17.02 and C17.03 show a paved road to access the slide gate that has water filled barricades, striping, a porta potty, guard house (plan sheet C17.14) and a concrete island. In what Bid Item does the roadway base, asphalt, striping, water filled barricade, porta potty, guard house and concrete island get paid?

**Answer:** The access roadway to the Vehicular Access Gate shall be striped directly onto the existing parking lot pavement. Striping and Water Filled Barricades for the access roadway shall be paid for under Bid Item No. 11, Specification Section G-101-4.1 Maintenance of Traffic. The Porta Potty, Guard House, and Concrete Island shall be paid for under Bid Item No. 75, Specification Section F-162-5.3 Temporary Construction Electric Slide Gate w/ Access Controller.
30. **Question:** Page GTA3-A0.02, "NOTE: PROPOSED (3) CANOPY STRUCTURES AT MEDIAN ARE PART OF BID ALTERNATE 1;" What is the location of Bid Alternate 1 in the bid documents/bid submittal forms? Are there other items in Bid Alternate 1?

**Answer:** All canopies shown on GTA3-A0.02 shall be paid under Bid Item No. 145 GTA3-A0.02-1 Canopy, with an Estimated Quantity of six (6) EA. REVISE Note to read: Proposed Canopy Structure. There are no bid alternates for this solicitation. No changes to the Electronic Bid Sheets.

31. **Question:** Page GTA3-A0.02, "TRASH RECEPTACLES (TYP OF 7). LANDSCAPE FORMS METRO40-COLLECT, PETOSKEY, OR APPROVED EQUAL." In which bid item are the cost of trash receptacles paid?

**Answer:** Landscape Forms Trash Receptacles shall be paid under Bid Item No. 146 GTA3-LP-2.1 Landscape Modifications, LS.

32. **Question:** On Sheet E.07.03 East thru E07.05 East and Detail 4W2" on Sheet E07.07 East indicates and requires a 4W2" ductbank. There is no pay item for a 4W2" ductbank. What pay item does this work go under?

**Answer:** The 4W2" ductbank between the Recheck Facility and the Security Gate Service Pedestal shall be a 4W4" ductbank and be paid for under Bid Item No. 161 16001-1. The 4W2" Concrete Encased Ductbank in Earth/New Paved Shoulder detail shown on sheet E07.07 (east) shall be relabeled as a 4W4" Concrete Encased Ductbank in Earth/New Paved Shoulder.

All other terms, conditions and specifications remain unchanged for this bid.

**NAME OF COMPANY:** Tutor Perini Fort Lauderdale-Hollywood Venture
ADDENDUM NO. 2

Solicitation No.: Z1145017C1
Solicitation Title: Terminal 4 Apron Expansion

Date Of Addendum: July 23, 2013

Attention all potential bidders:

Must Addendum: Read carefully and follow all instructions. Information included in this Addendum will have a material impact on the submittal for this solicitation. All "MUST" addenda are considered a matter of responsiveness. "MUST" addenda must be returned with your Bid Submittal or acknowledged on the Bid Tender Form. Failure of a Submitter to acknowledge the addendum shall be cause for rejection of the bid.

Return Addendum with Bid Submittal or Acknowledge on the Bid Tender Form

To all prospective bidders, please note the following changes and clarifications:

Words in strikethrough type are deletions from existing text. Words in bold underlined type are additions to existing text.

1. The Bid Opening Date remains as July 31, 2013 at 2:00 p.m.

2. The Contract Documents are amended as follows: REVISED Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheets C11.32, Revise Detail 5 Type Bt – Buried Transition Joint, Callout 10.5” P-211 Limerock Base Course to 12” P-211 Limerock Base Course.

3. The Contract Documents are amended as follows: REVISED Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.32, Revise Detail 5 Type Bt – Buried Transition Joint, Callout 10.5” P-211 Limerock Base Course to 12” P-211 Limerock Base Course.

4. The Contract Documents are amended as follows: ADD Note 1 Temporary asphalt tie in from completed PCC to existing apron shall not have a slope greater than 2% in any direction. For asphalt tie in detail, see Detail 3 on Sheet C11.31 to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.01.

5. Question: Spec section P-152 defines Unsuitable as Organic materials (see spec page P-152-1), yet the allowance Account for Unsuitable Subsurface materials refers to reimbursement in accordance with specification section P-159-Contaminated Soils. Is unsuitable material only organic type material when being paid for in bid item #28- P-152.4.2? Is unsuitable material only contaminated material when being reimbursed for in bid item #7-G103-4.7? Please clarify the definition of unsuitable material for this project.
Answer: Specification Section G-103 has been revised, and is included in this Addendum, to include both Unsuitable Subsurface Materials as defined in Specification Section P-152 Excavation and Embankment and Contaminated Unclassified Materials as defined in Specification Section P-159.

6. Question: Can the contractor have the option to import concrete from offsite concrete producing plants? Can the contractor have the option to transport the concrete using truck mixers and/or truck agitators? Can the contractor have the option to place the concrete with a roller screed in lieu of a slip-form paver?

Answer: REPLACE Specification Section P-501 Paragraph 501-1.1 with:

501-1.1 This work shall consist of pavement composed of Portland cement concrete, with reinforcement and without reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross sections shown on the plans. The concrete pavement for this project shall be mixed in a central plant or an on-site batch plant, delivered in non-agitating trucks and placed with slip-form equipment. Individual placement areas of less than 500 square yards, irregular areas, and other inaccessible areas to the slip-form equipment, paving concrete shall be placed with side forms.

REPLACE Specification Section P-501 Paragraph 501-4.1 with:

501-4.1 EQUIPMENT. Equipment necessary for handling materials and performing all parts of the work shall be approved by the engineer as to design, capacity, and mechanical conditions. The equipment shall be at the jobsite sufficiently ahead of the start of paving operations to be examined thoroughly and approved.

The Consultant will consider for review offsite Batch Plants meeting the requirements of 501-4.1. This includes “Central Plant Mixer.” Submittal(s) not having “Central Plant Mixer” meeting the specifications will be rejected.

a. Batch Plant and Equipment. If Contractor utilizes an on-site batch plant, the batch and mix plant shall be located on the project site as indicated in the drawings. The batch plant and equipment shall conform to the requirements of ASTM C 94. Contractor is responsible to define, determine capacity, determine requirements, design, permit, install, etc. any utilities or supporting elements required for the batch plant as well as any other construction system.

All other Sections of Paragraph 501-4.1 remain unchanged. Use of truck mixers and/or truck agitators is not permitted as stated in P-501 specification. Contractor shall use slip form paver as required by P-501 specification.

7. Question: Which plan sheet grades is the contractor responsible to establish as final grades, the West Side or the East Side?

Answer: Volume 2 Terminal 4 Apron Expansion (West Sheets) C11.15 & C10.02 and Volume 3 Terminal 4 Apron Expansion (East Sheets) C11.12 & C11.15 have been updated to match final elevations including contour lines at the connection between phases.

8. Question: Are intermediate grades required by the contractor at the West and East interface? Please provide the details of the tie-ins for the West Side and East Side proposed grades. The asphalt Tie-In shown on C11.31 does not show the elevation differences that appear on the proposed grade drawings. Please explain. Please provide the details of the tie-ins for the West Side and East Side proposed grades. The asphalt Tie-In shown on C11.31 does not show the elevation differences that
appear on the proposed grade drawings. Please explain.

**Answer:** There are transition grade profiles required between phases. These transitions shall not exceed a 2% slope in any direction as indicated by Note 1 on Volume 2 Terminal 4 Apron Expansion (West Sheets) C11.01 through C11.03 and Volume 3 Terminal 4 Apron Expansion (East Sheets) C11.00 through C11.05.

The Contract Documents indicate where Terminal 4 Apron Expansion (West Sheets and East Sheets) C11.31 Detail 2 Full Strength Asphalt Pavement and Detail 3 Typical Temporary Asphalt Pavement Tie-in shall be utilized to achieve a transition between grade differences between phases.

Final grades shall be constructed in accordance with Contract Documents.

9. **Question:** The plan and profile for new Sanitary Sewer dimensions do not match. Sanitary Plan C06.01West indicates 4.72LF of 8" FM and profile C06.11 West indicates 10.00LF of 8" FM at N:832216.46, E:936640.81. Please provide the proper length of this pipe section.

**Answer:** The correct length of the 8" FM section is 10.00 LF. Volume 2 Terminal 4 Apron Expansion (West Sheets) C06.01 has been revised accordingly.

10. **Question:** The plan and profile for new Sanitary Sewer dimensions do not match. Sanitary Plan C06.01East indicates 40.66 LF of 6" FM and profile C06.12 East indicates 50.66LF of 6" FM at N:831995.51, E:93676.72. Please provide the proper length of this pipe section.

**Answer:** 40.66' is correct, Contractor to install to the coordinates given in state plane. Volume 3 Terminal 4 Apron Expansion (East Sheets) C06.12 has been revised accordingly.

11. **Question:** Please provide the proper size of pipe or pipe fittings in phase G-2.

**Answer:** The 30 LF. shall be 6" DIP. Volume 3 Terminal 4 Apron Expansion (East Sheets) C05.02 has been revised accordingly.

12. **Question:** Please provide existing spot elevations that are able to be read.

**Answer:** Spot Elevations were included in Owner provided survey. Spot elevations become more legible if plans are enlarged utilizing electronic files provided with Bid Documents.

13. **Question:** Figure 8 in the RAP identifies a Phase I & II activities in the Terminal Roads, and a Phase III activity in the Airside. On Sheet ENV-00.01, there are numerous references on this Sheet to Phase I & II, and Note #7 under General Project Description says that Phase I & II are to be implemented under this project. In addition, notes 13, 14 & 16 under Project Description reference drawings that do not exist: ENV-02.02, ENV-02.03 & ENV-02.07. Based on the above, this would lead the Bidder to believe that they are to price Phase I, II and III remediation, and the original bid documents are missing drawings. However, there is only a Bid Item for Phase III remediation (P-151-4.1g). Please confirm which Phases we are to include with our bid. If Phase I & II need to be priced, please provide the missing drawings.

**Answer:** Only Phase III remediation Activities for the South Terminal Site are to be completed by the Contractor. Volume 3 Terminal 4 Apron Expansion (East Sheets) ENV00.01 has been revised accordingly.

All other terms, conditions and specifications remain unchanged for this bid.

**NAME OF COMPANY:** Tutor Perini Fort Lauderdale-Hollywood
ITEM G-103 ALLOWANCE ACCOUNTS

DESCRIPTION

103-1.1 The allowance accounts described herein have been set up to compensate the Contractor for any approved reimbursement of unforeseen items related to FAA change requests, Broward County change requests, utility resolution costs, other agency change requests, regulatory agency permit fees, airside maintenance of traffic and operational requirements, and unsuitable subsurface materials as may be required during construction and not already accounted for within the Contract Documents. The following descriptions will detail the particular issues that may precipitate a reimbursement to the Contractor for those unforeseen items and the procedure for obtaining reimbursement.

DEFINITIONS

103-2.1 FAA CHANGE ALLOWANCE ACCOUNT. If, during the course of the construction, the FAA requests or mandates that specific changes be made to the construction project to conform to any of their regulations, directives, rulemakings, advisory circulars, orders, notices, etc., that have not been addressed in the Contract Documents, the CPM shall notify the Contractor of such changes being required.

This account was established as a method of payment for the requirements identified in the following items:

a. Revising the construction to conform to any FAA change request or mandate.

b. Agreed upon price from Contractor regarding an FAA change request or mandate.

Upon notice by the FAA of a Change Request, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the FAA.

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements.

b. Associated costs and the allowable overhead and profit associated with each work element.

c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a formal CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.2 BROWARD COUNTY CHANGE ALLOWANCE ACCOUNT. If, during the course of the construction, the COUNTY requests or mandates that specific changes be made to the construction project to conform to any of their regulations, directives, rulemakings, specifications, orders, notices, etc., or other changes that are required by BCAD to be incorporated into the project, the CPM shall notify the Contractor of such changes being required.
This account was established as a method of payment for the requirements identified in the following items:

a. Revising the construction to conform to any COUNTY change request or mandate.

b. Agreed upon price from Contractor regarding an COUNTY change request or mandate.

Upon notice by the COUNTY of a Change Request, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the COUNTY.

b. Appropriate electronic excel form for the Contractor to use in developing his cost(s). The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements.

b. Associated costs and the allowable overhead and profit associated with each work element.

c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMQ, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a formal Work Order from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.3 UTILITY RESOLUTION ALLOWANCE ACCOUNT. If during the course of construction, a utility not shown on the plans is discovered or a utility which is shown to be proposed and utilized but in found to in such condition that it is deemed unusable including, but not limited to, any public utility, stormwater management system, FAA cable infrastructure or system, or airfield infrastructure, the Contractor shall be reimbursed for the costs associated with maintenance, adjustment or relocation of the unknown existing facility(ies) through the use of the Utility Relocation Allowance Account. All costs associated with the related maintenance, adjustment or relocation shall be submitted to the CPM. Expenses due to damage of a utility by the Contractor, or relocation of a utility solely for the Contractor's convenience, shall be the responsibility of the Contractor and are not included in this account.

This account was established as a method of payment for the requirements identified in the following items:

a. Actual charges from a public utility or third party agency such as the FAA regarding relocation of an existing service to avoid new construction.

b. Agreed upon price from Contractor regarding relocation an existing utility line.

Upon notice by the Contractor of the discovery of an unknown utility, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:
a. Defined requirements set forth for the remediation of the unknown utility.

b. Appropriate electronic excel form for the Contractor to use in developing his cost(s) associated with the remediation.

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements.

b. Associated costs and the allowable overhead and profit associated with each work element.

c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a formal Work Order from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.4 OTHER REGULATORY AGENCY CHANGE ALLOWANCE ACCOUNT. If, during the course of the construction, any other regulatory agency requests or mandates that specific changes be made to the construction project to conform to any of their regulations, directives, rulemakings, advisory circulars, orders, notices, etc., that have not been addressed in the Contract Documents, the CPM shall notify the Contractor of such changes being required.

This account was established as a method of payment for the requirements identified in the following items:

a. Revising the construction to conform to any other regulatory agency change request or mandate.

b. Agreed upon price from Contractor regarding another regulatory agency change request or mandate.

Upon notice by any other regulatory agency of a Change Request, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the other regulatory agency.

b. Appropriate electronic excel form for the Contractor to use in developing his cost(s).

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements.

b. Associated costs and the allowable overhead and profit associated with each work element.

c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon
acceptance by all responsible parties, a formal Work Order from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.5 REGULATORY AGENCY PERMIT FEES ALLOWANCE ACCOUNT. If, during the course of the construction, any other regulatory agency requests or mandates that additional permits and associated fees are required to conform to any of their regulations, directives, rulemakings, advisory circulars, orders, notices, etc., that have not been addressed in the Contract Documents, the CPM shall notify the Contractor of such permits and fees being required.

This account was established as a method of payment for the requirements identified in the following items:

a. Revising the construction to conform to any additional regulatory agency permits and associated fees.

b. Agreed upon price from Contractor regarding the regulatory agency permits and fees.

Upon notice by any other regulatory agency of a Permit and associated Fee, the Engineer shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the other regulatory agency to submit appropriate applications to obtain the required permits and pay the required fees.

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements required to develop, submit and obtain approvals for the permit and the documentation showing the required fees.

b. Associated costs and the allowable overhead and profit associated with each work element associated with the permit development.

c. Any subcontractor(s) work, their work elements and associated costs related to the permit and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, FMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103-2.6 AIRSIDE MAINTENANCE OF TRAFFIC AND OPERATIONAL REQUIREMENTS ALLOWANCE ACCOUNT. If, during the course of the construction, it is determined that additional or modified maintenance of traffic plans or other related operational requirements be developed due to issues beyond the control of the Contractor, and that have not been addressed in the Contract Documents, the CPM shall notify the Contractor of such additional maintenance of traffic and/or operational requirements being required.

This account was established as a method of payment for the requirements identified in the following items:

a. Revising of the construction maintenance of traffic plans, phasing plans or other operational requirements established by various departments of the Airport.
b. Agreed upon price from Contractor regarding the required work to meet the requirements of the additional maintenance of traffic plans and other operational requirements.

Upon notice by the FAA, Engineer, BCAD Planning, Maintenance or Operations Departments of the need to modify any of the existing approved maintenance of traffic plans, phasing plans or other operational requirements, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth by the BCAD department or their authorized representative to respond to the requirements of a revised maintenance of traffic plan, phasing plan or other operational requirement.

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements required to mobilize, revise, or otherwise change the contract documents approved maintenance of traffic plans, phasing plans or other operational requirements.

b. Associated costs and the allowable overhead and profit associated with each work element associated with responding to the revised maintenance of traffic plans, phasing plans or other operational requirements.

c. Any subcontractor(s) work, their work elements and associated costs related to the permit and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, FAA, authority(ies) having jurisdiction and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

103.2.7 UNSUITABLE SUBSURFACE MATERIALS ALLOWANCE ACCOUNT. If during the course of the construction, unsuitable subsurface and/or contaminated unclassified materials that have not been accounted for are encountered, the Contractor shall be reimbursed for the costs associated with handling in accordance with Specification Sections P-152 Excavation and Embankment, P-159 — Contaminated Soils and P-160 — Ground Water Control Procedures and Requirements through the use of the Unsuitable Subsurface Materials Allowance Account. All costs associated with the encountered unsuitable subsurface and/or contaminated unclassified materials shall be submitted to the CPM. Upon acceptance by all responsible parties, a CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

This account was established as a method of payment for the requirements identified in the following items:

a. Actual charges for handling, transporting, disposing, replacing, or remediating any areas of unsuitable subsurface and/or contaminated unclassified materials.

b. Agreed upon price from Contractor regarding the required work to meet the requirements outlined in Specification Sections P-152 Excavation and Embankment, P-159 — Contaminated Soils and P-160 — Ground Water Control Procedures and Requirements.
Upon notice by the Contractor of the discovery of unknown unsuitable subsurface and/or contaminated unclassified materials, the CPM shall submit to the Contractor a Request for Proposal through the BCAD Change Review Committee Process. The Request for Proposal shall have the following:

a. Defined requirements set forth for remediation of the unknown unsuitable subsurface and/or contaminated unclassified materials.

The Contractor shall provide on the electronic excel form the following items:

a. Complete breakdown of the work elements.

b. Associated costs and the allowable overhead and profit associated with each work element.

c. Any subcontractor(s) work, their work elements and associated costs and the allowable overhead and profit for the subcontractor(s).

The Contractor shall submit a completed Request for Proposal to the CPM for their review and dissemination to all appropriate entities including but not limited to the Engineer, PMO, BCAD AEP, and others for their review and approval as to reasonable costs. Upon acceptance by all responsible parties, a CPEAM from the Allowance Account will be approved, executed by all required parties and, upon full execution, the Contractor will then be authorized to perform the work required.

METHOD OF MEASUREMENT

103-3.1 The measurement for FAA Change Allowance Account will be in accordance with the negotiated change to resolve the FAA requirement during construction per each occurrence. The change shall be submitted to the CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

103-3.2 The measurement for Broward County Change Allowance Account will be in accordance with the negotiated change to resolve the Broward County requirement during construction per each occurrence. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

103-3.3 The measurement for Utility Resolution Allowance Account will be in accordance with the actual fee charged by the utility for each identified area or for the actual cost incurred by the Contractor. The cost in this allowance associated with actual fees charged by the utility are pass-through costs (no mark up is permitted for utility company costs). The cost in this allowance associated with actual cost incurred by the Contractor may include allowable overhead and profit for work accomplished by the Contractor. Verification is required to be documented prior to payment. Agreed upon costs shall include all costs associated with moving the utility, removing the utility, providing the approved conflict structure(s), abandoning the utility, or grout filling the utility including mark ups. The item shall be measured based on the actual cost incurred by the Contractor.

103-3.4 The measurement for Other Regulatory Agency Change Allowance Account will be in accordance with the negotiated change to resolve the other regulatory agency requirement(s) during construction per each occurrence. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

103-3.5 The measurement for Regulatory Agency Permit Fees Allowance Account will be in accordance with the negotiated change to resolve regulatory agency permit fee requirement(s) during construction per each occurrence. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.
103-3.6 The measurement for Airside Maintenance of Traffic and Operational Requirements Allowance Account will be in accordance with the negotiated change to resolve the additional FAA; BCAD Maintenance, Planning, or Operations maintenance of traffic plans; phasing plans; or other operational requirements during construction per each occurrence. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

103-3.7 The measurement for Unsuitable Subsurface Materials Allowance Account will be in accordance with the actual cost incurred by the Contractor to handle, transport, dispose, replace, or remediate any areas of unsuitable subsurface material. The change shall be submitted to CPM for concurrence prior to the work being started. The item shall be based on the actual cost incurred by the Contractor.

BASIS OF PAYMENT

103-4.1 Payment will be made for each occurrence as a portion of the allowance amount for FAA Change requests. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.2 Payment will be made for each occurrence as a portion of the allowance amount for Broward County Change requests. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.3 Payment will be made for each occurrence as a portion of the allowance amount for Other Regulatory Agency change requests. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.4 Payment will be made for each occurrence as a portion of the allowance amount for Utility Resolution allowances. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.5 Payment will be made for each occurrence as a portion of the allowance amount for Regulatory Agency Permit Fees allowances. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.6 Payment will be made for each occurrence as a portion of the allowance amount for Airside Maintenance of Traffic and Operational Requirements allowances. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary
to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

103-4.7 Payment will be made for each occurrence as a portion of the allowance amount for Unsuitable Subsurface Materials allowances. Payment shall be full compensation for all labor, materials, equipment and incidentals including, but not limited to coordination with public and other agencies, survey, layout, as-built, etc. in accordance with the Contract Documents necessary to complete the item. Payment shall be the actual cost incurred by the Contractor for each occurrence as negotiated and approved by the CPM.

Payment will be made under:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-103-4.1</td>
<td>FAA Change Allowance Account – per Allowance</td>
</tr>
<tr>
<td>G-103-4.2</td>
<td>Broward County Change Allowance Account – per Allowance</td>
</tr>
<tr>
<td>G-103-4.3</td>
<td>Utility Resolution Allowance Account – per Allowance</td>
</tr>
<tr>
<td>G-103-4.4</td>
<td>Other Regulatory Agency Change Allowance Account – per Allowance</td>
</tr>
<tr>
<td>G-103-4.5</td>
<td>Regulatory Agency Permit Fees Allowance Account – per Allowance</td>
</tr>
<tr>
<td>G-103-4.6</td>
<td>Airside Maintenance of Traffic and Operational Requirement Allowance Account – per Allowance</td>
</tr>
<tr>
<td>G-103-4.7</td>
<td>Unsuitable Subsurface Materials Allowance Account – per Allowance</td>
</tr>
</tbody>
</table>

END OF ITEM G-103
ITEM P-501 PORTLAND CEMENT CONCRETE PAVEMENT

DESCRIPTION

501-1.1 This work shall consist of pavement composed of Portland cement concrete, with reinforcement and without reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross sections shown on the plans. The concrete pavement for this project shall be mixed in a central plant or an on-site batch plant, delivered in non-agitating trucks and placed with slip-form equipment. Individual placement areas of less than 500 square yards, irregular areas, and other inaccessible areas to the slip-form equipment, paving concrete shall be placed with side forms.

501-1.2 End Product Responsibility. The Contractor is entirely responsible for the materials and processes that produce the end products specified in this specification. It is the Contractor's responsibility to prove by means of a test section, constructed at the start of construction, that the process for constructing the concrete pavement is valid. The Engineer will determine if the Contractor's materials and processes produce an end product that is in conformity with the plans and specifications. Tolerances to determine conformity for measurable components of the materials, processes, and end product are provided. When the Engineer determines that the materials furnished, work performed, or the finished product are not in conformity with the plans and specifications and result in an unacceptable product, the affected work or materials shall be removed and replaced or otherwise corrected at the Contractor's expense in accordance with this specification.

501-1.3 Pre-Paving Conference. At least 7 days before and not more than 30 days before concrete placement, the Contractor and his team members shall attend a pre-paving conference with the Engineer and airport personnel to review project specific requirements related to the concrete paving and related project-planning activities. The conference shall be attended by at least the Contractor's general superintendent, pavement superintendent, and plant manager for the project. The following are the minimum agenda items:

b. Critical material supply/availability issues.
c. Concrete plant and aggregate stockpile management.
d. Concrete paving requirements.
e. Paving schedule.
f. Weather management plan.
g. Test section requirements.
h. Contractor process testing.
i. Contractor acceptance testing requirements.
j. Engineer monitoring of acceptance testing.
k. Stop work authority on Contractor's staff.
l. Stop work authority on Owner's staff.
m. Issues and disputes resolution hierarchy.
MATERIALS

501.2.1 AGGREGATES.

Sources of aggregates shall be selected by the Contractor. There is no limit to the number of aggregate sizes that may be used or blended. Maximum aggregate size shall be selected by the Contractor and shall not be greater than 2-1/2 inches.

a. Reactivity. Aggregates shall be tested for deleterious reactivity with alkalis in the cement, which may cause excessive expansion of the concrete. Separate tests of individual coarse and fine aggregate shall be made in accordance with ASTM C 1260. If the expansion of coarse or fine aggregate test specimens, tested in accordance with ASTM C 1260, does not exceed 0.10 % at 28 days (30 days from casting), the coarse or fine aggregates shall be accepted. Tests at 16 days are not acceptable. If the Contractor desires to use flyash as cement replacement, the contractor may proceed to conduct the tests in accordance to the following paragraph and not conduct the ASTM C1260 tests on the individual aggregates.

ASR Mitigation. If the expansion of any aggregate, coarse or fine, at 28 days is greater than 0.10%, tests of combined materials shall be made in accordance with ASTM C 1567 using the aggregates, cementitious materials, and/or specific reactivity reducing chemicals in the proportions proposed for the mixture design. If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C 1567, does not exceed 0.10 % at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10 % at 28 days, or new aggregates shall be evaluated and tested.

b. Fine Aggregate. Fine aggregate shall be natural sand and conform to the requirements of ASTM C 33, except as specified herein. The fine aggregate shall meet the requirements for deleterious materials contained in ASTM C 33, Table 1. The finess modulus shall not be less than 2.3. There is no upper limit for finess modulus. Gradation shall meet the requirements of Table 1 when tested in accordance with ASTM C 136, except as may otherwise be qualified under Section 6 of ASTM C 33.

Table 1. Gradation for Fine Aggregate (ASTM C 33)

<table>
<thead>
<tr>
<th>Sieve Designation (Square Openings)</th>
<th>Percentage by Weight Passing Sieves</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 in. (9.5 mm)</td>
<td>100</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>95-100</td>
</tr>
<tr>
<td>No. 8 (2.36 mm)</td>
<td>85-100</td>
</tr>
<tr>
<td>No. 16 (1.18 mm)</td>
<td>50-85</td>
</tr>
<tr>
<td>No. 30 (600 μm)</td>
<td>25-60</td>
</tr>
<tr>
<td>No. 50 (300 μm)</td>
<td>10-30</td>
</tr>
<tr>
<td>No. 100 (150 μm)</td>
<td>2-10</td>
</tr>
</tbody>
</table>

c. Coarse Aggregate. Coarse aggregate shall conform to the requirements of ASTM C 33 except as specified herein. Gradation, within the separated size groups, shall meet the requirements of Table 2 when tested in accordance with ASTM C 136. When the nominal maximum size of the aggregate is greater than 1 in, the aggregates shall be furnished in two size groups.

Aggregates delivered to the mixer shall consist of crushed stone, crushed or uncrushed gravel, air-cooled blast furnace slag, crushed recycled concrete pavement, or a combination thereof. Crushed concrete and steel furnace slag shall not be used as aggregate. The aggregate shall be composed of clean, hard, uncoated particles and shall meet the requirements for deleterious substances contained in ASTM C 33, Class F/N. Dust and other coating shall be removed from the aggregate by washing.
shall be washed. The aggregate in any size group shall not contain more than 8 percent by weight of flat or elongated pieces when tested in accordance with ASTM D 4791. A flat or elongated particle is one having a ratio between the maximum and the minimum dimensions of a circumscribing rectangular prism exceeding 5 to 1.

The percentage of wear shall be no more than 40 when tested in accordance with ASTM C 131 or ASTM C 535.

Aggregate susceptibility to Disintegration (D) Cracking. Aggregates that have a history of D-cracking shall not be used. Prior to approval of mixture design and production of Portland cement concrete the Contractor shall submit written certification that the aggregate does not have a history of D-Cracking and that the aggregate meets the specified State requirements.

(1) Other sources of crushed stone aggregate shall be approved if the durability factor as determined by ASTM C 666 is greater than or equal to 95 and all other quality test requirements within these specifications are fulfilled. The FAA will consider and reserves final approval of other State classification procedures.

(2) Crushed gravel and sand-gravel aggregates shall not be required to meet freeze-thaw durability ratings. These aggregates shall be approved for use in concrete by the state highway agency in the state from which the aggregate originates and the state in which they are to be used and shall meet all other criteria within these specifications.

d. Combined Gradation. The Contractor shall combine the aggregates in the proportions proposed for the concrete mixture and evaluate on the following sieve sizes: 2½-inch, 2-inch, 1½-inch, 1-inch, ¥¼-inch, ¥1/2-inch, No. 4, No. 16, No. 30, No. 50, and No. 100.

The Contractor shall determine the Workability Factor (WF) and the Coarseness Factor (CF). The WF is the percentage of the combined aggregate by weight finer than the No. 8 sieve. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 94 pounds of cementitious material per cubic yard greater than 564 pounds per cubic yard. The CF is the percent of material by weight retained on the ¥¼-inch sieve divided by the percent by weight of all the aggregate retained on the No. 8 sieve and multiplying the ratio by 100.

The aggregates, as proportioned, shall be deemed to have met the requirements of a combined aggregate gradation when the following criterion is met: The WF and CF shall be within the parallelogram ABCD of the Aggregate Constructability Chart (Figure 1). The combined aggregates, as proportioned, shall be rejected if the combined aggregate gradation criterion is not met. Contractor shall select the proper gradations that provides the proper concrete workability for slip-form paving, side-form paving and hand placement.
501-2.2 CEMENT. Cement shall conform to the requirements of ASTM C 150 Type I. Blended cements are not allowed.

If for any reason, cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

Only-The Contractor shall use cements containing less than 0.6% equivalent alkali or cements that can demonstrate a positive reduction in the expansion created by alkali-silica reactions shall be used—only if aggregates are prone to alkali-silica reactivity as determined in the paragraph Reactivity. If the ASTM C 1260 tests were not conducted, the Contractor shall use cements containing less than 0.6% equivalent alkali.

501-2.3 CEMENTITIOUS MATERIALS.

a. Flyash or Natural Pozzolan. Flyash shall meet the requirements of ASTM C 618, Class F or N with the exception of loss of ignition, where the maximum shall be less than 6 percent. Class F or N flyash for use in mitigating alkali-silica reactivity shall have a Calcium Oxide (CaO) content of less than 13 percent and a total equivalent alkali content less than 3 percent. Flyash such as is produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable used. The Contractor shall furnish the previous three most recent, consecutive ASTM C 618 reports for each source of flyash proposed in the mix design, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance of the material may be tested independently by the Engineer.

b. Blast Furnace Slag (Slag Cement). Ground Granulated Blast Furnace (GGBF) slag shall conform to ASTM C 989, Grade 100 or 120. GGBF shall be used only at a rate between 25 and 55 percent of the total cementitious material by mass.
501-2.4 PREMOLDED JOINT FILLER: Premolded joint filler for isolation expansion joints shall conform to the requirements of ASTM D 1751 or ASTM D 1752, Type II or III, and shall be punched to admit dowels where called for on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width specified for the joint, unless otherwise specified by the engineer. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the Engineer.

501-2.5 JOINT SEALER: The joint sealer for the joints in the concrete pavement shall meet the requirements of Item P-604 and Item P-605 and shall be of the type specified in the plans.

501-2.6 STEEL REINFORCEMENT: Reinforcing shall consist of Welded Wire Steel Fabric conforming to the requirements of ASTM A 185.

501-2.7 DOWEL AND TIE BARS: Tie bars shall be deformed steel bars and conform to the requirements of ASTM A 615 or ASTM A 996, except that rail steel bars, Grade 50 or 60, shall not be used for tie bars that are to be bent or restraightened during construction. Tie bars designated as Grade 40 in ASTM A 615 can be used for construction requiring bent bars.

Dowel bars shall be plain steel bars conforming to ASTM A 615 Grade 40 or 60 or ASTM A 996 Grade 50 or 60 and shall be free from burring or other deformation restricting slippage in the concrete. High strength dowel bars shall conform to ASTM A 714, Class 2, Type S, Grade I, II or III, Bare Finish. Before delivery to the construction site each dowel bar shall be painted with one coat of paint conforming to MIL- DTL-24441/20A, SPCC Paint 5 or SPCC Paint 25. Dowels shall be epoxy coated in conformance with ASTM A 775. Grout retention rings Metal or plastic collars Grout retention rings shall be full circular metal or plastic devices supporting the dowel until the epoxy hardens. Dowel inserters shall not be used.

The sleeves for dowel bars used in expansion joints shall be metal or other type of an approved design to cover 2 to 3 in (50 mm to 75 mm) of the dowel, with a closed end and with a suitable stop to hold the end of the bar at least 1 in (25 mm) from the closed end of the sleeve. Sleeves shall be of such design that they will not collapse during construction.

501-2.8 WATER: Water used in mixing or curing shall be clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product. Water will be tested in accordance with the requirements of AASHTO T 26. Water known to be of potable quality may be used without testing.

501-2.9 COVER MATERIAL FOR CURING: Curing materials shall conform to one of the following specifications:

a. Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C 309, Type 2, Class B, or Class A if wax base only.

b. White polyethylene film for curing concrete shall conform to the requirements of ASTM C 171.

c. White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C 171.

d. Waterproof paper for curing concrete shall conform to the requirements of ASTM C 171.

501-2.10 ADMIXTURES: The use of any material added to the concrete mix shall be approved by the Engineer. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the Engineer.

BROWARD COUNTY WP-404/408 TECHNICAL SPECIFICATIONS
FT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT
Terminal 4 Apron Expansion P-501-5
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Addendum No. 2
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taken by the Engineer from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-Entraining Admixtures. Air-entraining admixtures shall meet the requirements of ASTM C 260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent, and any water reducer admixture, and any other admixture shall be compatible.

b. Chemical Admixtures. Water-reducing, set retarding, and set-accelerating admixtures shall meet the requirements of ASTM C 494, including the flexural strength test. ASTM C 494 Type F and G high range water reducers and ASTM C 1017 flowable admixtures shall not be used.

501-2.11 EPOXY-RESIN. Epoxy-resin used to anchor dowels and tie-bars in pavements shall conform to the requirements of ASTM C 881, Type I, Grade 3, Class C. Class A or B shall be used when the surface temperature of the hardened concrete is below 60 °F (16 °C).

501-2.12 MATERIAL ACCEPTANCE. Prior to use of materials, the Contractor shall submit certified test reports to the Engineer for those materials proposed for use during construction. The certification shall show the appropriate ASTM test for each material, the test results, and a statement that the material passed or failed.

The Engineer may request samples for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

MIX DESIGN

501-3.1 PROPORTIONS. Concrete shall be designed to achieve a 28-day flexural strength that meets or exceeds the acceptance criteria contained in paragraph 501-5.2 for a flexural strength of 650 psi. The mix shall be designed using the procedures contained in Chapter 9 12 of the 15th Edition of the Portland Cement Association's manual, "Design and Control of Concrete Mixtures", American Concrete Institute ACI 211.1 procedures or federal agency design guide for dense graded concrete mixes.

The Contractor shall note that to ensure that the concrete actually produced will meet or exceed the acceptance criteria for the specified strength, the mix design average strength must be higher than the specified strength. The amount of overdesign necessary to meet specification requirements depends on the producer's standard deviation of flexural test results and the accuracy that that value can be estimated from historic data for the same or similar materials.

The minimum cementitious material (cement plus flyash, or GGBFS) shall be 517 pounds per cubic yard (1 kg per cubic meter). The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall not be more than 0.5 by weight.

Prior to the start of paving operations and after approval of all material to be used in the concrete, the Contractor shall submit a mix design showing the proportions and flexural strength obtained from the concrete at 1, 3, 7, 14, and 28 days. The mix design shall include copies of test reports, including test dates, and a complete list of materials including type, brand, source, and amount of cement, flyash, ground slag, coarse aggregate, fine aggregate, water, and admixtures. The fineness modulus of the fine aggregate and the air content shall also be shown. The mix design shall be submitted to the Engineer at least 30 days prior to the start of operations. The submitted mix design shall not be more than 90 days old. Production shall not begin until the mix design is approved in writing by the Engineer.

Should a change in sources be made, or admixtures added or deleted from the mix, a new mix design must be submitted to the Engineer for approval. Previously approved mix designs for airfield paving older than 90 days shall not be used without reapproval.
Flexural strength test specimens shall be prepared in accordance with ASTM C 192 and tested in accordance with ASTM C 78. The mix determined shall be workable concrete having a slump (taken at the site of placement) for side-form concrete between 1 and 2 in (25 mm and 50 mm) as determined by ASTM C 143. For vibrated slip-form concrete, the slump shall be between \( \frac{3}{4} \) in (19 mm) and \( 1 \frac{\frac{3}{4}}{4} \) in (38 mm) selected by the Contractor to produce in-place pavement meeting the specified tolerance for control of edge slump. The selected slump shall be applicable for both pilot and fill-in lanes.

501-3.2 CEMENTITIOUS MATERIALS.

a. Flyash. Flyash may be used in the mix design. When flyash is used as a partial replacement for cement, the minimum cement content may be met by considering Portland cement plus flyash as the total cementitious material. The replacement rate shall be determined from laboratory trial mixes, but shall be between 20 and 30 percent by weight of the total cementitious material. If flyash is used in conjunction with ground granular blast furnace slag the maximum replacement rate shall not exceed 10 percent by weight of total cementitious material.

b. Ground Slag. Ground blast-furnace slag may be used in a mix design containing Type I or Type II cement. The slag, or slag plus flyash if both are used, may constitute between 25 to 55 percent of the total cementitious material by weight. If the concrete is to be used for slipforming operations and the air temperature is expected to be lower than 55 °F (13 °C) the percent slag shall not exceed 30 percent by weight.

501-3.3 ADMIXTURES.

a. Air-Entraining. Air-entraining admixture shall be added in such a manner that will insure uniform distribution of the agent throughout the batch. The air content of freshly mix air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be as shown below. Air content shall be determined by testing in accordance with ASTM C 231 for gravel and stone coarse aggregate and ASTM C 173 for slag and other highly porous coarse aggregate.

<table>
<thead>
<tr>
<th>Exposure Level</th>
<th>Recommended Air Content (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2&quot;</td>
</tr>
<tr>
<td>Mild</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

b. Chemical. Water-reducing, set-controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, in accordance with ASTM C 494. No admixture shall be added to the mix without trial mixes and approval by the Engineer.

501-3.4 CONCRETE MIX DESIGN LABORATORY. The Contractor's laboratory used to develop the concrete mix design shall meet the requirements of ASTM C 1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix design must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction and shall contain a minimum:

a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.

b. A statement that the equipment used in developing the mix design is in calibration.
c. A statement that each test specified in developing the mix design is offered in the scope of the laboratory’s services.

d. A copy of the laboratory's quality control system.

CONSTRUCTION METHODS

501-4.1 EQUIPMENT. Equipment necessary for handling materials and performing all parts of the work shall be approved by the engineer as to design, capacity, and mechanical conditions. The equipment shall be at the jobsite sufficiently ahead of the start of paving operations to be examined thoroughly and approved.

The Consultant will consider for review offsite Batch Plants meeting the requirements of 501-4.1. This includes “Central Plant Mixer.” Submittal(s) not having “Central Plant Mixer” meeting the specifications will be rejected.

a. Batch Plant and Equipment. If Contractor utilizes an on-site batch plant, the batch and mix plant shall be located on the project site as indicated in the drawings. The batch plant and equipment shall conform to the requirements of ASTM C 94. Contractor/bidder is responsible to define, determine capacity, determine requirements, design, permit, install, etc. any utilities or supporting elements required for the batch plant as well as any other construction system.

b. Mixers and Transportation Equipment.

(1) General. Concrete may—shall be mixed at a central plant, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer’s nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

(2) Central plant mixer. Central plant mixers shall conform to the requirements of ASTM C 94. The mixer shall be capable of combining the materials into a uniform mixture and of discharging this mixture without segregation. The mixer shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 in (19 mm) or more. The Contractor shall have a copy of the manufacturer’s design on hand showing dimensions and arrangement of blades in reference to original height and depth.

(3) Truck mixers and truck agitators. Truck mixers used for mixing and hauling concrete and truck agitators used for hauling central mixed concrete shall conform to the requirements of ASTM C 94. Truck mixers and truck agitator shall not be used to transport paving concrete.

(4) Nonagitator trucks. Concrete shall be transported to the paving site in nonagitating equipment. Nonagitating hauling equipment shall conform to the requirements of ASTM C 94.

c. Finishing Equipment. The standard method of constructing concrete pavements on FAA projects for this project shall be with an approved slip-form paving equipment. The paver-finisher shall be a heavy-duty, self-propelled slip-form machine designed to spread, consolidate, screed, and float-finish the freshly placed concrete in one complete pass of the machine so a dense and homogeneous pavement is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements. It shall weigh at least 2200 lbs. per foot of paving lane width and powered by an engine having at least 6.0 horsepower per foot of lane width.

On projects requiring less than 500 sq yd of cement concrete pavement or requiring individual individual placement areas of less than 500 sq yd, or irregular areas at locations inaccessible to slipform paving equipment, cement concrete pavement may be placed with approved placement and construction methods.
finishing equipment using stationary side forms. Hand screeding and float finishing may only be used on small irregular areas as allowed by the Engineer.

d. Vibrators. Vibrator shall be the internal type. Operating frequency for internal vibrators shall be between 8,000 and 12,000 vibrations per minute. Average amplitude for internal vibrators shall be 0.025–0.05 in (0.06–0.13 cm). The number, spacing, and frequency shall be as necessary to provide a dense and homogeneous pavement and meet the recommendations of ACI 309, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the Engineer. As a general guideline, operating frequency for internal vibrators may be between 8,000 and 12,000 vibrations per minute, and average amplitude for internal vibrators may be 0.025–0.05 in (0.06–0.13 cm). Hand held vibrators may be used in irregular areas only, but shall meet the recommendations of ACI 309, Guide for Consolidation of Concrete.

e. Concrete Saws. The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations.

f. Side Forms. Side-form paving shall be used in accordance to paragraph 501-4.1.c Finishing Equipment. Straight side forms shall be made of steel and shall be furnished in sections not less than 10 feet (3 m) in length. Forms shall have a depth equal to the pavement thickness at the edge, and a base width equal to or greater than the depth. Flexible or curved forms of proper radius shall be used for curves of 100 ft (31 m) radius or less. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 in (3 mm) in 10 ft (3 m), and the upstanding leg shall not vary more than 1/4 in (6 mm). The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the Engineer.

g. Pavers. The paver shall be fully energized, self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement, true to grade, tolerances, and cross section. It shall be of sufficient weight and power to construct the maximum specified concrete paving lane width as shown in the plans, at adequate forward speed, without transverse, longitudinal or vertical instability or without displacement. The paver shall be equipped with electronic or hydraulic horizontal and vertical control devices. The slip-form paver shall be automatically controlled from taut wire guideline for horizontal alignment and on both side from a taut wire guideline for vertical alignment, except that electronic control from a ski operating on a previously constructed adjoining lane shall be used where applicable for either or both sides. Automatic, electronic controls for vertical alignment shall always be used on both sides of the lane. Control from a slope-adjusted control or control operating from the underlying material shall never be used. Stringless guidance systems can be used providing it is a 3D machine control system where the target horizontal and vertical alignment is a digital terrain model. The system shall be fault tolerant in which the system cannot be affected by any electrical interference on or around the equipment. If the Contractor plans to use any type of stringless guidance system, the Contractor shall submit a detailed description of the system and perform a trial field demonstration in the presence of the Engineer during the test section procedures. Approval of the systems will be based on the results of the demonstration and on continuing satisfactory operations during paving.

501-4.2 FORM SETTING. Side-form paving shall be used in accordance to paragraph 501-4.1.c Finishing Equipment. Forms shall be set sufficiently in advance of the concrete placement to
insure continuous paving operation. After the forms have been set to correct grade, the underlying surface shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place sufficiently to maintain the form in position for the method of placement.

Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/8 in. (3 mm) at any joint. Forms shall be so set that they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete.

501-4.3 CONDITIONING OF UNDERLYING SURFACE. The compacted underlying surface on which the pavement will be placed shall be widened approximately 3 ft (1 m) to extend beyond the paving machine track to support the paver without any noticeable displacement. After the underlying surface has been placed and compacted to the required density, the areas that will support the paving machine and the area to be paved shall be trimmed or graded to the plan grade elevation and profile by means of a properly designed machine. The grade of the underlying surface shall be controlled by a positive grade control system using lasers, stringlines, or guide wires. If the density of the underlying surface is disturbed by the trimming operations, it shall be corrected by additional compaction and restated at the option of the Engineer before the concrete is placed except when stabilized subbases are being constructed. If damage occurs on a stabilized subbase, it shall be corrected full depth by the Contractor in accordance with the stabilized subbase specification. If traffic is allowed to use the prepared grade, the grade shall be checked and corrected immediately before the placement of concrete. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete. The underlying surface shall be protected so that it will be entirely free of frost when concrete is placed cleaned, free of dirt, debris, and other undesirable materials.

If an asphalt subbase is used, the asphalt base shall be whitewashed. Whitewashing consists of either white-pigmented curing compound or lime slurry sprayed on the surface applied at a rate of one gallon to not more than 100 square feet. The cost of whitewashing is incidental to the cost of Portland Cement Concrete Pavement.

501-4.4 CONDITIONING OF UNDERLYING SURFACE, SIDE-FORM AND FILL-IN LANE CONSTRUCTION. The prepared underlying surface shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from the concrete. Damage caused by hauling or usage of other equipment shall be corrected and restated at the option of the Engineers. If damage occurs to a stabilized subbase, it shall be corrected full depth by the Contractor. A template shall be provided and operated on the forms immediately in advance of the placing of all concrete. The template shall be propelled only by hand and not attached to a tractor or other power unit. Templates shall be adjustable so that they may be set and maintained at the correct contour of the underlying surface. The adjustment and operation of the templates shall be such as will provide an accurate retest of the grade before placing the concrete thereon. All excess material shall be removed and wasted. Low areas shall be filled and compacted to a condition similar to that of the surrounding grade. The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily. The underlying surface shall be protected so that it will be entirely free from frost when the concrete is placed. The use of chemicals to eliminate frost in the underlying surface shall not be permitted. The underlying surface shall be cleaned, free of dirt, debris, and other undesirable materials.

The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily.
501-4.5 HANDLING, MEASURING, AND BATCHING MATERIAL. The batch plant site, layout, equipment, and provisions for transporting material shall assure a continuous supply of material to the work. Stockpiles shall be constructed in such a manner that prevents segregation and intermixing of deleterious materials. Stockpiles shall be tiered in layers not exceeding 12 feet high for one size aggregates, and shall be not more than 6 feet high for aggregate gradations that contain uniform percentages of varying size particles.

Aggregates that have become segregated or mixed with earth or foreign material shall not be used and shall be rejected by the Engineer. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipments requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage.

Batching plants shall be equipped to proportion aggregates and bulk cement, by weight, automatically using interlocked proportioning devices of an approved type. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, such as a chute, boot, or other approved device, to prevent loss of cement. The device shall be arranged to provide positive assurance that the cement content specified is present in each batch.

501-4.6 MIXING CONCRETE. The concrete may—shall be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C 94.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in non-agitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. Retempering concrete by adding water or by other means will—shall not be permitted. With transit mixers, additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified in the approved mix design is not exceeded, and approved by the Engineer.

501-4.7 LIMITATIONS ON MIXING AND PLACING. No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

a. Cold Weather. Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40 °F (4 °C) and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35 °F (2 °C). The temperature of the mixed concrete shall not be less than 50 °F (10 °C) at the time of placement.

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 60 °F (10 °C) at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150 °F (66 °C). The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

b. Hot Weather. During periods of hot weather when the maximum daily air temperature exceeds 85 °F (30 °C), the following precautions shall be taken.
The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90° F (35 °C). The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.

The finished surfaces of the newly laid pavement shall be kept damp by applying a water-fog or mist with approved spraying equipment until the pavement is covered by the curing medium. If necessary, wind screens shall be provided to protect the concrete from an evaporation rate in excess of 0.2 psf per hour as determined in accordance with Figure 2.1.5 in ACI 305R, Hot Weather Concreting, which takes into consideration relative humidity, wind velocity, and air temperature. For fast computation use Eq. 8 of ACI materials journal, V95, No 4 July-August 1993.

When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. Such measures shall consist of wind screens, more effective fog sprays, and similar measures commencing immediately behind the paver. If these measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

c. Temperature Management Program. Prior to the start of paving operation for each day of paving, the contractor shall provide the engineer with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. As a minimum the program shall address the following items:

1) Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

2) Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity.

3) Anticipated timing of initial sawing of joint.

d. Protecting Concrete from Rain Damage. The Contractor's Weather Management shall include provision to protect freshly placed concrete from rain damage. If rain appears imminent, the contractor shall not place concrete. The Contractor shall keep on-site sufficient water proof material and means to rapidly place the waterproof material over all unhardened concrete surface that may be damaged by rain. Concrete shall not be placed during rain that results in any standing water on the surface of the fresh concrete surface.

The Contractor shall not attempt to remove any rainwater from the unhardened concrete surface prior to application of the waterproof material. The Contractor shall also not manually finish or texture the freshly place concrete if there is any rainwater on the concrete surface. At the end of the rainstorm, the Contractor shall remove the waterproof material, allow any standing rainwater to evaporate, and apply curing material.

Rain-damaged concrete shall be cored as directed by the Designer and depth of damage determined by petrographic examination. If the depth of damage is ¼ inch or less of the pavement thickness, the damaged area may be corrected by diamond grinding as directed by the Engineer. If the damage is greater that ¼ inch of the pavement thickness, the slab shall be considered defective and replaced in accordance with paragraph 501-4.19 REPAIR, REMOVAL, and REPLACEMENT OF SLABS.

e. Documentation of Weather Data. The Contractor shall provide a continuous and accurate record of air temperature, relative humidity, concrete temperature and wind velocity at the project site with portable weather station, adjacent to paving areas(s). The data shall be
collected and documented by the Contractor continuously for the full duration of the project. The Contractor's quality control staff shall document the weather data in the daily Quality Control Reports and use and implement the data to eliminate the potential for plastic cracking of Portland cement concrete pavement by estimation the evaporation rate from Figure 2.1.5 in ACI 305R or Eq. 8 of the ACI Materials Journal.

501-4.8 PLACING CONCRETE. The Contractor has the option of placing the concrete with either side (fixed) forms or slip-forms, except as indicated by the Engineer. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 ft (1 m). Backhoes and Grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used unless the contractor demonstrates that they can be used without contaminating the concrete and base course and it is approved by the Engineer.

Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a flexural strength of 550 psi, based on the average of four field cured specimens per 2,000 cubic yards (1,530 cubic meters) of concrete placed. Also, subgrade and subbase planers, concrete pavers, and concrete finishing equipment may be permitted to ride upon the edges of previously constructed pavement when the concrete has attained a minimum flexural strength of 400 psi. The flexural strength of the concrete shall be determined in accordance with paragraph 501-4.18 Opening to Traffic.

a. Slip-Form Construction. The concrete shall be distributed uniformly into final position by a self propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well defined edges. The sliding forms shall be rigidly held together laterally to prevent spreading of the forms.

The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 in. The spacing of internal units shall be uniform and shall not exceed 18 in.

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be within 8000 to 12000 cycles per minute or as required to adequately consolidate the concrete, and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least 1 ft. The frequency of vibration or amplitude shall vary proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible. And all operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.
b. Side-Form Construction. Side form sections shall be straight, free from warps, bends, indentations, or other defects. Defective forms shall be removed from the work. Metal side forms shall be used except at end closures and transverse construction joints where straight forms of other suitable material may be used.

Side forms may be built up by rigidly attaching a section to either top or bottom of forms. If such build-up is attached to the top of metal forms, the build-up shall also be metal.

Width of the base of all forms shall be equal to at least 80 percent of the specified pavement thickness.

Side forms shall be of sufficient rigidity, both in the form and in the interlocking connection with adjoining forms, that springing will not occur under the weight of subgrading and paving equipment or from the pressure of the concrete. The Contractor shall provide sufficient forms so that there will be no delay in placing concrete due to lack of forms.

Before placing side forms, the underlying material shall be at the proper grade. Side forms shall have full bearing upon the foundation throughout their length and width of base and shall be placed to the required grade and alignment of the finished pavement. They shall be firmly supported during the entire operation of placing, compacting, and finishing the pavement.

Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and oiled each time they are used and before concrete is placed against them.

Concrete shall be spread, screeded, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery.

Concrete for the full paving width shall be effectively consolidated by internal vibrators without causing segregation. Internal type vibrators' rate of vibration shall be not less than 7,000 cycles per minute. Amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete more than 1 ft from the vibrating element. The Contractor shall furnish a tachometer or other suitable device for measuring and indicating frequency of vibration.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete.

c. Consolidation Testing. The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the
harden concrete. If a lack of consolidation of the concrete is suspected by the Engineer, additional referee testing may be required. Referee testing of hardened concrete will be performed by cutting cores from the finished pavement after a minimum of 24 hours curing. Density determinations will be made based on the water content of the core as taken. ASTM C 642 shall be used for the determination of core density in the saturated-surface dry condition. Referee cores will be taken at the minimum rate of one for each 500 cubic yards of pavement, or fraction thereof.

The average density of the cores shall be at least 97 percent of the original mix design density, with no cores having a density of less than 96 percent of the original mix design density.

Failure to meet the above requirements will be considered as evidence that the minimum requirements for vibration are inadequate for the job conditions, and additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete as indicated by further referee testing shall conform to the above listed requirements.

501-4.9 STRIKE-OFF OF CONCRETE AND PLACEMENT OF REINFORCEMENT. Following the placing of the concrete, it shall be struck off to conform to the cross section shown on the plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and spread. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading. For reinforced concrete, the reinforcement shall be placed and secured on approved chairs as detailed in the drawings. The Contractor shall provide enough chairs to avoid sagging of the reinforcement during concrete placement. Reinforcement shall not be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

501-4.10 JOINTS. Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2 in (13 mm) from the designated position and shall be true to line with not more than 1/4 in (6 mm) variation in 10 ft (3 m). The surface across the joints shall be tested with a 10 ft (3 m) straightedge as the joints are finished and any irregularities in excess of 1/4 in (6 mm) shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

a. Construction. Longitudinal construction joints shall be slip-formed or formed against side forms with or without keyways, as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.
b. Contraction. Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 in (3 mm) wide and to the depth shown on the plans.

c. Expansion—Isolation. Expansion—Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface. A solid cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck off, the cap shall be carefully withdrawn leaving the space over the premolded filler. The edges of the joint shall be finished and tooled while the concrete is still plastic. Any concrete bridging the joint space shall be removed for the full width and depth of the joint.

d. Keyways. Keyways (only female keys permitted) shall be formed in the plastic concrete by means of side forms or the use of keyway liners that are inserted during the slip form operations. The keyway shall be formed to a tolerance of 1/16 in (0.1 mm) in any dimension and shall be of sufficient stiffness to support the upper keyway flange without distortion or crumbling of the top of the flange. The dimensions of the keyway forms shall not vary more than plus or minus 1/16 in (0.1 mm) from the mid-depth of the pavement. Liners that remain in place permanently and become part of the keyed joint shall be made of galvanized, copper clad, or of similar rust-resistant material compatible with plastic and hardened concrete and shall not interfere with joint reservoir sawing and sealing.

de. Tie bars. Tie bars shall consist of deformed bars installed in joints as shown on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth. When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. These bars shall not be painted, greased, or enclosed in sleeves. When slip-form operations call for tie bars, two-piece hook bolts can be installed in the female side of the keyed joint provided the installation is made without distorting the keyed dimensions or causing edge slump. If a bent tie bar installation is used, the tie bars shall be inserted through the keyway liner only on the female side of the joint. In no case shall a bent tie bar installation for male keyways be permitted.

ef. Dowel bars. Dowel bars or other load-transfer units of an approved type shall be placed across joints in the manner as shown on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. A metal, or other type, dowel expansion cap or sleeve shall be furnished for each dowel-bar used with expansion joints. These caps shall be substantial enough to prevent collapse and shall be placed on the ends of the dowels as shown on the plans. The caps or sleeves shall fit the dowel-bar tightly and the closed end shall be watertight. -The portion of each dowel painted with rust preventative paint, as required under paragraph 501-2.7 and shown on the plans to receive a debonding lubricant, shall be thoroughly coated with asphalt MC-70, or an approved lubricant, to prevent the concrete from bonding to that portion of the dowel. If free-sliding plastic-coated or epoxy-coated steel dowels are used, a lubrication bond breaker shall be used except when approved pullout tests indicate it is not necessary. Where butt-type joints with dowels are designated, the exposed end of the dowel shall be oiled.
Dowel bars at contraction joints may be placed in the full thickness of pavement by a mechanical device approved by the Engineer. The device shall be capable of installing dowel bars within the maximum permissible alignment tolerances. Dowel bars at longitudinal construction joints shall be bonded in drilled holes.

**fg. Installation.** All devices used for the installation of expansion joints shall be approved by the Engineer.

The top of an assembled joint device shall be set at the proper distance below the pavement surface and the elevation shall be checked. Such devices shall be set to the required position and line and shall be securely held in place by stakes or other means to the maximum permissible tolerances during the pouring and finishing of the concrete. The premolded joint material shall be placed and held in a vertical position; if constructed in sections, there shall be no offsets between adjacent units.

Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerances on dowel bar alignment shall be in accordance with paragraph 501-5.2e(6). During the concrete placement operation, it is advisable to place plastic concrete directly on dowel assemblies immediately prior to passage of the paver to help maintain dowel position and alignment within maximum permissible tolerances.

When concrete is placed using slip-form pavers, dowels and tie bars shall be placed in longitudinal construction joints by bonding the dowels or tie bars into holes drilled into the hardened concrete. Holes approximately 1/8 in to 1/4 in (3 to 6 mm) greater in diameter than the dowel or tie bar shall be drilled with rotary-type core drills that must be held securely in place to drill perpendicularly into the vertical face of the pavement slab. **Dowel holes may be drilled when the concrete has achieved a flexural strength of 400 psi.** The flexural strength of the concrete shall be determined in accordance with paragraph 501-4.18 Opening to Traffic. Rotary-type percussion drills may be used provided that spalling of concrete does not occur. Any damage of the concrete shall be repaired by the Contractor in a method approved by the Engineer. Dowels or tie bars shall be bonded in the drilled holes using an epoxy resin material. Installation procedures shall be adequate to insure that the area around dowels is completely filled with epoxy grout. Epoxy shall be injected into the back of the hole and displaced by the insertion of the dowel bar. Bars shall be completely inserted into the hole and shall not be withdrawn and reinserted creating air pockets in the epoxy around the bar. The Contractor shall furnish a template for checking the position and alignment of the dowels. Dowel bars shall not be less than 10 in (25 cm) from a transverse joint and shall not interfere with dowels in the transverse direction.

**gh. Sawing of Joints.** Joints shall be cut as shown on the plans. Equipment shall be as described in paragraph 501-4.1. The circular cutter shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/8 in (3 mm) wide and to the depth shown on the plans. The top portion of the slot shall be widened by sawing to provide adequate space for joint sealers as shown on the plans. Sawing shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs. Sawing shall be carried on both during the day and night as required. The joints shall be sawed at the required spacing, consecutively in sequence of the concrete placement or as approved by the Engineer. Curing compound, if being used as the cure type, shall be reapplied in the initial sawcut and maintained for the remaining cure period. Curing compound shall not be applied, and used as the cure method, to any final concrete face that is to receive a sealant. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing.

**501-4.11 FINAL STRIKE-OFF, CONSOLIDATION, AND FINISHING.**

**a. Sequence.** The sequence of operations shall be the strike-off, floating and removal of laitance, straightedges, and final surface finish. The addition of superficial water to the surface of the concrete to assist in finishing operations will not be permitted. **During extreme hot weather conditions,**
the Engineer may allow a light fog spray to be used to assist in finishing operations. The light fog spray shall be approved by the Engineer.

b. Finishing at Joints. The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material; it shall be firmly placed without voids or segregation under and around all load-transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated as required in paragraph 501-4.8.a. After the concrete has been placed and vibrated adjacent to the joints, the finishing machine shall be operated in a manner to avoid damage or misalignment of joints. If uninterrupted operations of the finishing machine, to, over, and beyond the joints, cause segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the screed is approximately 8 in (20 cm) from the joint. Segregated concrete shall be removed from the front of and off the joint; and the forward motion of the finishing machine shall be resumed. Thereafter, the finishing machine may be run over the joint without lifting the screed, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.

c. Machine Finishing. The concrete shall be spread as soon as it is placed, and it shall be struck off and screeded by a finishing machine. The machine shall go over each area as many times and at such intervals as necessary to give to proper consolidation and to leave a surface of uniform texture. Excessive operation over a given area shall be avoided. Paving equipment for slip-form paving shall be in accordance with paragraph 501-4.1.c Finishing Equipment. The slip-from paver shall shape the concrete to the specified and indicated cross section, meeting all tolerances, in one pass. The slip-from paver shall finish the surface and edges so that only a very minimum isolated amount of hand finish is required. If the paving operation does not meet the above requirements and the specified tolerances, immediately stop the operation, replace or modify any equipment as necessary, modify paving procedures or modify the concrete mix in order to resolve the problem.

When side forms are used in placement areas less than 500 square yards, the tops of the forms shall be kept clean by an effective device attached to the machine, and the travel of the machine on the forms shall be maintained true without lift, wobbling, or other variation tending to affect the precision finish. During the first pass of the finishing machine, a uniform ridge of concrete shall be maintained ahead of the front-screed for its entire length. The machine shall make only one pass over each areas of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operations shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary. When in operation, the screed shall be moved forward with a combined longitudinal and transverse shearing motion, always moving in the direction in which the work is progressing, and so manipulated that neither end is raised from the side forms during the striking-off process. If necessary, this shall be repeated until the surface is of uniform texture, true-to-grade and cross-section, and free from porous areas.

d. Hand Finishing. Hand finishing methods will not be permitted, except under the following conditions: in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade; in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used.

The screed for the surface shall be a least 2 feet (0.6 m) longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and shall be constructed either of metal or of other suitable material covered with metal. Consolidation shall be attained by the use of suitable vibrators. A second screed shall be provided for striking off the bottom layer of concrete when reinforcement is used.

e. Floating. After the concrete has been struck off and consolidated, it shall be further smoothed and trued by means of a longitudinal float using one of the following methods:
(1) **Hand Method.** Long-handled floats shall not be less than 12 feet (3.6 m) in length and 6 in (15 cm) in width, stiffened to prevent flexibility and warping. The float shall be operated from footbridges spanning but not touching the concrete or from the edge of the pavement. Floating shall pass gradually from one side of the pavement to the other. Forward movement along the centerline of the pavement shall be in successive advances of not more than one-half the length of the float. Any excess water or laitance in excess of 1/8 in (3 mm) thick shall be removed and wasted.

(2) **Mechanical method.** The Contractor may use a machine composed of a cutting and smoothing floats, suspended from and guided by a rigid frame and constantly in contact with, the side forms or underlying surface. If necessary, long-handled floats having blades not less than 5 feet (1.5 m) in length and 6 in (15 cm) in width may be used to smooth and fill in open-textured areas in the pavement. When the crown of the pavement will not permit the use of the mechanical float, the surface shall be floated transversely by means of a long-handled float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance in excess of 1/8 in (3 mm) thick shall be removed and wasted. Successive drags shall be lapped one-half the length of the blade.

**f. Straight-edge Testing and Surface Correction.** After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a Contractor furnished 16 ft (5 m) straightedge swung from handles 3 feet (1 m) longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 in (3 mm) thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements of paragraph 501-5.2e(3). Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

**501-4.12 SURFACE TEXTURE.** The surface of the pavement shall be finished with either a brush or broom, burlap drag, or artificial turf finish for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the Engineer.

**a. Brush or Broom Finish.** If the pavement surface texture is to be a type of brush or broom finish, it shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface, providing corrugations that are uniform in appearance and approximately 1/16 in (2 mm) in depth.

**b. Burlap Drag Finish.** If a burlap drag is used to texture the pavement surface, it shall be at least 15 ounces per square yard (555 grams per square meter). To obtain a textured surface, the transverse threads of the burlap shall be removed approximately 1 ft (0.3 m) from the trailing edge. A heavy buildup of grout on the burlap threads produces the desired wide sweeping longitudinal striations on the pavement surface. The corrugations shall be uniform in appearance and approximately 1/16 in (2 mm) in depth.

**c. Artificial Turf Finish.** If artificial turf is used to texture the surface, it shall be applied by dragging the surface of the pavement in the direction of concrete placement with an approved full-width drag made with artificial turf. The leading transverse edge of the artificial turf drag will be securely fastened to a lightweight pole on a traveling bridge. At least 2 feet of the artificial turf shall be in contact with the concrete surface during dragging operations. A variety of different types of artificial turf are available and approval of any one type will be done only after it has been demonstrated by the Contractor to provide a satisfactory texture. One type that has provided satisfactory texture consists of 7,200
approximately 0.35 inch-long polyethylene turf blades per square foot. The corrugations shall be uniform in appearance and approximately 1/16 in (2 mm) in depth.

SKID-RESISTANT SURFACES SAW-CUT GROOVING. If shown on the plans, skid-resistant surfaces for asphalt pavements shall be provided by construction of saw-cut grooves as shown in the plans. Saw-cut grooves must meet the requirements of Item P-621.

501-4.14 CURING. Immediately after finishing operations are completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-sawcut method is used to construct the contraction joint, the curing compound shall be applied to the sawcut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

a. Impervious Membrane Method. The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of 1 gallon (4 liters) to not more than 150 sq ft (14 sq m). The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application the compound shall be stirred continuously by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the Engineer, a double application rate shall be used to insure coverage. The curing compound shall be of such character that the film will harden within 30 minutes after application. Should the film become damaged from any cause, including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

b. Polyethylene Films. The top surface and sides of the pavement shall be entirely covered with polyethylene sheeting. The units shall be lapped at least 18 in (457 mm). The paper shall be placed and weighted to cause it to remain in contact with the surface and sides. The sheeting shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the pavement. Unless otherwise specified, the sheeting shall be maintained in place for 7 days after the concrete has been placed. This sheeting will be on site to protect fresh pavement from unanticipated rain events that could mar the surface finish.

c. Waterproof Paper. The top surface and sides of the pavement shall be entirely covered with waterproofed paper. The units shall be lapped at least 18 in (457 mm). The paper shall be placed and weighted to cause it to remain in contact with the surface covered. The paper shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the slab. The surface of the pavement shall be thoroughly saturated prior to placing of the paper. Unless otherwise specified, the paper shall be maintained in place for 7 days after the concrete has been placed.

cd. White Burlap-Polyethylene Sheets. The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the
entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for 7 days after the concrete has been placed.

(1) Curing in Cold Weather. The concrete shall be maintained at a temperature of at least 50 °F (10 °C) for a period of 72 hours after placing and at a temperature above freezing for the remainder of the curing time. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather, and any concrete injured by frost-action—low temperatures shall be removed and replaced at the Contractor’s expense.

e. Water Method. The entire area shall be covered with burlap or other water-absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for 7 days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.

501-4.15 REMOVING FORMS. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently for at least 12 hours to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured as outlined in one of the methods indicated in paragraph 501-4.14. Major honeycombed areas shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-5.2(f).

501-4.16 SEALING JOINTS. The joints in the pavement shall be sealed in accordance with Item P-605.

501-4.17 PROTECTION OF PAVEMENT. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor’s employees and agents. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor’s expense. The Contractor shall have available at all times, materials for the protection of the edges and surface of the unharden concrete. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unharden concrete with the protective covering.

501-4.18 OPENING TO TRAFFIC. The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C 31 have attained a flexural strength of 550 lb/sq in (3,792 kPa) when tested in accordance with ASTM C 78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion. The pavement shall be cleaned before opening for normal operations.

501-4.19 REPAIR, REMOVAL, REPLACEMENT OF SLABS.

a. General. New pavement slabs that are broken or contain cracks shall be removed and replaced or repaired as specified hereinafter at no cost to the Owner. Spalls along joints not exceeding 15 percent of each slab’s longitudinal joint edge shall be repaired as specified. Slabs exceeding this quantity regardless of spall size shall be removed and replaced. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The engineer will
determine whether cracks extend full depth of the pavement and may require cores to be drilled on the
crack to determine depth of cracking. Such cores shall be 4 in (100 mm) diameter, shall be drilled by the
Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the
walls of the hole with epoxy resin, using approved procedures. Drilling of cores and refilling holes shall
be at no expense to the owner. All epoxy resin used in this work shall conform to ASTM C 881, Type V.

b. Shrinkage Cracks. Shrinkage cracks, which do not exceed 4 in (100 mm) from either adjacent original transverse joint, The full slab shall be removed and replaced at no cost to the owner, when there are any full-depth cracks, or cracks greater than 4 in (100 mm) from the joint shall be treated as full-depth cracks in accordance with paragraphs 4.19b and 4.19c.

c. Slabs With Cracks Through Interior Areas. Interior area is defined as that area more than 6 in (150 mm) from either adjacent original transverse joint. The full-slab shall be removed and replaced at no cost to the owner, when there are any full-depth cracks, or cracks greater than 4 in (100 mm) from the joint shall be treated as full-depth cracks in accordance with paragraphs 4.19b and 4.19c.

d. Cracks Close To and Parallel To Joints. All cracks essentially parallel to original joints, extending full-depth of the slab, and lying wholly within 6 in (150 mm) on either side of the joint shall be treated as specified hereinafter. Any crack extending more than 6 in (150 mm) from the joint shall be treated as specified above in subparagraph "Slabs With Cracks Through Interior Area."

1. Full-Depth Cracks Present, Original Joint Not-Opened. When the original uncracked joint has not opened, the crack shall be sawed and sealed, and the original joint filled with epoxy resin as specified below. The crack shall be sawed with equipment specially designed to follow random cracks. The reservoir for joint sealant in the crack shall be formed by sawing to a depth of 3/4 in (19 mm), plus or minus 1/16 in (1.6 mm), and to a width of 5/8 in (16 mm), plus or minus 1/8 in (3.2 mm). Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent such raveling or spalling. The joint sealant shall be a liquid sealant as specified. Installation of joint seal shall be as specified for sealing joints or as directed. If the joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly troweled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 4, using approved procedures. If filler type material has been used to form a weakened plane in the transverse joint, it shall be completely sawed out and the saw cut pressure injected with epoxy resin, Type IV, Grade 4, using approved procedures. Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remainder of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.

2. Full-Depth Cracks Present, Original Joint Also Cracked. At a joint, if there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced for the full lane width and length.

be. Removal and Replacement of Full Slabs. Where it is necessary to remove full slabs, unless there are keys or dowels present, all edges of the slab shall be cut full depth with a concrete saw. All saw cuts shall be perpendicular to the slab surface. If keys, dowels, or tie bars are present along any edges, these edges shall be sawed full depth 24 in (600 mm) from the edge if only keys are present, or just beyond the end of the dowels or tie bars if they are present. These joints shall then be carefully sawed on the joint line to within 1 in (25 mm) of the depth of the dowel or key.

The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed. Suitable equipment shall be used to provide a truly vertical lift, and approved safe lifting devices used for attachment to the slabs. The narrow strips along keyed or doweled edges

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shall be carefully broken up and removed using light, hand-held jackhammers, 30 lb (14 kg) or less, or other approved similar equipment.

Care shall be taken to prevent damage to the dowels, tie bars, or keys to or concrete to remain in place. The joint face below keys or dowels shall be suitably trimmed so that there is not abrupt offset in any direction greater than 1/2 in (12 mm) and no gradual offset greater than 1 in (25 mm) when tested in a horizontal direction with a 12 ft (3.6 m) straightedge.

No mechanical impact breakers, other than the above hand-held equipment shall be used for any removal of slabs. If underbreak between 1-1/2 and 4 in (37 and 100 mm) deep occurs at any point along any edge, the area shall be repaired as directed before replacing the removed slab. Procedures directed will be similar to those specified for surface spalls, modified as necessary.

If underbreak over 4 in (100 mm) deep occurs, the entire slab containing the underbreak shall be removed and replaced. Where there are no dowels, tie bars, or keys on an edge, or where they have been damaged, dowels of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete using procedures as specified. Original damaged dowels or tie bars shall be cut off flush with the joint face. Protruding portions of dowels shall be painted and lightly oiled. All 4 edges of the new slab shall thus contain dowels or original keys or original tie bars.

Placement of concrete shall be as specified for original construction. Prior to placement of new concrete, the underlying material (unless it is stabilized) shall be re-compacted and shaped as specified in the appropriate SECTION of these specifications. The surfaces of all four joint faces shall be cleaned of all loose material and contaminants and coated with a double application of membrane forming curing compound as bond breaker. Care shall be taken to prevent any curing compound from contacting dowels or tie bars. The resulting joints around the new slab shall be prepared and sealed as specified for original construction.

cf. Repairing Spalls Along Joints. Where directed, spalls along joints of new slabs, and along parallel cracks used as replacement joints, spalls along joints not exceeding 15.0 percent of each slab's longitudinal joint edge shall be repaired by first making a vertical saw cut at least 1 in (25 mm) outside the spalled area and to a depth of at least 2 in (50 mm). Saw cuts shall be straight lines forming rectangular areas. The concrete between the saw cut and the joint, or crack, shall be chipped out to remove all unsound concrete and at least 1/2 in (12 mm) of visually sound concrete. The cavity thus formed shall be thoroughly cleaned with high-pressure water jets supplemented with compressed air to remove all loose material. Immediately before filling the cavity, a prime coat of epoxy resin, Type III, Grade I, shall be applied to the dry cleaned surface of all sides and bottom of the cavity, except any joint face. The prime coat shall be applied in a thin coating and scrubbed into the surface with a stiff-bristle brush. Pooling of epoxy resin shall be avoided. The cavity shall be filled with low slump Portland cement concrete or mortar or with epoxy resin concrete or mortar. Concrete shall be used for larger spalls, generally those more than 1/2 cu. ft. (0.014 m³) in size, and mortar shall be used for the smaller ones. Any spall less than 0.1 cu. ft. (0.003 m³) shall be repaired only with epoxy resin mortar or a Grade III epoxy resin. Portland cement concrete and mortar mixtures shall be proportioned as directed and shall be mixed, placed, consolidated, and cured as directed. Epoxy resin mortars shall be made with Type III, Grade 1, epoxy resin, using proportions and mixing and placing procedures as recommended by the manufacturer and approved by the Engineer. The epoxy resin materials shall be placed in the cavity in layers not over 2 in (50 mm) thick. The time interval between placement of additional layers shall be such that the temperature of the epoxy resin material does not exceed 140 °F (60 °C) at any time during hardening. Mechanical vibrators and hand tampers shall be used to consolidate the concrete or mortar. Any repair material on the surrounding surfaces of the existing concrete shall be removed before it hardens. Where the spalled area abuts a joint, an insert or other bond-breaking medium shall be used to prevent bond at the joint face. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints. If
any spall penetrates half the depth of the slab or more, the entire slab shall be removed and replaced as previously specified.

501-4.20 EXISTING CONCRETE PAVEMENT REMOVAL AND REPAIR.

All operations shall be carefully controlled to prevent damage to the concrete pavement and to the underlying material to remain in place. All saw cuts shall be made perpendicular to the slab surface.

a. Removal of Existing Pavement Slab.

When it is necessary to remove existing concrete pavement and leave adjacent concrete in place, the joint between the removal area and adjoining pavement to stay in place, including dowels, tie bars or keys, shall first be cut full depth with a standard diamond-type concrete saw. If keys or dowels are present at this joint, the saw cut shall be made full depth 6 in (150 mm) from the joint if only keys are present, or just beyond the end of dowels if dowels are present. The edge shall then be carefully sawed on the joint line to within 1 in (25 mm) of the top of the dowel or key. Next, a full depth saw cut shall be made parallel to the joint at least 24 in (600 mm) from the joint and at least 12 in (300 mm) from the end of any dowels. All pavement between this last saw cut and the joint line shall be carefully broken up and removed using hand-held jackhammers, 30 lb. (14 kg) or less, or the approved light-duty equipment which will not cause stress to propagate across the joint saw cut and cause distress in the pavement which is to remain in place. Where dowels or keys are present, care shall be taken to produce an even, vertical joint face below the dowels or keys. If the Contractor is unable to produce such a joint face, or if underbreak or other distress occurs, the Contractor shall saw the dowels or keys flush with the joint. The Contractor shall then install new dowels, of the size and spacing used for similar joints, by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph “Placing Dowels”. All this shall be at no additional cost to the Owner. Dowels of the size and spacing indicated shall be installed as shown on the drawings by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph “Placing Dowels”. The joint face shall be sawed or otherwise trimmed so that there is no abrupt offset in any direction greater than 1/2 in (12 mm) and no gradual offset greater than 1 in (25 mm) when tested in a horizontal direction with a 12 ft. (3.6 m) straightedge.

b. Edge Repair.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Areas that are damaged during construction shall be repaired at no cost to the Owner; repair of previously existing damage areas [will be paid for as listed in the bid schedule] will be considered a subsidiary part of concrete pavement construction.

(1) Spall Repair. Spalls shall be repaired where indicated and where directed. Repair materials and procedures shall be as previously specified in subparagraph “Repairing Spalls Along Joints.”

(2) Underbreak Repair. All underbreak shall be repaired. First, all delaminated and loose material shall be carefully removed. Next, the underlying material shall be recompacted, without addition of any new material. Finally, the void shall be completely filled with paving concrete, thoroughly consolidated. Care shall be taken to produce an even joint face from top to bottom. Prior to placing concrete, the underlying material shall be thoroughly moistened. After placement, the exposed surface shall be heavily coated with curing compound.

(3) Underlying Material. The underlying material adjacent to the edge of an under the existing pavement which is to remain in place shall be protected from damage or disturbance during removal operations and until placement of new concrete, and shall be shaped as shown on the drawings or as directed. Sufficient material shall be kept in place outside the joint line to prevent disturbance (or sloughing) of material under the pavement that is to remain in place. Any material under the portion of the concrete pavement to remain in place, which is disturbed or loses its compaction shall be carefully removed and replaced with concrete as specified in paragraph “Underbreak Repair.”
underlying material outside the joint line shall be thoroughly compacted and moist when new concrete is placed.

501-4.21 TEST SECTION. In order to adjust the concrete mix and validate the concrete placement methods and consolidation of concrete, the Contractor shall place a concrete test section a minimum 2 panels wide by 500 feet long minimum or more as required for the Contractor to demonstrate that production can be conducted in accordance with all requirements specified in Item P-501. The location of the test section shall be determined by the Engineer. The test section shall be placed a minimum of 3 days prior to start of paving operations and must be accepted by Engineer before the Contractor proceeds with any concrete paving operations.

The various placement parameters that affect the placement of the concrete shall be recorded by the Contractor during the test section placement. Those parameters include but are not limited to speed of the machine, placement of vibrators, frequency and amplitude of the vibrators, concrete characteristics, weather, concrete beam placement and initial curing methods, coring and handling of thickness cores. Before the test section is placed, the Engineer and the Contractor shall meet to discuss the proposed test section placement and agree to all of the various parameters to be recorded. The records are to be turned over to the Engineer at the end of the placement operation.

The Contractor will not be allowed to place the test section until the Contractor Quality Control Program, showing conformance with the requirements of Paragraph 501-6.1, has been approved, in writing, by the Engineer.

A minimum of 8 cores shall be taken by the Contractor and submitted to the Engineer within three (3) days of placement. The location of the cores shall be determined by the Engineer.

If the initial test section should prove to be unacceptable, it shall be removed at the Contractor's expense and the necessary adjustments to the job mix formula, plant operation, placing procedures, etc. shall be made. Another test section shall then be placed. Additional test sections, if required, shall be constructed and evaluated for conformance to the specifications. Any sections that are not acceptable shall be removed at the Contractor's expense. Full production shall not begin until an acceptable section has been constructed and accepted in writing by the Engineer. Once a test section is accepted by the Engineer, the Contractor shall not deviate from the placement methods and mix design used for the test section for the concrete paving operations.

Once an acceptable test section has been placed, payment for that test section shall be made in accordance with paragraph 501-8.1.

501-4.22 CURING COMPOUND REMOVAL. In accordance with the Drawings and Engineer direction, CONTRACTOR shall use high pressure water to remove curing compound in the areas to be painted by others.

MATERIAL ACCEPTANCE

501-5.1 ACCEPTANCE SAMPLING AND TESTING. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the Engineer at no cost to the Contractor. The Contractor shall bear the cost of providing curing facilities for the strength specimens, per paragraph 501-5.1a(3), and coring and filling operations, per paragraph 501-5.1b(1).

Testing organizations performing these tests shall meet the requirements of ASTM C 1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation.
A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction.

Concrete shall be accepted for strength and thickness on a lot basis. A lot shall consist of:

**4,000** square yards (4,000 square meters).

### Flexural Strength.

1. **Sampling.** Each lot shall be divided into four equal sublots. One sample shall be taken for each sublot from the plastic concrete delivered to the job site. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D 3665. The concrete shall be sampled in accordance with ASTM C 172.

2. **Testing.** Two (2) specimens shall be made from each sample. Specimens shall be made in accordance with ASTM C 31 and the flexural strength of each specimen shall be determined in accordance with ASTM C 78. The flexural strength for each sublot shall be computed by averaging the results of the two test specimens representing that sublot.

Immediately prior to testing for flexural strength, the beam shall be weighed and measured for determination of a sample unit weight. Measurements shall be made for each dimension; height, depth, and length, at the mid-point of the specimen and reported to the nearest 1/10th in. The weight of the specimen shall be reported to the nearest 0.1 pound. The sample unit weight shall be calculated by dividing the sample weight by the calculated volume of the sample. This information shall be reported as companion information to the measured flexural strength for each specimen.

The samples will be transported while in the molds. The curing, except for the initial cure period, will be accomplished using the immersion in saturated lime water method.

Slump, air content, and temperature tests will also be conducted by the quality assurance laboratory for each set of strength tests samples, per ASTM C 31.

*The Contractor shall make, cure and deliver all required beams to Owner's Q/A testing organization lab curing room within 48 hours of casting the beams. All beams shall be transported per ASTM/ACI methods approved by the Engineer. The Contractor shall observe all tests. All broken and/or unused test specimens and beams shall become the property of the Contractor and shall be removed off of airport property.*

3. **Curing.** The Contractor shall provide adequate facilities for the initial curing of beams. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60 °F to 80 °F (16 °C to 27 °C), and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather, or in heavyweight closed plastic bags, or using other suitable methods, provided the temperature and moisture loss requirements are met.

4. **Acceptance.** Acceptance of pavement for flexural strength will be determined by the Engineer in accordance with paragraph 501-5.2b.

### Pavement Thickness.

1. **Sampling.** Each lot shall be divided into four equal sublots and one core shall be taken by the Contractor for each sublot. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D 3665. Areas, such as thickened edges, with planned variable thickness, shall be excluded from sample locations.
Cores shall be neatly cut with a core drill. The Contractor shall furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes shall be filled by the Contractor with a non-shrink grout approved by the Engineer within one day after sampling.

(2) Testing. The thickness of the cores shall be determined by the Engineer by the average caliper measurement in accordance with ASTM C 174.

(3) Acceptance. Acceptance of pavement for thickness shall be determined by the Engineer in accordance with paragraph 501-5.2c.

c. Partial Lots. When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot, or when the Contractor and Engineer agree in writing to allow overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they shall constitute a lot. Where one or two sublots have been produced, they shall be incorporated into the next lot or the previous lot and the total number of sublots shall be used in the acceptance criteria calculation, that is, n=5 or n=6.

d. Outliers. All individual flexural strength tests within a lot shall be checked for an outlier (test criterion) in accordance with ASTM E 178, at a significance level of 5 percent. Outliers shall be discarded, and the PWL shall be determined using the remaining test values.

501-5.2 ACCEPTANCE CRITERIA.

a. General. Acceptance will be based on the following characteristics of the completed pavement:

(1) Flexural strength
(2) Thickness
(3) Smoothness
(4) Grade
(5) Edge slump
(6) Dowel bar alignment

Flexural strength and thickness shall be evaluated for acceptance on a lot basis using the method of estimating percentage of material within specification limits (PWL). Acceptance using PWL considers the variability (standard deviation) of the material and the testing procedures, as well as the average (mean) value of the test results to calculate the percentage of material that is above the lower specification tolerance limit (L).

Acceptance for flexural strength will be based on the criteria contained in accordance with paragraph 501-5.2e(1). Acceptance for thickness will be based on the criteria contained in paragraph 501-5.2e(2). Acceptance for smoothness will be based on the criteria contained in paragraph 501-5.2e(3). Acceptance for grade will be based on the criteria contained in paragraph 501-5.2e(4).

The Engineer may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and if it can be demonstrated in the laboratory, in the presence
of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

b. Flexural Strength. Acceptance of each lot of in-place pavement for flexural strength shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

c. Pavement Thickness. Acceptance of each lot of in-place pavement shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

d. Percentage of Material Within Limits (PWL). The percentage of material within limits (PWL) shall be determined in accordance with procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for flexural strength and thickness shall be:

<table>
<thead>
<tr>
<th>Flexural Strength</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.93 × strength specified in paragraph 501-3.1</td>
<td>Lot Plan Thickness in inches - 0.50 in</td>
</tr>
</tbody>
</table>

e. Acceptance Criteria.

(1) Flexural Strength. If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

(2) Thickness. If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-6.1.

(3) Smoothness. As soon as the concrete has hardened sufficiently, the pavement surface shall be tested in the transverse direction with a 16 ft straightedge or other specified device. Surface smoothness deviations shall not exceed 1/4 in from a 16 ft straightedge at any location, including placement along and spanning any pavement joint or edge.

Areas in the slab showing high spots of more than 1/4 in but not exceeding 1/2 in in 16 feet shall be marked and immediately ground down with an approved grinding machine to an elevation that falls within the tolerance of 1/4 in or less. Where the departure from the correct cross section exceeds 1/2 in, the pavement shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

In addition to the 16 ft straight edge, the Contractor shall furnish a 25' wheel base California type profilograph and competent operator to be used to measure longitudinal pavement surface deviations. The profilograph shall be operated under the supervision of the Engineer and in accordance with the manufacturer’s instructions. The profilograph shall be operated at a speed no greater than a normal walk. Original profilograms for the appropriate locations interpreted in accordance with ASTM E 1274 shall be furnished to the Engineer. The profilograms shall be recorded on a scale of 1 in equal to 25 feet longitudinally and 1 in equal to 1 in or full scale vertically. Records shall be maintained showing all smoothness measurements.

a. The surface of Runway and Taxiway pavements of continuous placement of 50 feet or more shall be tested and evaluated as described herein. Two passes shall be made in each paving lane greater than 20 feet in width; each pass shall be six feet from and parallel with the centerline of the paving lane. The average of the two passes shall be considered as the profilograph result for the paving lane. For paving lanes less than 20 feet in width, one pass along the centerline shall be required. Tests shall be
run the next working day following concrete placement. Each trace shall be completely labeled to show paving lane, wheel pass, and stationing.

b. The Contractor shall furnish paving equipment and employ methods that produce a riding surface for each section of pavement having an average profile index meeting the requirements of paragraph 501-8.1c. A typical subsection will be considered to be the width of the paving lane and 1/10 mile long. The profile index will be determined in accordance with ASTM E 1274 using a 0.2 in blanking band. Within each 1/10th mile subsection, all areas represented by high points having a deviation in excess of 0.4 in in 25 feet or less shall be removed by the contractor using an approved grinding device or a device consisting of multiple diamond blades. The use of a bush hammer or other impact devices will not be permitted. After removing all individual deviations in excess of 0.4 in, additional corrective work shall be performed if necessary to achieve the required ride quality. All corrective work shall be completed prior to determination of pavement thickness.

c. On those pavement subsections where corrections were necessary, second profilograph runs will be performed to verify that the corrections have produced an average profile index of 15 in per mile or less. If the initial average profile index was less than 15, only those areas representing greater than 0.4 in deviation will be re-profiled for correction verification.

d. When the average profile index does not exceed 7 inches per mile, payment will be made for that section at the contract unit price for the completed pavement. When the average profile index exceeds 7 inches per mile, but does not exceed 15 in per mile, the Contractor may elect to accept a contract unit price adjustment in lieu of reducing the profile index.

e. Individual sections shorter than 50 feet and the last 15 feet of any section where the contractor is not responsible for the adjoining section, shall be straightedged in accordance with Section 501.5.2.e.(3).

f. If there is a section of 250 feet or less, the profilogram for that section shall be included in the evaluation of the previous section. If there is an independently placed section of 50 to 250 feet in length, a profilogram shall be made for that section and the pay adjustment factors for short sections of paragraph 8.1c shall apply.

g. Any corrective work required shall be performed prior to joint sealing and grooving operations.

h. All cost necessary to provide the profilograph and related to furnishing the appropriate profilograms as required in this provision are incidental to concrete pavement construction and no direct compensation will be made therefore.

(4) Grade. An evaluation of the surface grade shall be made by the Engineer for compliance to the tolerances contained below. The finish grade will be determined by running levels at intervals of 50-ft (15.2 m) or less longitudinally and all breaks in grade transversely (not to exceed 50 ft) all slab corners and center slab to determine the elevation of the completed pavement. The Contractor shall pay the costs of surveying the level runs, and this work shall be performed by a licensed surveyor. The documentation, stamped and signed by a licensed surveyor, shall be provided by the Contractor to the Engineer.

Lateral Deviation. Lateral deviation from established alignment of the pavement edge shall not exceed plus or minus 0.10 ft (30 mm) in any lane.

Vertical Deviation. Vertical deviation from established grade shall not exceed plus or minus 0.04 ft (12 mm) at any point.

(5) Edge Slump. When slip-form paving is used, not more than 15 percent of the total free edge of each 500 ft (150 m) segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 in (6 mm), and none of the free edge of the pavement shall have an edge slump exceeding 3/8 in.
(10 mm). The total free edge of 500 feet (150 m) of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet (150 m) of paving lane originally constructed as a separate lane will have 1,000 feet (300 m) of free edge, 500 feet (150 m) of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 in (457 mm) from the edge. *Excessive edge slump may be corrected during production prior to concrete hardening by removing the affected area, placing edge forms and a new concrete mix added to the removed area. Production shall be halted to assess the excessive edge slump problem.* When excessive edge slump cannot be corrected before the concrete has hardened, the area—slab or slabs with excessive edge slump shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

(6) Dowel Bar Alignment. Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerance on dowel bar alignment in each plane, horizontal and vertical, shall not exceed 2 percent or 1/4 in per ft (20 mm per meter) of a dowel bar. Vertical alignment of dowels shall be measured parallel to the designed top surface of the pavement, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes, shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge.

f. Removal and Replacement of Concrete. Any area or section of concrete that is removed and replaced shall be removed and replaced back to planned joints. The Contractor shall replace damaged dowels and the requirements for doweled longitudinal construction joints in paragraph 501-4.10 shall apply to all contraction joints exposed by concrete removal. Removal and replacement shall be in accordance with paragraph 501-4.19 of this specification.

**CONTRACTOR QUALITY CONTROL**

501-6.1 QUALITY CONTROL PROGRAM. The Contractor shall develop a Quality Control Program in accordance with Section 100 of the General Provisions. The program shall address all elements that affect the quality of the pavement including but not limited to:

a. Mix Design
b. Aggregate Gradation
c. Quality of Materials
d. Stockpile Management
e. Proportioning
f. Mixing and Transportation
g. Placing and Consolidation
h. Joints
i. Dowel Placement and Alignment
j. Flexural or Compressive Strength
k. Finishing and Curing
l. Surface Smoothness
501-6.2 QUALITY CONTROL TESTING. The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to this specification and as set forth in the Quality Control Program. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content.

A Quality Control Testing Plan shall be developed as part of the Quality Control Program.


(1) Gradation. A sieve analysis for each individual aggregate size shall be made at least twice daily in accordance with ASTM C 136 from randomly sampled material taken from the discharge gate of storage bins, or from the conveyor belt, or from the stockpile. If samples are taken from the stockpile, it shall be taken from the bucket of a front-end loader removed vertically from bottom to top of the stockpile.

(2) Moisture Content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C 70 or ASTM C 566.

b. Coarse Aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C 136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture Content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C 566.

be. Slump. Four slump tests shall be performed for each lot of material produced in accordance with the lot size defined in Section 501-5.1. One test shall be made for each sublot. Slump tests shall be performed in accordance with ASTM C 143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C 172.

c. Air Content. Four air content tests shall be performed for each lot of material produced in accordance with the lot size defined in Section 501-5.1. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C 231 for gravel and stone coarse aggregate and ASTM C 173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C 172.

de. Four unit weight and yield tests shall be made in accordance with ASTM C 138. The samples shall be taken in accordance with ASTM C 172 and at the same time as the air content tests.

501-6.3 CONTROL CHARTS. The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, combined aggregate WF and CF values, slump, and air content. Control charts shall be posted in a location satisfactory to the Engineer and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the Engineer may halt production or acceptance of the material.
a. Fine and Coarse Combined Aggregate Gradation. The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Specification limits contained in Tables 1 and 2 shall be superimposed on the Control Chart for job control. The individual gradations shall be mathematically combined and used to monitor each day's batch weights to provide the target combined gradation. The workability and coarseness factor shall be calculated and plotted on the Aggregate Constructability Chart of Figure 1. The combined gradation using the batch tickets percentages shall be plus or minus 3 points for the Workability Factor and plus or minus 5 points for the Coarseness Factor for the Workability and Coarseness Factors established for the approved concrete mixture.

b. Slump and Air Content. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

<table>
<thead>
<tr>
<th>Control Chart Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control Parameter</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Slump Form:</strong></td>
</tr>
<tr>
<td>Slump</td>
</tr>
<tr>
<td>Air Content</td>
</tr>
<tr>
<td><strong>Fixed Form:</strong></td>
</tr>
<tr>
<td>Slump</td>
</tr>
<tr>
<td>Air Content</td>
</tr>
</tbody>
</table>

The individual measurement control charts shall use the mix design target values as indicators of central tendency.

501-6.4 CORRECTIVE ACTION. The Contractor Quality Control Program shall indicate that appropriate action shall be taken when the process is believed to be out of control. The Contractor Quality Control Program shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists:

a. Fine and Coarse Combined Aggregate Gradation. When two consecutive averages of five tests are outside of the Table 1 and Table 2 specification limits, immediate steps, including a halt to production, shall be taken to correct the grading. The tolerances of paragraph 501-6.3(a) are not met, the grading shall be considered out of control. When proportioning cannot solve the problem, adjustments to weights shall be conducted. If proportioning adjustments do not correct the problem production shall be halted and new stockpile aggregates shall be used.

b. Fine and Coarse Aggregate Moisture Content. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5 percent, the scale settings for the aggregate batcher and water batcher shall be adjusted.

c. Slump. The Contractor shall halt production and make appropriate adjustments whenever:

(1) one point falls outside the Suspension Limit line for individual measurements or range OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

d. Air Content. The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:
(1) one point falls outside the Suspension Limit line for individual measurements or range

OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

Whenever a point falls outside the Action Limits line, the air-entraining admixture dispenser shall be calibrated to ensure that it is operating correctly and with good reproducibility.

**METHOD OF MEASUREMENT**

501-7.1 Portland cement concrete pavement shall be measured by the number of square yards of either plain or reinforced pavement as specified in-place, completed and accepted. Saw-cut-grooving shall be measured by the number of square yards (square meters) of saw-cut-grooving as specified in-place, completed and accepted.

**BASIS OF PAYMENT**

501-8.1 PAYMENT. Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-5.2 Acceptance Criteria shall be based on results of smoothness, strength and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness and 501-8.1c for smoothness, subject to the limitation that: The total project payment for concrete pavement shall not exceed 100 percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under Table 3).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings. *No additional payment over the unit contract bid price shall be made for any pavement which has an average thickness in excess of that shown on the plans. No additional payments will be made for reinforced panels or for thickened edges.*

a. Basis of Adjusted Payment. The pay factor for each individual lot shall be calculated in accordance with Table 3. A pay factor shall be calculated for both flexural strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both flexural strength and thickness are 100 percent or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either flexural strength or thickness is 100 percent or higher. The lot pay factor shall be the lower of the two values when calculations for both flexural strength and thickness are less than 100 percent.

<table>
<thead>
<tr>
<th>Table 3. Price Adjustment Schedule</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Materials Within Specification Limits (PWL)</td>
<td>Lot Pay Factor (Percent of Contract Unit Price)</td>
</tr>
<tr>
<td>96 - 100</td>
<td>106</td>
</tr>
<tr>
<td>90 - 95</td>
<td>PWL + 10</td>
</tr>
<tr>
<td>75 - 90</td>
<td>0.5 PWL + 55</td>
</tr>
<tr>
<td>55 - 74</td>
<td>1.4 PWL - 12</td>
</tr>
<tr>
<td>Below 55</td>
<td>Reject</td>
</tr>
</tbody>
</table>

BROWARD COUNTY
FT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT
Terminal 4 Apron Expansion

WP-404/408 TECHNICAL SPECIFICATIONS
May, 2013
Issued for Bid
Addendum No. 2
Page 47 of 60
Although it is theoretically possible to achieve a pay factor of 106 percent for each lot, actual payment in excess of 100 percent shall be subject to the total project payment limitation specified in paragraph 501-8.1.

The lot shall be removed and replaced. However, the Engineer may decide to allow the rejected lot to remain. In that case, if the Engineer and contractor agree in writing that the lot shall not be removed, it shall be paid for at 50 percent of the contract unit price and the total project payment limitation shall be reduced by the amount withheld for the rejected lot.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 501-8.1. Payment in excess of 100 percent for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100 percent.

b. Payment. Payment shall be made under:

Item P-501-8.1 Portland Cement Concrete Pavement (15.5' Thick) – Per Square Yard

c. Basis of adjusted payment for Smoothness. Price adjustment for pavement smoothness will apply to the total area of concrete within a section of pavement and shall be applied in accordance the following equation and schedule:

(Sq yd in section) x (original unit price per sq yd) x FFm = reduction in payment for area within section

<table>
<thead>
<tr>
<th>Average Profile Index (Inches Per Mile)</th>
<th>Pavement Strength Rating</th>
<th>Contract Unit Price Adjustment (FFm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 30,000 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 - 7</td>
<td>30,000 lb or Less</td>
<td>Short Sections</td>
</tr>
<tr>
<td>7.1 - 9</td>
<td>10.1 - 11</td>
<td>15.1 - 16</td>
</tr>
<tr>
<td>9.1 - 11</td>
<td>11.1 - 12</td>
<td>16.1 - 17</td>
</tr>
<tr>
<td>11.1 - 13</td>
<td>12.1 - 13</td>
<td>17.1 - 18</td>
</tr>
<tr>
<td>15.1 and up</td>
<td>15.1 and up</td>
<td>22.1 and up</td>
</tr>
<tr>
<td>Corrective work required</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TESTING REQUIREMENTS

ASTM C 31 Making and Curing Concrete Test Specimens in the Field

ASTM C 39 Compressive Strength of Cylindrical Concrete Specimens ASTM C 70 Surface Moisture in Fine Aggregate

ASTM C 78 Test for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)

ASTM C 88 Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C 131 Test for Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
| ASTM C 136 | Sieve Analysis of Fine and Coarse Aggregates |
| ASTM C 138 | Test for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete |
| ASTM C 143 | Test for Slump of Hydraulic Cement Concrete |
| ASTM C 172 | Sampling Freshly Mixed Concrete |
| ASTM C 173 | Test for Air Content of Freshly Mixed Concrete by the Volumetric Method |
| ASTM C 174 | Measuring Thickness of Concrete Elements Using Drilled Concrete Cores |
| ASTM C 227 | Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method) |
| ASTM C 231 | Test for Air Content of Freshly Mixed Concrete by the Pressure Method |
| ASTM C 289 | Potential Alkali-Silica Reactivity of Aggregates (Chemical Method) |
| ASTM C 295 | Petrographic Examination of Aggregates for Concrete |
| ASTM C 114 | Chemical Analysis of Hydraulic Cement |
| ASTM C 535 | Test for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C 566 | Total Evaporable Moisture Content of Aggregates by Drying |
| ASTM C 642 | Test for Density, Absorption, and Voids in Hardened Concrete |
| ASTM C 666 | Resistance of Concrete to Rapid Freezing and Thawing |
| ASTM C 1077 | Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction And Criteria for Laboratory Evaluation |
| ASTM C 1260 | Potential Alkali Reactivity of Aggregates (Mortar-Bar Method) |
| ASTM D 3665 | Random Sampling of Paving Materials |
| ASTM D 4791 | Test Method for Flat or Elongated Particles in Coarse Aggregate |
| ASTM E 178 | Dealing With Outlying Observations |
| ASTM E 1274 | Test for Measuring Pavement Roughness Using a Profilograph |
AASHTO T 26  Quality of Water to be Used in Concrete

**MATERIAL REQUIREMENTS**

ASTM A 184  Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement

ASTM A 185  Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement

ASTM A 497  Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement

ASTM A 615  Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

ASTM A 704  Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement

ASTM A 714  Specification for High-Strength Low-Alloy Welded and Seamless Steel Pipe

ASTM A 996  Specification for Rail-Steal and Axle Steel Deformed Bars for Concrete Reinforcement

ASTM C 33  Specification for Concrete Aggregates

ASTM C 94  Specification for Ready-Mixed Concrete

ASTM C 150  Specification for Portland Cement

ASTM C 171  Specification for Sheet Materials for Curing Concrete

ASTM C 260  Specification for Air-Entraining Admixtures for Concrete

ASTM C 309  Specification for Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C 494  Specification for Chemical Admixtures for Concrete

ASTM C 595  Specification for Blended Hydraulic Cements

ASTM C 618  Specification for Coal Flyash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete

ASTM C 881  Specification for Epoxy-Resin Base Bonding System for Concrete

ASTM C 989  Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

ASTM D 1751  Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752 Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving And Structural Construction

ACI 305R Hot Weather Concreting
ACI 306R Cold Weather Concreting
ACI 309 Guide for Consolidation of Concrete

Department of Defense MIL- DTL- 4441/20a (1999) Paint, Epoxy-Polyamide, Green Primer, Formula 150, Type III

END ITEM P-501
ADDENDUM NO. 1

Solicitation No.: Z1145017C1
Solicitation Title: Terminal 4 Apron Expansion

Date Of Addendum: July 18, 2013

Attention all potential bidders:

Must Addendum: Read carefully and follow all instructions. Information included in this Addendum will have a material impact on the submittal for this solicitation. All "MUST" addenda and revised Bid Sheets are considered a matter of responsiveness. "MUST" addenda must be returned with your Bid Submittal or acknowledged on the Bid Tender Form. All revised Bid Sheets must be returned with your Bid. Failure of a Submitter to acknowledge the addendum and return the revised Bid Sheets shall be cause for rejection of the bid.

Return Addendum with Bid Submittal or Acknowledge on the Bid Tender Form
Return Completed Revised Bid Pricing Sheets with Bid Submittal

To all prospective bidders, please note the following changes and clarifications:
Words in strikethrough type are deletions from existing text. Words in bold underlined type are additions to existing text.

1. The Bid Opening Date remains as July 31, 2013 at 2:00 p.m.

2. The Electronic Bid Sheets have been revised and must be downloaded from the Purchasing Division website at: http://www.broward.org/PURCHASING/Pages/CurrentSolicitationList.aspx. These Revised Bid Pricing Sheets "MUST" be completed and returned with your Bid submittal. Revisions to Electronic Bid Sheets Include:

• ADD Bid Item No. 39A, Specification No. C-11.34-.01 Installation of Passenger Boarding Bridge Anchor, 28 EA
• ADD Bid Item No. 31A, Specification No. P-162.-8.1 12" Stabilized Subgrade with an Estimated quantity of 21,000 SY
• ADD Bid Item No. 31B, Specification No. P-154-5.1 6" Subbase Course with an Estimated Quantity of 12,000 SY
• REVISE Bid Item No. 38, Specification No. P-401-8.1 Bituminous Surface Course (3/4" Mix) to 11,100 Ton.
• REVISE Bid Item No. 90, Specification No. 15060-11 16"x8" DI Tapping Sleeve w/Double 16" Tapping Valve and Box, Estimated Quantity to one (1), EA.
• DELETE Bid Item No. 101, Specification No. 15060-22 16" Tapping Valve and Box
• ADD Bid Item No. 119A for 15060-57 16" DI 11.25 Degree Bend CL 350 with an Estimated Quantity of six (6), EA
• ADD Bid Item No. 137A for 15060-60 8" PLUG VALVE AND VALVE BOX with an Estimated Quantity of two (2), EA
• REVISE Bid Item No. 17, Specification No. P-107-4.1a Asphalt Pavement Demolition to 112,600 SY
• REVISE Bid Item No. 103, Specification No. 15060-24 20" Steel Casing to 30" Steel Casing with an Estimated Quantity to 30 LF
• REVISE Bid Item No. 104, Specification No. 15060-25 34" Steel Casing to 16" Steel Casing with an Estimated Quantity to 22 LF
• ADD Bid Item No. 120A, Specification No. 15060-58 Air Release Valve & Maintenance Access Structure, with an Estimated Quantity of one (1) EA
• ADD Bid Item No. 137B, Specification No. 15060-59 12" x 6" Tapping Sleeve with an Estimated Quantity of one (1) EA
• REVISE Bid Item No. 35, Specification No. P-211-5.1a Lime Rock Base Course (9" Thick) to 21,000 SY
• REVISE Bid Item No. 36 Specification No. P-211-5.1B Lime Rock Base Course (12" Thick) to 12,000 SY

3. The Contract Documents are amended as follows: Section 4: Office of Economic and Small Business Development Requirements of the Invitation for Bid, is replaced in its entirety with the Revised Section 4: Office of Economic and Small Business Development Requirements included in this Addendum. Information demonstrating compliance must be submitted with your response to the solicitation.

4. The Contract Documents are amended as follows: ADD to Volume 1 – Terminal 4 Apron Expansion (Combined Sheets) Sheet C2.01 and C2.02, **Note 13: Contractor shall maintain vehicular access to Gate 504, the AOA Construction Access Gate, at all time.**

5. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheet C2.33 and C2.36 the removal of existing power poles and associated cabling as shown. **ADD Note 4. All costs associated with removal of the existing power poles shall be included in the Lump Sum price for Bid Item Nos. P-151-4.1d BCAD Office Trailer and Site Demolition and P-151-4.1e National Car Rental Buildings and Site Demolition.**

6. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheet C2.33 and C2.36, **Note 3. Contractor shall provide temporary power to Gate 504 prior to the demolition of the existing temporary Power Poles feeding Gate 504. All costs associated with providing temporary power to be included in the Lump Sum price for Bid Item No. P-105-4.1 Temporary Construction Items.**

7. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheet C2.23 the removal of existing drainage canal vehicle crossing and culvert. Item to be paid in Lump Sum price for Bid Item 15 P-151-4.1d BCAD Office Trailer and Site Demolition.

8. The Contract Documents are amended as follows: ADD to Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheets C11.21, C11.24 and C11.25, approximate location of Passenger Boarding Bridge anchor and anchor denotation to the legend.
3. The Contract Documents are amended as follows: ADD to Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheets C11.34, Detail No. 8 and Notes for Passenger Boarding Bridge Anchor and add “Installed by Other” watermark on Detail Nos. 1, 3, & 4.

10. The Contract Documents are amended as follows: REVISED Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheets C11.32, Revise Detail 1 PCC Pavement to Typical Bituminous Shoulder Section, Callout 12” Stabilized Subgrade (P-160) to 12” Stabilized Subgrade (P-162).

11. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.22 and C11.23, approximate location of Passenger Boarding Bridge anchor and anchor notation to the legend.

12. The Contract Documents are amended as follows: ADD to Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.34, Detail 8 and Notes for Passenger Boarding Bridge Anchor and add “Installed by Other” watermark on Detail Nos. 1, 3, & 4.

13. The Contract Documents are amended as follows: REVISED Volume 3 – Terminal 4 Apron Expansion (East Sheets) Sheets C11.32, Revise Detail 1 PCC Pavement to Typical Bituminous Shoulder Section, Callout 12” Stabilized Subgrade (P-160) to 12” Stabilized Subgrade (P-162).

14. The Contract Documents are amended as follows: ADD to Volume 2 – Terminal 4 Apron Expansion (West Sheets) Sheet GTA3-CS1.01, Phasing Notes: GTA 3 work including, but not limited to, water main, communications and electrical ductbank installation shall not commence until RAPM Phase I & II, by others, in GTA 4 is completed. Contractor shall coordinate the start of GTA 3 work with the CPM.

15. Question: Can the CAD files be provided to the contractors for bidding/takeoff purposes? Answer: CAD files shall not be provided during procurement process. To ensure competitiveness, bidders shall utilize the quantities identified in the Electronic Bid Sheets included in the solicitation.

16. Question: Pertaining to the 22% DBE goal, will SBE certified firms satisfy the DBE Goal? Can the goal be reduced to match recently bid projects? Can the allowance items be excluded from the 22% DBE goal? Provide the worksheet utilized to arrive at the 22% DBE participation for this project. Answer: Only firms duly certified as DBE in the state of Florida at the time bids are due may be considered for credit toward the DBE goal. The assigned 22% DBE goal is not changed. The DBE goal applies to the entire value of the award amount, including allowances. Refer to the Office of Economic and Small Business Development Memorandum dated March 25, 2013 and associated Methodological Statement - Disadvantaged Business Enterprise (DBE) Program, attached in this Addendum.

17. Question: Provide a bid item for the 24” Compacted Subgrade under the PCC apron and taxiway detail as shown in the pavement details. Answer: Bidders shall utilize Bid Item Nos. 30 and 31 for Subgrade Preparation.

18. Question: Provide a bid item for the 12” Stabilized Subgrade under the bituminous shoulder section as shown in the pavement details. Answer: Bid Item 31A for P-162 12” Stabilized Subgrade with an Estimated Quantity of 21,000 SY has been added. Specification Section P-162 Subgrade Stabilization is included in this Addendum.

19. Question: Provide a bid item for the 6” Subbase under the full strength asphalt section as shown in the pavement details.
Answer: Bid Item 31B for P-154 6" Stabilized Sub Base with an Estimated Quantity of 12,000 SY has been added. Specification Section P-154 Subbase Course is included in this Addendum.

20. **Question:** Provide a bid item for the temporary asphalt pavement tie-in shown in the pavement details.

   **Answer:** The Estimated Quantity for Bid Item No. 38 P-401-8.1 Bituminous Surface Course (3/4" Mix) has been increased to 11,100 Ton to include the required temporary asphalt pavement.

21. **Question:** Provide the proposed schedule for the construction of Terminal 4.

   **Answer:** An approved Baseline Schedule for the Western and Eastern Terminal 4 Building Expansion is not available at this time.

22. **Question:** Provide the anticipated start date of this project.

   **Answer:** The construction start date is dependent on contract award and Contractor's ability to comply with the requirements of the First and Second Notice to Proceed as outlined in the Construction Contract Documents.

23. **Question:** Demolition: The demolition plan sheets for the east and west projects do not accurately depict the existing conditions. In order to provide a responsible proposal to the owner the plan sheets need to be accurate.

   **Answer:** The demolition drawings indicate basic surface conditions known to the Engineer. Specification Section P-151-2.1a states that "The Contractor shall be responsible for visiting the construction site to perform a field investigation and all other necessary due diligence to assess the extent of clearing and grubbing, pavement demolition, foundation removal and other demolition that will be required prior to submitting a bid."

24. **Question:** Unsuitable Excavation: The borings provided within the bid documents do not show any muck, peat and/or organic silt that fits the specification of unsuitable material. Provide the location that the engineer of record expects to encounter unsuitable excavation.

   **Answer:** Refer to Terminal 4 Apron Expansion (Combined Sheets) C01.20 through C01.27 for soil borings indicating construction debris, peat, etc. Refer to Soil Boring TB-AP-43 as an example.

25. **Question:** Unsuitable Subsurface Materials: The borings provided within the bid documents clearly show the existence of a previous dump site along the eastern edge of the project extending from the northernmost boring south to and under the current runway embankment. Provide the limits of the dump site and anticipated disposal procedure. Will the unsuitable subsurface materials allowance account be used to provide payment for this work?

   **Answer:** An Estimated Quantity of unsuitable materials is included in Bid Item No. 28 based on existing bore logs contained in the Contract Documents. It is the Contractor's responsibility to excavate and dispose of unsuitable materials as indicated in Specification Section P-159-2.1.

26. **Question:** PCC Concrete Pavement: Please review the stipulation in the specification that restricts the individual placement areas to less than 500 square yards. Considering the limitations of slip-form equipment 500 square yards or less of individual placement may be too restrictive.

   **Answer:** Specification Section P-501-4.1c calls for areas less than 500SY or irregular areas inaccessible to slip form paving.

27. **Question:** Remediation Activities: 1) Provide the waste characterization and concentrations of the contamination expected to be encountered during remediation. Based upon the anticipated characterization provide the procedure and site for disposal.
Answer: Refer to the Limited Scope Remedial Action Plan Addendum approved by the Florida Department of Environmental Protection. This document is being sent to all Planholders by HDR Engineering.

28. **Question:** Remediation Activities: 2) Provide the accurate location of the remediation area. At the pre-bid conference the area was said to be located in phase E, however utilizing the plan sheet provided and attempting to associate the location with the existing features shown the remediation area is within phase F.

**Answer:** The approximate limits of the existing contamination scheduled to be remediated are shown on Terminal 4 Apron Expansion (East Sheets) ENV 01.00. Remediation of the South Terminal Site shall be completed during Phase E as indicated by Note No. 5 on Terminal 4 Apron Expansion (Combined Sheets) C02.01.

29. **Question:** Remediation Activities: 3) The existing fuel line appears to traverse the excavation. The plan sheets show the fuel line to be removed. Will this fuel line be removed outside of the proposed excavation? Will the contaminated soil excavated during the removal of the fuel line by others be disposed by others?

**Answer:** The existing Broward County Aviation Department 14-inch hydrant fuel line will be rerouted east beyond the footprint of the proposed Terminal 4 Eastern Expansion through the limits of the excavation for the remediation. Refer to EAC Consulting, Inc. Hydrant Fueling System - Eastern Expansion Jet Fuel Layout Plan (CF101) included in this Addendum for reference.

The existing Everglades Pipeline is abandoned and will be grouted in place prior to the start of the apron expansion work.

Note 2 on Terminal 4 Apron Expansion (East Sheets) C02.26 requires "Contractor to remove abandoned fuel line when encountered during normal construction activities."

Contaminated soil removal associated with the South Terminal Site Remediation shall be performed by the apron contractor and paid under Bid Item P-151-4.1g South Terminal Phase III Remediation.

30. **Question:** Remediation Activities: 4) Excavation notes; note 5 states that the soil is to be removed to 4' below the water table (approximately 17 ft below the surface). Please provide the anticipated elevation of the water table.

**Answer:** Refer to Terminal 4 Apron Expansion (Combined Sheets) C01.20 through C01.27 for soil borings including the water table elevations. In addition, refer to the Limited Scope Remedial Action Plan Addendum approved by the Florida Department of Environmental Protection included in this Addendum. Contractor shall note that water table varies across the project and will vary depending on the time of year.

31. **Question:** Subgrade Preparation: Based upon the bid item quantities it appears that the design engineers are comfortable placing concrete pavement on top of unimproved existing soil. Is that the intention of the engineer of record and the owner?

**Answer:** For Bid Item 30 - the Contractor shall create 24" of subgrade using existing limerock to achieve a CBR of 13.2 or better. Bid item 31 includes areas where limerock is not present and the 24" of subgrade will need to meet CBR 13.2 by blending rock with the native materials if acceptable or import CBR 13.2 materials for the 24". Subgrade below shoulders and full strength HMA can be placed on native soils compacted per the Plans and Specification P-152.
32. **Question:** Bid Item 15060-11 16"x8" Tapping Sleeve with 16" Tapping Valve has a quantity of 8 EA. Please state where in the plans the 8 EA are shown.

**Answer:** The Estimated Quantity for Bid Item No. 90, 15060-11 16"x8" DI Tapping Sleeve w/Double 16" Tapping Valve and Box, is revised to one (1), EA.

33. **Question:** Bid Item 15060-22 16" Tapping Valve & Box 2 EA seems to be a duplicate of Bid Item 15060-12 24"x16" Tapping Sleeve with 16" Tapping Valve & Box 1 EA. Please confirm Bid Item and quantity.

**Answer:** Delete Bid Item No. 101, 15060-22 16" Tapping Valve and Box.

34. **Question:** There is no Bid Item for 16" DI 11.25 Degree Bend CL 350 6 EA as shown on East and West Plan Sheets C05.01. Please confirm and add Bid Item.

**Answer:** Bid Item 119A for 15060-57 16" DI 11.25 Degree Bend CL 350 with an Estimated Quantity of six (6), EA has been added.

35. **Question:** There is no Bid Item for the Air Release Valve with Maintenance Access Structure as shown on West Plans Sheet C05.01. Please confirm and add Bid Item.

**Answer:** Bid Item 120A for 15060-58 Air Release Valve and Maintenance Structure with an Estimated Quantity of one (1) has been added.

36. **Question:** In what Bid Item is the removal of the existing Lift Station shown on East Plans Sheet C02.33 to be paid for in?

**Answer:** The removal of LS31A5 is to be priced under Bid Item No. 22, P-151-4.1d BCAD Office Trailer and Site Demolition.

37. **Question:** There is no Bid Item for the 8" Plug Valves with Valve Box as shown on West Plan Sheet C06.01 for the sewer. Please confirm and add Bid Item.

**Answer:** Bid Item 137A for 15060-60 8" PLUG VALVE AND VALVE BOX with an Estimated Quantity of two (2), EA has been added.

38. **Question:** Drawing C04.10 (Terminal Apron Expansion East) has a note on the bottom left-hand side of the drawings under the section titled "PUMPS AND CONTROL PANEL" that states the "Pumps and control panel will be provided to the Contractor by BCWW $ for installation into the work. All appurtenances required to make a complete and operating system shall be furnished and installed by the Contractor." Is BCWW $ providing pumps for the Existing Lift Station 31-A (West – 20 HP pumps (2 ea.)) and New Lift Station 31 (East – 5.5 HP pumps (2 ea.))?

**Answer:** Pumps shall be provided by BCWW $ in accordance with BCWW $ Typical Standard Lift Station Detail included on Terminal 4 Apron Expansion (East Sheets) C04.10.

39. **Question:** Specification Section 11305; Paragraph 2.3-A states that the pumps, motors, control panel, frames and cover, discharge elbows and guide rail system shall be supplied by the pump supplier to ensure unit responsibility. Are all of these accessories being provided by BCWW $? Please provide a bill of materials or list of items, accessories, etc. being provided with the BCWW $ supplied pumps.

**Answer:** It is anticipated that BCWW $ will supply the pumps, motors, and control panels. For Lift Station 31A, the Contractor is to replace the dump station covers as indicated on Terminal 4 Apron Expansion (West Sheets) C04.11. For Lift Station 31 (New) the Contractor shall supply everything excluding the pumps, motors, and control panel.
40. **Question:** Specification Section 11305; Paragraph 2.3 stated “frames and covers” will be provided by BCWWS. Does this mean the vault hatches as shown on Lift Station Plan Sheets C04.11 (West & East) will be provided to the Contractor?

**Answer:** Frames and covers shall be supplied by the Contractor.

41. **Question:** Specification Sections 11060 and 11305 lists field testing and training requirements for the pump manufacturer representative. Are these field services included with the BCWWS supplied pumps or will the Contractor be required to provide and pay for these services?

**Answer:** The Contractor shall arrange and pay for these services.

42. **Question:** Drawing C04.11 (West) shows the existing 50 HP pumps at the existing lift station being replaced with new 20 HP pumps. Notes 7 and 8 on this drawing state that the Contractor shall verify the existing guide rails and base elbows are compatible with the new proposed pumps, but the existing pump manufacturer and pump model is not provided. Please provide the existing pump manufacturer, model number and any other details that would enable the Contractor to determine if the existing guide rails and base elbows will be compatible with the new pumps if the Contractor is to supply the pumps.

**Answer:** According to the Wastewater Master Plan, the existing 50-HP pumps are EBARA 150DLF637 with a 6-Inch discharge.

43. **Question:** Will Manufactured Sand be allowed instead of Natural Sand in the P-501 and P-610 Concrete provided it meets the other requirements in the specifications?

**Answer:** No, natural sand shall be used in accordance with the specification.

44. **Question:** The P-501 Specification disallows the use of Slag Cement; can Slag Cement be used if the Contractor can meet all other requirements of the P-501 specifications?

**Answer:** Specification Section P-501 does not allow slag to be used as an aggregate. The strikethrough of Specification Section P-501-2.3b is removed to allow the use of slag as a cementitious material. Refer to revised Specification Section P-501 in this Addendum.

45. **Question:** Is there any specific bid bond form Broward County requires?

**Answer:** Broward County does not supply a specific bid bond form; bidders may use the standard AIA Document A310, Bid Bond.

46. **Question:** Which bid item is dynamic compaction to be paid under? Can details be provided for the dynamic compaction showing where it will be required and what depth and pattern will be required? Can a bid Item be added for dynamic compaction if it is anticipated? Can a specification section be added for dynamic compaction if it is anticipated?

**Answer:** Contractor shall utilize means and methods, as they deem appropriate, to achieve the required density. Contractor shall be responsible for monitoring potential impacts of dynamic compaction to the MSE Wall, by others.

Bid Item Nos. 30 & 31 are applicable for this work. For Bid Item No. 30 the Contractor shall create 24" of subgrade using existing limerock to achieve a CBR of 13.2 or better. Bid Item No. 31 includes areas where limerock is not present and the 24" of subgrade will need to meet CBR 13.2 by blending rock with the native materials if acceptable or import CBR 13.2 materials for the 24".

47. **Question:** 100,000CY is a very large quantity of material. Can the anticipated limits of this volume be defined? In plan view what is the location of the unsuitable material? In section view at what depths is the anticipated unsuitable material to be encountered? How thick is the depth of unsuitable material?
that is to be removed? From existing grade how far down is the surface of unsuitable material that is to be removed? From existing grade how far down is the bottom most limit of the unsuitable material that is to be removed? Is the unsuitable material under the proposed subgrade? Does the unsuitable material that is removed get backfilled? If the unsuitable material that gets removed gets backfilled, how does the backfill of unsuitable material get paid?

Answer: The Estimated Quantity is based on the provided geotechnical bore logs and approximate delineation included in the provided Geotechnical Report. The depth of the unsuitable materials varies based on the provided bore logs.

It shall be the Contractor's responsibility to remove and dispose of all encountered unsuitable materials regardless of depth based on a cubic yard measurement.

Contractor may re-use on-site suitable material from cut areas and offsite borrow material, paid for under P-152-4.3, to backfill removed unsuitable material as needed to meet final grades as shown in the design plans.

48. **Question:** What are the actual limits of asphalt demolition at the West Side and East Side interface?

**Answer:** The Estimated Quantity for Bid Item No. 17 Asphalt Pavement Demolition has been revised to 112,600 SY to include the discrepancy between the Eastern and Western Drawing Sheets. Volume 3 Terminal 4 Apron Expansion (East Sheets) C02.24 & C02.25 have been updated accordingly.

49. **Question:** The plan and profile for new Sanitary Sewer dimensions do not match. Sanitary Plan C06.08 East indicates 13.30 LF of 6" FM and profile C06.12 East indicates 11.88 LF of 6" FM at N:631273.28, E:938438.21. Please provide the proper length of this pipe section.

**Answer:** The proposed connection to the existing twelve inch (12") force main has been revised to a proposed 12"x6" Tapping Sleeve. The revised length of pipe from the 45 degree bend to the proposed tapping sleeve has been revised to 16.94 feet. Bid Item 137B has been added for the 12" X 6" tapping sleeve. Volume 3 Terminal 4 Apron Expansion (East Sheets) C06.06 and C06.12 have been revised to include tapping sleeve and corrected pipe length.

50. **Question:** Please provide the proper length of the 30" Jack and Bore Steel Casing.

**Answer:** The correct length of 30" Jack and Bore Steel Casing shown on Volume 2 Terminal 4 Apron Expansion (West Sheets) C05.01 & C05.11 is ten (10) LF. Volume 2 Terminal 4 Apron Expansion (West Sheets) C05.01 has been revised to reflect the corrected length.

51. **Question:** Is the water filled barrier intended to be located in the middle of the SWM Pond? Is the water filled barrier in the way of the construction of the Storm Drain Str#24-27 and the connecting Storm Drain Pipes?

**Answer:** Barricades in the island between Taxiway Connectors T7 and T8 are based on proposed phasing and are subject to modification to achieve Best Management Practices (BMP) Sediment and Erosion Control measures. Modification of the proposed barricades shall require coordination with Broward County Aviation Department (BCAD) Operations through the Construction Project Manager (CPM).

52. **Question:** What phase is the SWM pond to be constructed?

**Answer:** Grading of the island between Taxiway Connectors T7 and T8 shall be completed during Phase Nos. A-1 and A-2.
33. **Question:** What phase are the Str#24-#27 and the connecting storm drain pipe to be constructed?

   **Answer:** Pursuant to the Construction Phasing Plan and Notes included in Volume 1 Terminal 4 Apron Expansion (Combined Sheets), Structure Nos. 24 & 25 shall be installed in Phase A-2 and Structure Nos. 26 & 27 shall be installed during Phase A-1.

54. **Question:** Please provide proposed elevations for the contours that elevations are not shown.

   **Answer:** Please refer to Volume 3 Terminal 4 Apron Expansion (East Sheets) C14.00 - C14.15 for retaining wall information including cross sections with proposed grades.

All other terms, conditions and specifications remain unchanged for this bid.

NAME OF COMPANY: Tutor Perini Fort Lauderdale-Hollywood Venture
REvised Section 4: Office of Economic and Small Business Development Requirements

In accordance with 49 CFR Part 26, the Disadvantaged Business Enterprise (DBE) Program shall apply to this Contract. All persons or entities responding to this solicitation shall utilize, or attempt to utilize, DBE firms to perform at least the assigned participation goal ("DBE Goal") for this Contract, which is 22%.

1.1. Compliance with DBE Goal requirements is a matter of responsibility. Information demonstrating such compliance must be submitted with your response to the solicitation. You must at least show an attempt to meet the DBE Goal by providing Letters of Intent (LOI). Alternatively, you may show your good faith efforts to meet the DBE Goal by providing the documents listed in subsection 1.3.1 through 1.3.5 below. Your failure to meet the DBE Goal or demonstrate your good faith efforts to meet the DBE Goal shall be grounds for a finding of non-responsibility. In connection with the DBE Goal, you may be deemed responsible in one of two ways.

1.2. The first way you may be deemed responsible is by submitting LOIs (Form 6) from certified DBE firms which, cumulatively, fully meet the goal.

1.3. If you are unable to fully meet the DBE Goal, the second way you may be deemed responsible is by demonstrating your good faith efforts to meet the goal ("Good Faith Efforts") and submitting a completed Application for Evaluation of Good Faith Effort (Form 7). Such Good Faith Efforts shall be consistent with the Guidance Concerning Good Faith Efforts provided by the federal Department of Transportation, found in 49 CFR 26, Appendix A. Without limiting the preceding sentence, documentation you may submit to demonstrate your Good Faith Efforts may include but is not limited to:

1.3.1. Providing timely solicitation activities to certified DBE firms, including attendance at pre-bid meetings, advertisements, or written notices;
1.3.2. Identifying appropriate contract portions and scopes of work that certified DBE firms could potentially perform;
1.3.3. Providing timely and adequate information to the certified DBE firms (including plans and specifications);
1.3.4. Good faith negotiation with each interested, certified DBE firm (including names and contact information of each DBE firm considered) with an explanation as to why negotiations failed; and
1.3.5. Investigating DBE qualifications and capabilities; list reason(s) if a certified DBE firm is rejected.

1.4. Additional Factors in Review of Good Faith Efforts: In evaluating your Good Faith Efforts, the County may also consider the success other persons or entities that have responded to the solicitation have had in meeting the DBE Goal.

1.5. Opportunity to Cure. OESBD shall review your response to the solicitation. If OESBD discerns your intent to meet the DBE Goal, but determines that your response contains technical errors or requires further documentation, then OESBD may provide you with three (3) business days to correct those errors or provide documentation.

1.6. Program Requirements for DBE participation:

1.6.1. For a firm's participation to be considered in meeting the DBE Goal, the firm must be certified as a DBE to perform the applicable work no later than the date your response to the solicitation is due to the Purchasing Division.
1.6.2. Additionally, a certified DBE firm may only participate in a contract if it is performing a commercially useful function. A certified DBE firm performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the certified DBE firm must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

1.6.3. DBE participation shall be counted in accordance with 49 CFR 26.55.

1.7. Nothing herein shall be construed to indicate that a higher level of certified DBE firm involvement above the stated goal will give any person or entity that has responded to the solicitation an advantage over other responders who have met the DBE Goal or shown Good Faith Efforts, as determined by the County.

1.8. A comprehensive listing of certified DBE firms are published in the Florida Department of Transportation (FDOT) Business Directory and can be viewed at the following Unified Certification Program (UCP) website: https://www3.dot.state.fl.us/EqualOpportunityOffice/biznet/mainmenu.asp.

For detailed information regarding the Disadvantaged Business Enterprise Program, please contact the Office of Economic and Small Business Development at (954) 357-6400 or visit the website at: http://www.broward.org/EconDev/SmallBusiness/Pages/Default.aspx
DATE: March 25, 2013

TO: Richard Waskiewicz, Expansion Project Administrator, Aviation Department

THRU: Pamela Madison, Deputy County Administrator, Acting Director, Office of Economic and Small Business Development

FROM: Chris Atkinson, Assistant Director, Office of Economic and Small Business Development

SUBJECT: Terminal 4 Apron Expansion

The DBE Goal assigned to the above mentioned project is as follows:

DBE GOAL: 22% of the total value of the project.

Estimated Federal Assistance: 75%

The above assigned goal for Disadvantaged Business Enterprises is based on our examination of the scope of work and cost estimate as submitted to the Office of Economic and Small Business Development by the using agency. If you have any concerns regarding subcontracting opportunities which may be available, please contact our office at (954) 359-6147.

cc: Alexander Horton, Small Business Development Specialist, BCAD/OESBD
**METHODOLOGICAL STATEMENT**

Disadvantaged Business Enterprise (DBE) Program

**PROJECT TITLE:** Terminal 4 Apron Expansion

**DATA:** 2010 County Business Patterns and Florida Department of Transportation (FDOT) Business Directory.

**STEP 1 BASE GOAL CALCULATION:**

Based on the percentage in scope of work available for subcontracting and the availability of DBE firms in the relevant market area of Broward, Miami-Dade and Palm Beach Counties, the base goal is 100%.

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<td>99</td>
<td>13</td>
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<td>11.16%</td>
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<td>82</td>
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<td>Bituminous/ Asphalt Paving &amp; Base Course</td>
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*continued on next page*
Table 1 (cont’d)

<table>
<thead>
<tr>
<th>Specialties in Scope of Work</th>
<th>NAICS Code</th>
<th>Scope %</th>
<th>Broward</th>
<th>Miami-Dade</th>
<th>Palm Beach</th>
<th>Total Tri-County</th>
<th>Broward</th>
<th>Miami-Dade</th>
<th>Palm Beach</th>
<th>Total Tri-County</th>
<th>Percentage Availability per Specialty</th>
<th>Percentage in Scope of Work available for subcontracting</th>
<th>Weighted Availability</th>
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<tbody>
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<td>512</td>
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<td>60</td>
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<td>154</td>
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<td>5</td>
<td>47</td>
<td>500</td>
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<td>125</td>
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<td>523</td>
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<td>Retaining Walls</td>
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<td>212</td>
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<td><strong>TOTAL</strong></td>
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<td>294</td>
<td>907</td>
<td>123</td>
<td>1,204</td>
<td>9169</td>
<td>100.00%</td>
<td>51.28%</td>
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</tbody>
</table>

Weighted Availability 51.28%  
Goal 22%  

STEP 2 BASE GOAL ADJUSTMENTS:  
The project manager has advised that the scopes of work for Bonds and Mobilization, Allowance Accounts, and Concrete Paving & Base Course are the responsibility of the prime contractor and do not provide subcontracting opportunities. In addition, the scopes of work for Maintenance of Traffic and Grading, Excavation lack DBE availability or are of a volume that is not reasonably expected to be performed by a DBE, respectively. Although weighted availability for all scopes is 51.28%, this number is not representative of the actual availability of DBEs to perform the scopes of work expected to be subcontracted. The exclusion of the aforementioned four (4) scopes of work results in a total DBE subcontracting potential of 29.06%. This project is 75% funded by a grant from the Federal Aviation Administration. As the DBE goal may only be assigned to the federally funded portion of the project, this number is revised to 21.60% (75% of 29.06%). This figure is rounded to 22%.
ITEM P-162 SUBGRADE STABILIZATION

DESCRIPTION

162-1.1 SCOPE. The work specified in this section consists of the stabilizing of designated portions of the pavement subgrade to provide a firm and unyielding subgrade having the required bearing value specified in the plans. The work shall be constructed in accordance with these specifications and the lines, grades, thicknesses and notes shown in the plans.

162-2.1 STABILIZED SUBGRADE. No separate payment for stabilizing materials will be made. Compliance with the bearing value requirements will be determined by the Limerock Bearing Ratio (LBR) Method.

It is the Contractor's responsibility that the finished pavement subgrade section meets the bearing value requirements, regardless of the quantity of stabilizing materials necessary to be added.

After the grading operations have been substantially completed, the Contractor shall make his own determination as to the quantity (if any) of stabilizing material necessary for compliance with the bearing value requirements. The Contractor shall notify the Engineer of the approximate quantity to be added. The spreading and mixing in of such quantity of materials shall meet the approval of the Engineer as to uniformity and effectiveness.

MATERIALS

162-3.1 MATERIALS. The particular type of stabilizing material to be used shall meet the requirements of Item Specification P-211 which require the material to be obtained from a CERTIFIED and Certified Pit, or the Contractor may utilize limerock material from another source if the material meets the LBR requirements outlined in these specifications, is free of unsuitable materials, and meets the requirements of the Engineer.

CONSTRUCTION METHODS

162-4.1 GENERAL. Prior to the beginning of stabilizing operations, the area to be stabilized shall have been constructed to an elevation such that upon completion of stabilizing operations the completed stabilized subgrade will conform to the lines, grades and cross-section shown in the plans. Prior to the spreading of any additive stabilizing material, the surface of the pavement subgrade shall be brought to a plane approximately parallel to the plane of the proposed finished surface.

The subgrade to be stabilized may be processed in one course unless the equipment and methods being used do not provide the required uniformity, particle size limitation, compaction and other desired results, in which case, the processing shall be done in more than one course.

162-4.2 APPLICATION OF STABILIZING MATERIAL. The designated quantity of stabilized material shall be spread uniformly over the area to be stabilized.

When materials from an existing base area to be utilized in the stabilizing at a particular location, all of such materials shall be placed and spread prior to the addition of other stabilizing additives.
162-4.3 MIXING. The mixing shall be done with rotary tillers or other equipment meeting the approval of the Engineer. At the Contractor's election, the mixing of the materials may be accomplished in a plant of an approved type suitable for this work. The area to be stabilized shall be thoroughly mixed throughout the entire depth and width of the stabilizing limits.

The mixing operations, as specified, (either in place or in a plant) will be required regardless of whether the existing soil, or any select soils placed within the limits of the stabilized sections, have the required bearing value without the addition of stabilizing materials.

162-4.4 MAXIMUM PARTICLE SIZE OF MIXED MATERIALS. At the completion of mixing, all particles of material within the limits of the area to be stabilized shall pass a 3-1/2 inch ring. Any particles not meeting this requirement shall be removed from the stabilized area or shall be broken down so as to meet this requirement.

162-4.5 COMPACTION. After the mixing operations have been completed and requirements for bearing value, uniformity and particle size have been satisfied, the stabilized area shall be compacted in accordance with paragraph 162-6.1. The materials shall be compacted at a moisture content permitting the specified compaction. If the moisture content of the material is improper for attaining the specified density, either water shall be added or the material shall be permitted to dry until the proper moisture content for the specified compaction is reached.

162-4.6 FINISH GRADING. The completed stabilized subgrade shall be shaped to conform with the finished lines, grades and cross-section indicated in the plans. The subgrade shall be checked by the use of elevation stakes or other means approved by the Engineer.

162-4.7 REQUIREMENTS FOR CONDITION OF COMPLETED SUBGRADE. After the stabilizing and compacting operations have been completed, the subgrade shall be firm and substantially unyielding to the extent that it will support construction equipment and will have the bearing value required by Section 162-5.2.

All soft and yielding material and any other portions of the subgrade which will not compact readily shall be removed and replaced with suitable material and the whole subgrade brought to line and grade with proper allowance for subsequent compaction.

162-4.8 MAINTENANCE OF COMPLETED SUBGRADE. After the subgrade has been completed as specified above, the Contractor shall maintain it free from ruts, depressions and any damage resulting from the hauling or handling of materials, equipment, tools, etc. It shall be the Contractor's responsibility to maintain the required density until the subsequent base or pavement is in place.

Any work required for recompaition shall be at the Contractor's expense.

162-5.1 BEARING VALUE REQUIREMENTS. Bearing value samples will be obtained and tested by the Engineer at completion of satisfactory mixing of the stabilized area. For any area where the bearing value obtained is deficient from the value of LBR 40 in excess of the tolerances established herein, additional stabilizing material shall be spread and mixed in accordance with paragraph 162-4.3. This reprocessing shall be done for the full width of the pavement area being stabilized which the bearing value is deficient.

The Contractor shall make his own determination of the quantity of additional stabilizing material to be used in reprocessing.
162-5.2 TOLERANCES IN BEARING VALUE REQUIREMENTS. The following under tolerances from the specified bearing value will be allowed on individual tests performed on samples obtained after mixing operations have been completed:

<table>
<thead>
<tr>
<th>Specified Bearing Value</th>
<th>Undertolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBR 40</td>
<td>3.0</td>
</tr>
</tbody>
</table>

162-6.1 DENSITY REQUIREMENTS. Within the entire limits of the width and depth of the areas to be stabilized the minimum in-place density acceptable at any location will be 100 percent of the maximum density as determined by ASTM D1556. For maximum laboratory density, Test Method ASTM D1557 will be used.

METHOD OF MEASUREMENT

162-7.1 MEASUREMENT. For all work of Subgrade Stabilization specified herein, the areas to be paid for shall be the quantity of per square yard of accepted stabilized subgrade.

BASIS OF PAYMENT

162-8.1 QUANTITY. The quantity of Subgrade Stabilization, determined as provided in paragraph 162-7.1, shall be paid for at the contract price per square yard of Stabilized Subgrade. Such price and payment shall constitute full compensation for all work specified in this section applicable to these types of stabilization, including furnishing and spreading of all stabilizing material required and any reprocessing of stabilization areas necessary to attain the specified bearing value.

162-8.2 COMMERCIAL STABILIZING MATERIAL. No separate payment shall be made for any stabilizing material which the Contractor may elect to utilize in Subgrade Stabilization.

No separate payment will be made for the work of utilizing of materials from an existing base in the stabilizing section.

162-8.3 GENERAL. The above prices and payments shall constitute full compensation for all work and materials specified in this section and shall specifically include all costs of the processing and incorporation of existing base materials into the proposed stabilization area when such work is required by the plans.

Payment shall be made under:

Item P-162-8.1 12" Stabilized Subgrade — Per Square Yard.
TESTING REQUIREMENTS

ASTM C 136  Sieve or Screen Analysis of Fine and Coarse Aggregate

FM 5-515  Limerock Bearing Ratio ASTM D 698 Moisture-Density Relations of Soils and Aggregate Mixtures Using 5.5 lb (2.49 Kg) Rammer and 12 in.(305 mm) Drop.

ASTM D 1556 Density of Soil in Place by the Sand-Cone Method

ASTM D 1557  Test for Laboratory Compaction Characteristics of Soil Using Modified Effort

ASTM D 4318 Liquid limit, Plastic limit, and Plasticity Index of Soils

END OF ITEM P-162
Item P-154 Subbase Course

DESCRIPTION

154-1.1 This item shall consist of a subbase course composed of granular materials constructed on a prepared subgrade or underlying course in accordance with these specifications, and in conformity with the dimensions and typical cross section shown on the plans.

MATERIALS

154-2.1 MATERIALS. The subbase material shall consist of hard durable particles or fragments of granular aggregates. This material will be mixed or blended with fine sand, clay, stone dust, or other similar binding or filler materials produced from approved sources. This mixture must be uniform and shall comply with the requirements of these specifications as to gradation, soil constants, and shall be capable of being compacted into a dense and stable subbase. The material shall be free from vegetable matter, lumps or excessive amounts of clay, and other objectionable or foreign substances. Pit-run material may be used, provided the material meets the requirements specified.

Table 1 Gradation Requirements

<table>
<thead>
<tr>
<th>Sieve designation (square openings) as per ASTM C 136 and ASTM D 422</th>
<th>Percentage by weight passing sieves</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 in (75.0 mm)</td>
<td>100</td>
</tr>
<tr>
<td>No. 10 (2.0 mm)</td>
<td>20-100</td>
</tr>
<tr>
<td>No. 40 (0.450 mm)</td>
<td>5-60</td>
</tr>
<tr>
<td>No. 200 (0.075 mm)</td>
<td>0-8</td>
</tr>
</tbody>
</table>

The portion of the material passing the No. 40 (0.450 mm) sieve shall have a liquid limit of not more than 25 and a plasticity index of not more than 6 when tested in accordance with ASTM D 4318.

The maximum amount of material finer than 0.02 mm in diameter shall be less than 3%.

CONSTRUCTION METHODS

154-3.1 GENERAL. The subbase course shall be placed where designated on the plans or as directed by the Engineer. The material shall be shaped and thoroughly compacted within the tolerances specified. Granular subbases which, due to grain sizes or shapes, are not sufficiently stable to support without movement the construction equipment, shall be mechanically stabilized to the depth necessary to provide such stability as directed by the Engineer. The mechanical stabilization shall principally include the addition of a fine-grained medium to bind the particles of the subbase material sufficiently to furnish a bearing strength, so that the course will not deform under the traffic of the construction equipment. The addition of the binding medium to the subbase material shall not increase the soil constants of that material above the limits specified.

154-3.2 OPERATION IN PITS. All work involved in clearing and stripping pits and handling unsuitable material encountered shall be performed by the Contractor at his/her own expense. The subbase material shall be obtained from pits or sources that have been approved. The material in the pits shall be excavated and handled in such manner that a uniform and satisfactory product can be secured.
154-3.3 PREPARING UNDERLYING COURSE. Before any subbase material is placed, the underlying course shall be prepared and conditioned as specified. The course shall be checked and accepted by the Engineer before placing and spreading operations are started.

To protect the subgrade and to ensure proper drainage, the spreading of the subbase shall begin along the centerline of the pavement on a crowned section or on the high side of pavements with a one-way slope.

154-3.4 MATERIALS ACCEPTANCE IN EXISTING CONDITION. When the entire subbase material is secured in a uniform and satisfactory condition and contains approximately the required moisture, such approved material may be moved directly to the spreading equipment for placing. The material may be obtained from gravel pits, stockpiles, or may be produced from a crushing and screening plant with the proper blending. The materials from these sources shall meet the requirements for gradation, quality, and consistency. It is the intent of this section of the specifications to secure materials that will not require further mixing. The moisture content of the material shall be approximately that required to obtain maximum density. Any minor deficiency or excess of moisture may be corrected by surface sprinkling or by aeration. In such instances, some mixing or manipulation may be required, immediately preceding the rolling, to obtain the required moisture content. The final operation shall be blading or dragging, if necessary, to obtain a smooth uniform surface true to line and grade.

154-3.5 PLANT MIXING. When materials from several sources are to be blended and mixed, the subbase material shall be processed in a central or travel mixing plant. The subbase material, together with any blended material, shall be thoroughly mixed with the required amount of water. After the mixing is complete, the material shall be transported to and spread on the underlying course without undue loss of the moisture content.

154-3.5.1 MIXED IN PLACE. When materials from different sources are to be proportioned and mixed or blended in place, the relative proportions of the components of the mixture shall be as designated by the Engineer.

The subbase material shall be deposited and spread evenly to a uniform thickness and width. Then the binder, filler or other material shall be deposited and spread evenly over the first layer. There shall be as many layers of materials added as the Engineer may direct to obtain the required subbase mixture.

When the required amount of materials have been placed, they shall be thoroughly mixed and blended by means of graders, discs, harrows, rotary tillers, supplemented by other suitable equipment if necessary. The mixing shall continue until the mixture is uniform throughout. Areas of segregated material shall be corrected by the addition of binder or filler material and by thorough remixing. Water in the amount and as directed by the Engineer shall be uniformly applied prior to and during the mixing operations, if necessary, to maintain the material at its required moisture content. When the mixing and blending has been completed, the material shall be spread in a uniform layer which, when compacted, will meet the requirements of thickness and typical cross section.

154-3.6 GENERAL METHODS FOR PLACING. The subbase course shall be constructed in layers. Any layer shall be not less than 3 in (75 mm) nor more than 8 in (200 mm) of compacted thickness. The subbase material shall be deposited and spread evenly to a uniform thickness and width. The material, as spread, shall be of uniform gradation with no pockets of fine or coarse materials. The subbase, unless otherwise permitted by the Engineer, shall not be spread more than 2,000 sq yd (1700 sq m) in advance of the rolling. Any necessary sprinkling shall be kept within this limit. No material shall be placed in snow or on a soft, muddy, or frozen course.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

During the placing and spreading, sufficient caution shall be exercised to prevent the incorporation of subgrade, shoulder, or foreign material in the subbase course mixture.
154-3.7 FINISHING AND COMPACTING. After spreading or mixing, the subbase material shall be thoroughly compacted by rolling and sprinkling, when necessary. Sufficient rollers shall be furnished to adequately handle the rate of placing and spreading of the subbase course.

The field density of the compacted material shall be at least 100 percent of the maximum density of laboratory specimens prepared from samples of the subbase material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D 1557. The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 6938. The moisture content of the material at the start of compaction shall not be below nor more than 2 percentage points above the optimum moisture content.

When nuclear density gauges are to be used for density determination, testing shall be in accordance with Section 120 and ASTM D 6938.

The course shall not be rolled when the underlying course is soft or yielding or when the rolling causes undulation in the subbase. When the rolling develops irregularities that exceed 1/2 in (12 mm) when tested with a 16 ft (4.8 m) straightedge, the irregular surface shall be loosened and then refilled with the same kind of material as that used in constructing the course and again rolled as required above.

Along places inaccessible to rollers, the subbase material shall be tamped thoroughly with mechanical or hand tampers.

Sprinkling during rolling, if necessary, shall be in the amount and by equipment approved by the Engineer. Water shall not be added in such a manner or quantity that free water will reach the underlying layer and cause it to become soft.

154-3.8 SURFACE TEST. After the course is completely compacted, the surface shall be tested for smoothness and accuracy of grade and crown; any portion found to lack the required smoothness or to fail in accuracy of grade or crown shall be scarified, reshaped, recompacted, and otherwise manipulated as the Engineer may direct until the required smoothness and accuracy re obtained. The finished surface shall not vary more than 1/2 in (12 mm) when tested with a 16 ft (4.8 m) straightedge applied parallel with, and at right angles to, the centerline.

154-3.9 THICKNESS. The thickness of the completed subbase course shall be determined by depth tests or sample holes taken at intervals so each test shall represent no more than 500 sq yd (420 sq m). When the deficiency in thickness is more than 1/2 in (12 mm), the Contractor shall correct such areas by scarifying, adding satisfactory mixture, rolling, sprinkling, reshaping, and finishing in accordance with these specifications. The Contractor shall replace at his/her expense the subbase material where borings are taken for test purposes.

154-3.10 PROTECTION. Work on subbase course shall not be conducted during freezing-temperature nor when the subgrade is wet. When the subbase material contains frozen material or when the underlying course is frozen, the construction shall be stopped.

154-3.11 MAINTENANCE. Following the final shaping of the material, the subbase shall be maintained throughout its entire length by the use of standard motor graders and rollers until, in the judgment of the Engineer, the subbase meets all requirements and is acceptable for the construction of the next course.

METHOD OF MEASUREMENT

154-4.1 The yardage of subbase course to be paid for shall be the number of cubic yards (cubic meters) of subbase course material accepted in accordance with these specifications, placed, compacted, and accepted in the completed course. The quantity of subbase course material shall be measured in final position based upon depth tests or cores taken as directed by the Engineer, or at the rate of 1 depth test for each 500 sq yd (420 sq m) of subbase course, or by means of average and areas on the complete work computed from elevations to the nearest 0.01 ft (3 mm). On individual depth measurements, thicknesses more than 1/2 in (12 mm) in excess of that shown on the plans shall be considered as the
specified thickness plus 1/2 in (12 mm) in computing the yardage for payment. Subbase materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

154-5.1 Payment shall be made at the contract unit price per square yard (cubic yard (cubic meter)) for subbase course. This price shall be full compensation for furnishing all materials; for all preparation, hauling, and placing of these materials; and for all labor, equipment, tools, and incidental necessary to complete the item.

Payment will be made under:

Item P-154-5.1 6" Subbase Coarse - per square yard (cubic yard (cubic meter))

TESTING REQUIREMENTS

ASTM C 136  Sieve Analysis of Fine and Coarse Aggregates
ASTM D 422  Particle Size Analysis of Soils
ASTM D 698  Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb (2.49 kg) Rammer and 12 in (305 mm) Drop
ASTM D 1556 Density of Soil in Place by the Sand-Cone Method
ASTM D 1557 Test for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D 6938 In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods
ASTM D 4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils

END OF ITEM P-154
ITEM P-501 PORTLAND CEMENT CONCRETE PAVEMENT

DESCRIPTION

501-1.1 This work shall consist of pavement composed of Portland cement concrete, *with reinforcement* and *without reinforcement* constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross sections shown on the plans. The concrete pavement for this project shall be mixed in a central plant, delivered in non-agitating trucks and placed with slip-form equipment. Individual placement areas of less than 500 square yards, irregular areas, and other inaccessible areas to the slip-form equipment, paving concrete shall be placed with side forms.

501-1.2 End Product Responsibility. The Contractor is entirely responsible for the materials and processes that produce the end products specified in this specification. It is the Contractor's responsibility to prove by means of a test section, constructed at the start of construction, that the process for constructing the concrete pavement is valid. The Engineer will determine if the Contractor's materials and processes produce an end product that is in conformity with the plans and specifications. Tolerances to determine conformity for measurable components of the materials, processes, and end product are provided. When the Engineer determines that the materials furnished, work performed, or the finished product are not in conformity with the plans and specifications and result in an unacceptable product, the affected work or materials shall be removed and replaced or otherwise corrected at the Contractor's expense in accordance with this specification.

501-1.3 Pre-Paving Conference. At least 7 days before and not more than 30 days before concrete placement, the Contractor and his team members shall attend a pre-paving conference with the Engineer and airport personnel to review project specific requirements related to the concrete paving and related project-planning activities. The conference shall be attended by at least the Contractor's general superintendent, pavement superintendent, and plant manager for the project. The following are the minimum agenda items:

   b. Critical material supply/availability issues.
   c. Concrete plant and aggregate stockpile management.
   d. Concrete paving requirements.
   e. Paving schedule.
   f. Weather management plan.
   g. Test section requirements.
   h. Contractor process testing.
   i. Contractor acceptance testing requirements.
   j. Engineer monitoring of acceptance testing.
   k. Stop work authority on Contractor's staff.
   l. Stop work authority on Owner's staff.
   m. Issues and disputes resolution hierarchy.
MATERIALS

501-2.1 AGGREGATES.

Sources of aggregates shall be selected by the Contractor. There is no limit to the number of aggregate sizes that may be used or blended. Maximum aggregate size shall be selected by the Contractor and shall not be greater than 2-1/2 inches.

a. Reactivity. Aggregates shall be tested for deleterious reactivity with alkalis in the cement, which may cause excessive expansion of the concrete. Separate tests of individual coarse and fine aggregate shall be made in accordance with ASTM C 1260. If the expansion of coarse or fine aggregate test specimens, tested in accordance with ASTM C 1260, does not exceed 0.10 % at 28 days (30 days from casting), the coarse or fine aggregates shall be accepted. Tests at 16 days are not acceptable. If the Contractor desires to use flyash as cement replacement, the contractor may proceed to conduct the tests in accordance to the following paragraph and not conduct the ASTM C1260 tests on the individual aggregates.

ASR Mitigation. If the expansion of any aggregate, coarse or fine, at 28 days is greater than 0.10%, tests of combined materials shall be made in accordance with ASTM C 1567 using the aggregates, cementitious materials, and/or specific reactivity reducing chemicals in the proportions proposed for the mixture design. If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C 1567, does not exceed 0.10 % at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10 % at 28 days, or new aggregates shall be evaluated and tested.

b. Fine Aggregate. Fine aggregate shall be natural sand and conform to the requirements of ASTM C 33, except as specified herein. The fine aggregate shall meet the requirements for deleterious materials contained in ASTM C 33, Table 1. The fineness modulus shall not be less than 2.3. There is no upper limit for fineness modulus. Gradation shall meet the requirements of Table 1 when tested in accordance with ASTM C 136, except as may otherwise be qualified under Section 6 of ASTM C 33.

Table 1. Gradation for Fine Aggregate (ASTM C 33)

<table>
<thead>
<tr>
<th>Sieve Designation (Square Openings)</th>
<th>Percentage by Weight Passing Sieves</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 in. (9.5 mm)</td>
<td>100</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>95-100</td>
</tr>
<tr>
<td>No. 8 (2.36 mm)</td>
<td>85-100</td>
</tr>
<tr>
<td>No. 16 (1.18 mm)</td>
<td>50-85</td>
</tr>
<tr>
<td>No. 30 (600 μm)</td>
<td>25-60</td>
</tr>
<tr>
<td>No. 50 (300 μm)</td>
<td>10-30</td>
</tr>
<tr>
<td>No. 100 (150 μm)</td>
<td>2-10</td>
</tr>
</tbody>
</table>

c. Coarse Aggregate. Coarse aggregate shall conform to the requirements of ASTM C 33 except as specified herein. Gradation, within the separated size groups, shall meet the requirements of Table 2 when tested in accordance with ASTM C 136. When the nominal maximum size of the aggregate is greater than 1 in, the aggregates shall be furnished in two size groups.

Aggregates delivered to the mixer shall consist of crushed stone, crushed or uncrushed gravel, air-sealed blast furnace slag, crushed recycled concrete pavement, or a combination thereof. Crushed concrete and steel furnace slag shall not be used as aggregate. The aggregate shall be composed of clean, hard, uncoated particles and shall meet the requirements for deleterious substances contained in ASTM C 33, Class 1N. Dust and other coating shall be removed from the aggregate by washing. Aggregates
shall be washed. The aggregate in any size group shall not contain more than 8 percent by weight of flat or elongated pieces when tested in accordance with ASTM D 4791. A flat or elongated particle is one having a ratio between the maximum and the minimum dimensions of a circumscribing rectangular prism exceeding 5 to 1.

The percentage of wear shall be no more than 40 when tested in accordance with ASTM C 131 or ASTM C 535.

Aggregate susceptibility to Disintegration (D) Cracking. Aggregates that have a history of D-cracking shall not be used. Prior to approval of mixture design and production of Portland cement concrete the Contractor shall submit written certification that the aggregate does not have a history of D Cracking and that the aggregate meets the specified State requirements.

(4) Other sources of crushed stone aggregate shall be approved if the durability factor as determined by ASTM C 666 is greater than or equal to 95 and all other quality test requirements within these specifications are fulfilled. The FAA will consider and reserve final approval of other State classification procedures.

(2) Crushed gravel and sand gravel aggregates shall not be required to meet freeze-thaw durability ratings. These aggregates shall be approved for use in concrete by the state highway agency in the state from which the aggregate originates and the state in which they are to be used and shall meet all other criteria within these specifications.

d. Combined Gradation. The Contractor shall combine the aggregates in the proportions proposed for the concrete mixture and evaluate on the following sieve sizes: 2½ inch, 2-inch, 1½ inch, 1-inch, ¾ inch, ½ inch, No. 8, No. 4, No. 16, No. 30, No. 50, and No. 100.

The Contractor shall determine the Workability Factor (WF) and the Coarseness Factor (CF). The WF is the percentage of the combined aggregate by weight finer than the No. 8 sieve. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 34 pounds of cementitious material per cubic yard greater than 564 pounds per cubic yard. The CF is the percent of material by weight retained on the ½-inch sieve divided by the percent by weight of all the aggregate retained on the No. 8 sieve and multiplying the ratio by 100.

The aggregates, as proportioned, shall be deemed to have met the requirements of a combined aggregate gradation when the following criterion is met: The WF and CF shall be within the parallelogram ABCD of the Aggregate Constructability Chart (Figure 1). The combined aggregates, as proportioned, shall be rejected if the combined aggregate gradation criterion is not met. Contractor shall select the proper gradations that provides the proper concrete workability for slip-form paving, side-form paving and hand placement.
501-2.2 CEMENT. Cement shall conform to the requirements of ASTM C 150 Type I. Blended cements are not allowed.

If for any reason, cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

Only The Contractor shall use cements containing less than 0.6% equivalent alkali or cements that can demonstrate a positive reduction in the expansion created by alkali-silica reactions shall be used—only if aggregates are prone to alkali-silica reactivity as determined in the paragraph Reactivity. If the ASTM C 1260 tests were not conducted, the Contractor shall use cements containing less than 0.6% equivalent alkali.

501-2.3 CEMENTITIOUS MATERIALS.

a. Flyash or Natural Pozzolan. Flyash shall meet the requirements of ASTM C 618, Class F or N with the exception of loss of ignition, where the maximum shall be less than 6 percent. Class F or N flyash for use in mitigating alkali-silica reactivity shall have a Calcium Oxide (CaO) content of less than 13 percent and a total equivalent alkali content less than 3 percent. Flyash such as is produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable used. The Contractor shall furnish the previous three most recent, consecutive ASTM C-618 reports for each source of flyash proposed in the mix design, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Engineer.

b. Blast Furnace Slag (Slag Cement). Ground Granulated Blast Furnace (GGBF) slag shall conform to ASTM C 999, Grade 100 or 120. GGBF shall be used only at a rate between 25 and 55 percent of the total cementitious material by mass.
501-2.4 PREMOLDED JOINT FILLER. Premolded joint filler for isolation, expansion, joints shall conform to the requirements of ASTM D-1751 or ASTM D-1752, Type II or III and shall be punched to admit dowels where called for on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified by the Engineer. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the Engineer.

501-2.5 joint sealer. The joint sealer for the joints in the concrete pavement shall meet the requirements of (Item P-604) and Item P-605 and shall be of the type specified in the plans.

501-2.6 STEEL REINFORCEMENT. Reinforcing shall consist of Welded Wire Steel Fabric conforming to the requirements of ASTM A 185.

501-2.7 DOWEL AND TIE BARS. Tie bars shall be deformed steel bars and conform to the requirements of ASTM A 615 or ASTM A 996, except that rail steel bars, Grade 50 or 60, shall not be used for tie bars that are to be bent or restraightened during construction. Tie bars designated as Grade 40 in ASTM A615 can be used for construction requiring bent bars.

Dowel bars shall be plain steel bars conforming to ASTM A 615 Grade 40 or 60 or ASTM A 966 Grade 50 or 60 and shall be free from burring or other deformation restricting slippage in the concrete. High strength dowel bars shall conform to ASTM A 714, Class 2, Type S, Grade I, II or III, Bare Finish. Before delivery to the construction site each dowel bar shall be painted with one coat of paint conforming to MIL-DTL 24441/29A - SPCC Paint 5 or SPCC Paint 25. Dowels shall be epoxy coated in conformance with ASTM A 775. Grout retention rings Metal or plastic sleeves Grout retention rings shall be full circular metal or plastic devices supporting the dowel until the epoxy hardens. Dowel inserters shall not be used.

The sleeves for dowel bars used in expansion joints shall be metal or other type of an approved design to cover 2 to 3 in (60 mm to 75 mm) of the dowel, with a closed end and with a suitable stop to hold the end of the bar at least 1 in (25 mm) from the closed end of the sleeve. Sleeves shall be of such design that they will not collapse during construction.

501-2.8 WATER. Water used in mixing or curing shall be clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product. Water will be tested in accordance with the requirements of AASHTO T 26. Water known to be of potable quality may be used without testing.

501-2.9 COVER MATERIAL FOR CURING. Curing materials shall conform to one of the following specifications:

a. Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C 309, Type 2, Class B, or Class A if wax base only.

b. White polyethylene film for curing concrete shall conform to the requirements of ASTM C 171.

c. White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C 171.

d. Waterproof paper for curing concrete shall conform to the requirements of ASTM C 171.

501-2.10 ADMIXTURES. The use of any material added to the concrete mix shall be approved by the Engineer. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples submitted.
taken by the Engineer from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-Entraining Admixtures. Air-entraining admixtures shall meet the requirements of ASTM C 260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent, and any water reducer admixture, and any other admixture shall be compatible.

b. Chemical Admixtures. Water-reducing, set retarding, and set-accelerating admixtures shall meet the requirements of ASTM C 494, including the flexural strength test. ASTM C 494 Type F and G high range water reducers and ASTM C 1017 flowable admixtures shall not be used.

501-2.11 EPOXY-RESIN. Epoxy-resin used to anchor dowels and tie bars in pavements shall conform to the requirements of ASTM C 881, Type I, Grade 3, Class C. Class A or B shall be used when the surface temperature of the hardened concrete is below 60 °F (16 °C).

501-2.12 MATERIAL ACCEPTANCE. Prior to use of materials, the Contractor shall submit certified test reports to the Engineer for those materials proposed for use during construction. The certification shall show the appropriate ASTM test for each material, the test results, and a statement that the material passed or failed.

The Engineer may request samples for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

MIX DESIGN

501-3.1 PROPORTIONS. Concrete shall be designed to achieve a 28-day flexural strength that meets or exceeds the acceptance criteria contained in paragraph 501-5.2 for a flexural strength of 650 psi. The mix shall be designed using the procedures contained in Chapter 9 12 of the 15th Edition of the Portland Cement Association's manual, "Design and Control of Concrete Mixtures", American Concrete Institute ACI 211.1 procedures or federal agency design guide for dense graded concrete mixes.

The Contractor shall note that to ensure that the concrete actually produced will meet or exceed the acceptance criteria for the specified strength, the mix design average strength must be higher than the specified strength. The amount of overdesign necessary to meet specification requirements depends on the producer's standard deviation of flexural test results and the accuracy that that value can be estimated from historic data for the same or similar materials.

The minimum cementitious material (cement plus flyash, or GGBFS) shall be 517 pounds per cubic yard (47 kg per cubic meter). The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall not be more than 0.5 by weight.

Prior to the start of paving operations and after approval of all material to be used in the concrete, the Contractor shall submit a mix design showing the proportions and flexural strength obtained from the concrete at 1, 3, 7, 14, and 28 days. The mix design shall include copies of test reports, including test dates, and a complete list of materials including type, brand, source, and amount of cement, flyash, ground slag, coarse aggregate, fine aggregate, water, and admixtures. The fineness modulus of the fine aggregate and the air content shall also be shown. The mix design shall be submitted to the Engineer at least 30 days prior to the start of operations. The submitted mix design shall not be more than 90 days old. Production shall not begin until the mix design is approved in writing by the Engineer.

Should a change in sources be made, or admixtures added or deleted from the mix, a new mix design must be submitted to the Engineer for approval. Previously approved mix designs for airfield paving older than 90 days shall not be used without reapproval.
Flexural strength test specimens shall be prepared in accordance with ASTM C 192 and tested in accordance with ASTM C 78. The mix determined shall be workable concrete having a slump (taken at the site of placement) for side-form concrete between 1 and 2 in (25 mm and 50 mm) as determined by ASTM C 143. For vibrated slip-form concrete, the slump shall be between 1½ in (43 mm) and 1 to 1½ in (38 mm) selected by the Contractor to produce in-place pavement meeting the specified tolerance for control of edge slump. The selected slump shall be applicable for both pilot and fill-in lanes.

501-3.2 CEMENTITIOUS MATERIALS.

a. Flyash. Flyash may be used in the mix design. When flyash is used as a partial replacement for cement, the minimum cement content may be met by considering Portland cement plus flyash as the total cementitious material. The replacement rate shall be determined from laboratory trial mixes, but shall be between 20 and 30 percent by weight of the total cementitious material. If flyash is used in conjunction with ground granular blast furnace slag the maximum replacement rate shall not exceed 10 percent by weight of total cementitious material.

b. Ground Slag. Ground blast-furnace slag may be used in a mix design containing Type I or Type II cement. The slag, or slag plus flyash if both are used, may constitute between 25 to 55 percent of the total cementitious material by weight. If the concrete is to be used for slipforming operations and the air temperature is expected to be lower than 55 °F (13 °C) the percent slag shall not exceed 30 percent by weight.

501-3.3 ADMIXTURES.

a. Air-Entraining. Air-entraining admixture shall be added in such a manner that will insure uniform distribution of the agent throughout the batch. The air content of freshly mix air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be as shown below. Air content shall be determined by testing in accordance with ASTM C 231 for gravel and stone coarse aggregate and ASTM C 173 for slag and other highly porous coarse aggregate.

<table>
<thead>
<tr>
<th>Exposure Level</th>
<th>Maximum Size Aggregate</th>
<th>Recommended Air Content (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 in (50 mm)</td>
<td>2&quot;</td>
</tr>
<tr>
<td></td>
<td>1½ in (38 mm)</td>
<td>1½&quot;</td>
</tr>
<tr>
<td></td>
<td>1 in (25 mm)</td>
<td>1&quot;</td>
</tr>
<tr>
<td></td>
<td>¾ in (19 mm)</td>
<td>¾&quot;</td>
</tr>
<tr>
<td></td>
<td>½ in (13 mm)</td>
<td>½&quot;</td>
</tr>
<tr>
<td>Mild</td>
<td></td>
<td>2.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.0%</td>
</tr>
</tbody>
</table>

b. Chemical. Water-reducing, set-controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, in accordance with ASTM C 494. No admixture shall be added to the mix without trial mixes and approval by the Engineer.

501-3.4 CONCRETE MIX DESIGN LABORATORY. The Contractor's laboratory used to develop the concrete mix design shall meet the requirements of ASTM C 1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix design must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction and shall contain as a minimum:

a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.

b. A statement that the equipment used in developing the mix design is in calibration.
c. A statement that each test specified in developing the mix design is offered in the scope of the laboratory's services.

d. A copy of the laboratory's quality control system.

CONSTRUCTION METHODS

501-4.1 EQUIPMENT. Equipment necessary for handling materials and performing all parts of the work shall be approved by the engineer as to design, capacity, and mechanical conditions. The equipment shall be at the jobsite sufficiently ahead of the start of paving operations to be examined thoroughly and approved.

a. Batch Plant and Equipment. The batch and mix plant shall be located on the project site as indicated in the drawings. The batch plant and equipment shall conform to the requirements of ASTM C 94.

b. Mixers and Transportation Equipment.

(1) General. Concrete may shall be mixed at a central plant, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

(2) Central plant mixer. Central plant mixers shall conform to the requirements of ASTM C 94. The mixer shall be capable of combining the materials into a uniform mixture and of discharging this mixture without segregation. The mixer shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 in (19 mm) or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.

(3) Truck mixers and truck agitators. Truck mixers used for mixing and hauling concrete and truck agitators used for hauling central mixed concrete shall conform to the requirements of ASTM C 94. Truck mixers and truck agitator shall not be used to transport paving concrete.

(4) Nonagitator trucks. Concrete shall be transported to the paving site in nonagitating equipment. Nonagitating hauling equipment shall conform to the requirements of ASTM C 94.

c. Finishing Equipment. The standard method of constructing concrete pavements on FAA projects for this project shall be with an approved slip-form paving equipment. The paver-finisher shall be a heavy-duty, self-propelled slip-form machine designed to spread, consolidate, screed, and float-finish the freshly placed concrete in one complete pass of the machine so a dense and homogeneous pavement is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements. It shall weigh at least 2200 lbs. per foot of paving lane width and powered by an engine having at least 6.0 horsepower per foot of lane width.

On projects requiring less than 500 sq yd of cement concrete pavement or requiring individual individual placement areas of less than 500 sq yd, or irregular areas at locations inaccessible to slip-form paving equipment, cement concrete pavement may be placed with approved placement and finishing equipment using stationary side forms. Hand screeding and float finishing may only be used on small irregular areas as allowed by the Engineer.

d. Vibrators. Vibrator shall be the internal type. Operating frequency for internal vibrators shall be between 8,000 and 12,000 vibrations per minute. Average amplitude for internal vibrators shall be 0.025—0.05 in (0.6—1.3 cm). The number, spacing, and frequency shall be as necessary to
provide a dense and homogeneous pavement and meet the recommendations of ACI 309, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the Engineer. As a general guideline, operating frequency for internal vibrators may be between 8,000 and 12,000 vibrations per minute, and average amplitude for internal vibrators may be 0.025-0.05 in (0.06 - 0.13 cm). Hand held vibrators may be used in irregular areas only, but shall meet the recommendations of ACI 309, Guide for Consolidation of Concrete.

e. Concrete Saws. The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations.

f. Side Forms. Side-form paving shall be used in accordance to paragraph 501-4.1.c Finishing Equipment. Straight side forms shall be made of steel and shall be furnished in sections not less than 10 feet (3 m) in length. Forms shall have a depth equal to the pavement thickness at the edge, and a base width equal to or greater than the depth. Flexible or curved forms of proper radius shall be used for curves of 100 ft (31 m) radius or less. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 in (3 mm) in 10 ft (3 m), and the upstanding leg shall not vary more than 1/4 in (6 mm). The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the Engineer.

g. Pavers. The paver shall be fully energized, self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement, true to grade, tolerances, and cross section. It shall be of sufficient weight and power to construct the maximum specified concrete paving lane width as shown in the plans, at adequate forward speed, without transverse, longitudinal or vertical instability or without displacement. The paver shall be equipped with electronic or hydraulic horizontal and vertical control devices. The slip-form paver shall be automatically controlled from taut wire guideline for horizontal alignment and on both side from a taut wire guideline for vertical alignment, except that electronic control from a ski operating on a previously constructed adjoining lane shall be used where applicable for either or both sides. Automatic, electronic controls for vertical alignment shall always be used on both sides of the lane. Control from a slope-adjusted control or control operating from the underlying material shall never be used. Stringless guidance systems can be used providing it is a 3D machine control system where the target horizontal and vertical alignment is a digital terrain model. The system shall be fault tolerant in which the system cannot be affected by any electrical interference on or around the equipment. If the Contractor plans to use any type of stringless guidance system, the Contractor shall submit a detail description of the system and perform a trial field demonstration in the presence of the Engineer during the test section procedures. Approval of the systems will be based on the results of the demonstration and on continuing satisfactory operations during paving.

501-4.2 FORM SETTING. Side-form paving shall be used in accordance to paragraph 501-4.1.c Finishing Equipment. Forms shall be set sufficiently in advance of the concrete placement to insure continuous paving operation. After the forms have been set to correct grade, the underlying surface shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place sufficiently to maintain the form in position for the method of placement.
Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/8 in (3 mm) at any joint. Forms shall be so set that they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete.

501-4.3 CONDITIONING OF UNDERLYING SURFACE. The compacted underlying surface on which the pavement will be placed shall be widened approximately 3 ft (1 m) to extend beyond the paving machine track to support the paver without any noticeable displacement. After the underlying surface has been placed and compacted to the required density, the areas that will support the paving machine and the area to be paved shall be trimmed or graded to the plan grade elevation and profile by means of a properly designed machine. The grade of the underlying surface shall be controlled by a positive grade control system using lasers, stringlines, or guide wires. If the density of the underlying surface is disturbed by the trimming operations, it shall be corrected by additional compaction and retested at the option of the Engineer before the concrete is placed except when stabilized subbases are being constructed. If damage occurs on a stabilized subbase, it shall be corrected full depth by the Contractor in accordance with the stabilized subbase specification. If traffic is allowed to use the prepared grade, the grade shall be checked and corrected immediately before the placement of concrete. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete. The underlying surface shall be protected so that it will be entirely free of frost when concrete is placed clean, free of dirt, debris, and other undesirable materials.

If an asphalt subbase is used, the asphalt base shall be whitewashed. Whitewashing consists of either white-pigmented curing compound or lime slurry sprayed on the surface applied at a rate of one gallon to not more than 100 square feet. The cost of whitewashing is incidental to the cost of Portland Cement Concrete Pavement.

501-4.4 CONDITIONING OF UNDERLYING SURFACE, SIDE-FORM AND FILL-IN LANE CONSTRUCTION. The prepared underlying surface shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from the concrete. Damage caused by hauling or usage of other equipment shall be corrected and retested at the option of the Engineers. If damage occurs to a stabilized subbase, it shall be corrected full depth by the Contractor. A template shall be provided and operated on the forms immediately in advance of the placing of all concrete. The template shall be propelled only by hand and not attached to a tractor or other power unit. Templates shall be adjustable so that they may be set and maintained at the correct contour of the underlying surface. The adjustment and operation of the templates shall be such as will provide an accurate retest of the grade before placing the concrete thereon. All excess material shall be removed and wasted. Low areas shall be filled and compacted to a condition similar to that of the surrounding grade. The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily. The underlying-surface shall be protected so that it will be entirely free of frost when the concrete is placed. The use of chemicals to eliminate frost in the underlying-surface shall not be permitted. The underlying surface shall be clean, free of dirt, debris, and other undesirable materials.

The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily.

501-4.5 HANDLING, MEASURING, AND BATCHING MATERIAL. The batch plant site, layout, equipment, and provisions for transporting material shall assure a continuous supply of material to the work. Stockpiles shall be constructed in such a manner that prevents segregation and intermixing of deleterious materials. Stockpiles shall be tiered in layers not exceeding 12 feet high for one size aggregates, and shall be not more than 6 feet high for aggregate gradations that contain uniform percentages of varying size particles.

BROWARD COUNTY WP-404/408 TECHNICAL SPECIFICATIONS
FT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT
Terminal 4 Apron Expansion
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Aggregates that have become segregated or mixed with earth or foreign material shall not be used and shall be rejected by the Engineer. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipments requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage.

Batching plants shall be equipped to proportion aggregates and bulk cement, by weight, automatically using interlocked proportioning devices of an approved type. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, such as a chute, boot, or other approved device, to prevent loss of cement. The device shall be arranged to provide positive assurance that the cement content specified is present in each batch.

501-4.6 MIXING CONCRETE. The concrete may-shall be mixed at the work site, in a central mix plant or in-truck-mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C 94.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in non-agitating trucks, or 90 minutes when the concrete is hauled in truck mixers or truck agitators. Retempering concrete by adding water or by other means will not be permitted. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements. Provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified in the approved mix design is not exceeded, and approved by the Engineer.

501-4.7 LIMITATIONS ON MIXING AND PLACING. No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

a. Cold Weather. Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40 °F (4 °C) and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35 °F (2 °C). The temperature of the mixed concrete shall not be less than 50 °F (10 °C) at the time of placement.

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 60 °F (10 °C) at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150 °F (66 °C). The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

b. Hot Weather. During periods of hot weather when the maximum daily air temperature exceeds 85 °F (30 °C), the following precautions shall be taken.

The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90 °F (35 °C). The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.
The finished surfaces of the newly laid pavement shall be kept damp by applying a water-fog or mist with approved spraying equipment until the pavement is covered by the curing medium. If necessary, wind screens shall be provided to protect the concrete from an evaporation rate in excess of 0.2 psf per hour as determined in accordance with Figure 2.1.5 in ACI 305R, Hot Weather Concreting, which takes into consideration relative humidity, wind velocity, and air temperature. For fast computation use Eq. 8 of ACI Materials Journal, V95, No 4 July-August 1993.

When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. Such measures shall consist of wind screens, more effective fog sprays, and similar measures commencing immediately behind the paver. If these measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

c. Temperature Management Program. Prior to the start of paving operation for each day of paving, the contractor shall provide the engineer with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. As a minimum the program shall address the following items:

1) Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

2) Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity.

3) Anticipated timing of initial sawing of joint.

d. Protecting Concrete from Rain Damage. The Contractor's Weather Management shall include provision to protect freshly placed concrete from rain damage. If rain appears imminent, the contractor shall not place concrete. The Contractor shall keep on-site sufficient water proof material and means to rapidly place the waterproof material over all unhardened concrete surface that may be damaged by rain. Concrete shall not be placed during rain that results in any standing water on the surface of the fresh concrete surface.

The Contractor shall not attempt to remove any rainwater from the unhardened concrete surface prior to application of the waterproof material. The Contractor shall also not manually finish or texture the freshly placed concrete if there is any rainwater on the concrete surface. At the end of the rainstorm, the Contractor shall remove the waterproof material, allow any standing rainwater to evaporate, and apply curing material.

Rain-damaged concrete shall be cored as directed by the Designer and depth of damage determined by petrographic examination. If the depth of damage is ¼ inch or less of the pavement thickness, the damaged area may be corrected by diamond grinding as directed by the Engineer. If the damage is greater that ¼ inch of the pavement thickness, the slab shall be considered defective and replaced in accordance with paragraph 501-4.19 REPAIR, REMOVAL, and REPLACEMENT OF SLABS.

e. Documentation of Weather Data. The Contractor shall provide a continuous and accurate record of air temperature, relative humidity, concrete temperature and wind velocity at the project site with portable weather station, adjacent to paving areas(s). The data shall be collected and documented by the Contractor continuously for the full duration of the project. The Contractor's quality control staff shall document the weather data in the daily Quality Control Reports and use and implement the data to eliminate the potential for plastic cracking of Portland cement concrete pavement by estimation the evaporation rate from Figure 2.1.5 in ACI 305R or Eq. 8 of the ACI Materials Journal.
501-4.8 PLACING CONCRETE. The Contractor has the option of placing the concrete with either side (fixed) forms or slip-forms, except as indicated by the Engineer. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 ft (1 m). Backhoes and Grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used unless the contractor demonstrates that they can be used without contaminating the concrete and base course and it is approved by the Engineer.

Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a flexural strength of 550 psi, based on the average of four field cured specimens per 2,000 cubic yards (1,530 cubic meters) of concrete placed. Also, subgrade and subbase planers, concrete pavers, and concrete finishing equipment may be permitted to ride upon the edges of previously constructed pavement when the concrete has attained a minimum flexural strength of 400 psi. The flexural strength of the concrete shall be determined in accordance with paragraph 501-4.18 Opening to Traffic.

a. Slip-Form Construction. The concrete shall be distributed uniformly into final position by a self propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the slip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well defined edges. The sliding forms shall be rigidly held together laterally to prevent spreading of the forms.

The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 in. The spacing of internal units shall be uniform and shall not exceed 18 in.

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be within 8000 to 12000 cycles per minute or as required to adequately consolidate the concrete, and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least 1 ft. The frequency of vibration or amplitude shall vary proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible. And all operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.

b. Side-Form Construction. Side form sections shall be straight, free from warps, bends, indentations, or other defects. Defective forms shall be removed from the work. Metal side forms shall be used except at end closures and transverse construction joints where straight forms of other suitable material may be used.
Side forms may be built up by rigidly attaching a section to either top or bottom of forms. If such build-up is attached to the top of metal forms, the build-up shall also be metal.

Width of the base of all forms shall be equal to at least 80 percent of the specified pavement thickness.

Side forms shall be of sufficient rigidity, both in the form and in the interlocking connection with adjoining forms, that springing will not occur under the weight of subgrading and paving equipment or from the pressure of the concrete. The Contractor shall provide sufficient forms so that there will be no delay in placing concrete due to lack of forms.

Before placing side forms, the underlying material shall be at the proper grade. Side forms shall have full bearing upon the foundation throughout their length and width of base and shall be placed to the required grade and alignment of the finished pavement. They shall be firmly supported during the entire operation of placing, compacting, and finishing the pavement.

Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and oiled each time they are used and before concrete is placed against them.

Concrete shall be spread, screeded, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery.

Concrete for the full paving width shall be effectively consolidated by internal vibrators without causing segregation. Internal type vibrators' rate of vibration shall be not less than 7,000 cycles per minute. Amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete more than 1 ft from the vibrating element. The Contractor shall furnish a tachometer or other suitable device for measuring and indicating frequency of vibration.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete.

c. Consolidation Testing. The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete. If a lack of consolidation of the concrete is suspected by the Engineer, additional referee testing may be required. Referee testing of hardened concrete will be performed by cutting cores from the finished pavement after a minimum of 24 hours curing. Density determinations will be made based on the water content of the core as taken. ASTM C 642 shall be used for the
determination of core density in the saturated-surface dry condition. Referee cores will be taken at the minimum rate of one for each 500 cubic yards of pavement, or fraction thereof.

The average density of the cores shall be at least 97 percent of the original mix design density, with no cores having a density of less than 96 percent of the original mix design density.

Failure to meet the above requirements will be considered as evidence that the minimum requirements for vibration are inadequate for the job conditions, and additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete as indicated by further referee testing shall conform to the above listed requirements.

501-4.9 STRIKE-OFF OF CONCRETE AND PLACEMENT OF REINFORCEMENT. Following the placing of the concrete, it shall be struck off to conform to the cross section shown on the plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screeded. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading. For reinforced concrete, the reinforcement shall be placed and secured on approved chairs as detailed in the drawings. The Contractor shall provide enough chairs to avoid sagging of the reinforcement during concrete placement. Reinforcement shall not be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

501-4.10 JOINTS. Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2 in (13 mm) from their designated position and shall be true to line with not more than 1/4 in (6 mm) variation in 10 ft (3 m). The surface across the joints shall be tested with a 10 ft (3 m) straightedge as the joints are finished and any irregularities in excess of 1/4 in (6 mm) shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

a. Construction. Longitudinal construction joints shall be slip-formed or formed against side forms with or without keyways, as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.

b. Contraction. Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves...
shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 in (3 mm) wide and to the depth shown on the plans.

c. Expansion–Isolation. Expansion–Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface. A solid cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck off, the cap shall be carefully withdrawn leaving the space over the premolded filler. The edges of the joint shall be finished and tooled while the concrete is still plastic. Any concrete bridging the joint space shall be removed for the full width and depth of the joint.

d. Keyways. Keyways (only female keys permitted) shall be formed in the plastic concrete by means of side forms or the use of keyway liners that are inserted during the clip-form operations. The keyway shall be formed to a tolerance of 1/4 in (6 mm) in any dimension and shall be of sufficient stiffness to support the upper keyway flange without distortion or slumping of the top of the flange. The dimensions of the keyway forms shall not vary more than plus or minus 1/4 in (6 mm) from the mid-depth of the pavement. Liners that remain in place permanently and become part of the keyed joint shall be made of galvanized, copper clad, or of similar rust-resistant material compatible with plastic and hardened concrete and shall not interfere with joint reservoir sawing and sealing.

d. Tie bars. Tie bars shall consist of deformed bars installed in joints as shown on the plans. The bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth. When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bar are specified. These bars shall not be painted, greased, or enclosed in sleeves. When clip-form operations call for tie bars, two-piece hook belts can be installed in the female side of the keyed joint provided the installation is made without distorting the keyed dimensions or causing edge slump. If a bent tie bar installation is used, the tie bars shall be inserted through the keyway liner only on the female side of the joint. In no case shall a bent tie-bar installation for male keyways be permitted.

e. Dowel bars. Dowel bars or other load-transfer units of an approved type shall be placed across joints in the manner as shown on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. A metal, or other type, dowel–expansion cap or sleeve shall be furnished for each dowel bar used with expansion joints. These caps shall be substantial enough to prevent collapse and shall be placed on the ends of the dowels as shown on the plans. The caps or sleeves shall fit the dowel bar tightly and the closed end shall be watertight. The portion of each dowel painted with rust preventative paint, as required under paragraph 501-2.7 and shown on the plans to receive a debonding lubricant, shall be thoroughly coated with asphalt MC-70, or an approved lubricant, to prevent the concrete from bonding to that portion of the dowel. If free–sliding plastic-coated or epoxy-coated steel dowels are used, a lubrication bond breaker shall be used except when approved pullout tests indicate it is not necessary. Where butt-type joints with dowels are designated, the exposed end of the dowel shall be oiled.

Dowel bars at contraction joints may be placed in the full thickness of pavement by a mechanical device approved by the Engineer. The device shall be capable of installing dowel bars within the maximum permissible alignment tolerances. Dowels bars at longitudinal construction joints shall be bonded in drilled holes.
fg. Installation. All devices used for the installation of expansion joints shall be approved by the Engineer.

The top of an assembled joint device shall be set at the proper distance below the pavement surface and the elevation shall be checked. Such devices shall be set to the required position and line and shall be securely held in place by stakes or other means to the maximum permissible tolerances during the pouring and finishing of the concrete. The premolded joint material shall be placed and held in a vertical position; if constructed in sections, there shall be no offsets between adjacent units.

Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerances on dowel bar alignment shall be in accordance with paragraph 501-5.2a(6). During the concrete placement operation, it is advisable to place plastic concrete directly on dowel assemblies immediately prior to passage of the paver to help maintain dowel position and alignment within maximum permissible tolerances.

When concrete is placed using slip-form pavers, dowels and tie bars shall be placed in longitudinal construction joints by bonding the dowels and tie bars into holes drilled into the hardened concrete. Holes approximately 1/8 in to 1/4 in (3 to 6 mm) greater in diameter than the dowel or tie bar shall be drilled with rotary-type core drills that must be held securely in place to drill perpendicularly into the vertical face of the pavement slab. Dowel holes may be drilled when the concrete has achieved a flexural strength of 400 psi. The flexural strength of the concrete shall be determined in accordance with paragraph 501-4.18 Opening to Traffic. Rotary-type percussion drills may be used provided that spalling of concrete does not occur. Any damage of the concrete shall be repaired by the Contractor in a method approved by the Engineer. Dowels or tie bars shall be bonded in the drilled holes using an epoxy resin material. Installation procedures shall be adequate to insure that the area around dowels is completely filled with epoxy grout. Epoxy shall be injected into the back of the hole and displaced by the insertion of the dowel bar. Bars shall be completely inserted into the hole and shall not be withdrawn and reinserted creating air pockets in the epoxy around the bar. The Contractor shall furnish a template for checking the position and alignment of the dowels. Dowel bars shall not be less than 10 in (25 cm) from a transverse joint and shall not interfere with dowels in the transverse direction.

g4. Sawing of Joints. Joints shall be cut as shown on the plans. Equipment shall be as described in paragraph 501-4.1. The circular cutter shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/8 in (3 mm) wide and to the depth shown on the plans. The top portion of the slot shall be widened by sawing to provide adequate space for joint sealers as shown on the plans. Sawing shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs. Sawing shall be carried on both during the day and night as required. The joints shall be sawed at the required spacing, consecutively in sequence of the concrete placement or as approved by the Engineer. Curing compound, if being used as the cure type, shall be reapplied in the initial sawcut and maintained for the remaining cure period. Curing compound shall not be applied, and used as the cure method, to any final concrete face that is to receive a sealant. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing.

501-4.11 FINAL STRIKE-OFF, CONSOLIDATION, AND FINISHING.

a. Sequence. The sequence of operations shall be the strike-off, floating and removal of laitance, straightedging, and final surface finish. The addition of superficial water to the surface of the concrete to assist in finishing operations will not be permitted. During extreme hot weather conditions, the Engineer may allow a light fog spray to be used to assist in finishing operations. The light fog spray shall be approved by the Engineer.

b. Finishing at Joints. The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material; it shall be firmly placed without voids or segregation.
under and around all load-transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated as required in paragraph 501-4.8.a. After the concrete has been placed and vibrated adjacent to the joints, the finishing machine shall be operated in a manner to avoid damage or misalignment of joints. If uninterrupted operations of the finishing machine, to, over, and beyond the joints, cause segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the screed is approximately 8 in (20 cm) from the joint. Segregated concrete shall be removed from the front of and off the joint; and the forward motion of the finishing machine shall be resumed. Thereafter, the finishing machine may be run over the joint without lifting the screed, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.

c. Machine Finishing. The concrete shall be spread as soon as it is placed, and it shall be struck off and screeded by a finishing machine. The machine shall go over each area as many times and at such intervals as necessary to give to proper consolidation and to leave a surface of uniform texture. Excessive operation over a given area shall be avoided. Paving equipment for slip-form paving shall be in accordance with paragraph 501-4.1.c Finishing Equipment. The slip-form paver shall shape the concrete to the specified and indicated cross section, meeting all tolerances, in one pass. The slip-form paver shall finish the surface and edges so that only a very minimum isolated amount of hand finish is required. If the paving operation does not meet the above requirements and the specified tolerances, immediately stop the operation, replace or modify any equipment as necessary, modify paving procedures or modify the concrete mix in order to resolve the problem.

When side forms are used in placement areas less than 500 square yards, the tops of the forms shall be kept clean by an effective device attached to the machine, and the travel of the machine on the forms shall be maintained true without lift, wobbling, or other variation tending to affect the precision finish. During the first pass of the finishing machine, a uniform ridge of concrete shall be maintained ahead of the front screed for its entire length. The machine shall make only one pass over each area of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operations shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary. When in operation, the screed shall be moved forward with a combined longitudinal and transverse shearing motion, always moving in the direction in which the work is progressing, and so manipulated that neither end is raised from the side forms during the striking-off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross section, and free from parge areas.

d. Hand Finishing. Hand finishing methods will not be permitted, except under the following conditions: in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade; in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used.

The screed for the surface shall be at least 2 feet (0.6 m) longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and shall be constructed either of metal or of other suitable material covered with metal. Consolidation shall be attained by the use of suitable vibrators. A second screed shall be provided for striking-off the bottom layer of concrete when reinforcement is used.

e. Floating. After the concrete has been struck off and consolidated, it shall be further smoothed and trued by means of a longitudinal float using one of the following methods:

(1) Hand Method. Long-handled floats shall not be less than 12 feet (3.6 m) in length and 6 in (15 cm) in width, stiffened to prevent flexibility and warping. The float shall be operated from foot bridges spanning but not touching the concrete or from the edge of the pavement. Floating shall pass gradually from one side of the pavement to the other. Forward movement along the centerline of the
pavement shall be in successive advances of not more than one-half the length of the float. Any excess water or laitance in excess of 1/8 in (3 mm) thick shall be removed and wasted.

(2) Mechanical method. The Contractor may use a machine composed of a cutting and smoothing floats, suspended from and guided by a rigid frame and constantly in contact with the side forms or underlying surface. If necessary, long-handled floats having blades not less than 5 feet (1.5 m) in length and 6 in (15 cm) in width may be used to smooth and fill in open-textured areas in the pavement. When the crown of the pavement will not permit the use of the mechanical float, the surface shall be floated transversely by means of a long-handled float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance in excess of 1/8 in (3 mm) thick shall be removed and wasted. Successive drags shall be lapped one-half the length of the blade.

f. Straight-edge Testing and Surface Correction. After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a Contractor furnished 16 ft (5 m) straightedge swung from handles 3 feet (1 m) longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 in (3 mm) thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements of paragraph 501-5.2e(3). Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

501-4.12 SURFACE TEXTURE. The surface of the pavement shall be finished with either a brush or broom, burlap drag, or artificial turf finish for all newly constructed concrete pavements. It is important that the texturing operation not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the Engineer.

a. Brush or Broom Finish. If the pavement surface texturing is to be a type of brush or broom finish, it shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface, providing corrugations that are uniform in appearance and approximately 1/16 of 1 in (2 mm) in depth.

b. Burlap Drag Finish. If a burlap drag is used to texture the pavement surface, it shall be at least 15 ounces per square yard (555 grams per square meter). To obtain a textured surface, the transverse threads of the burlap shall be removed approximately 1 ft (0.3 m) from the trailing edge. A heavy buildup of grout on the burlap threads produces the desired wide sweeping longitudinal striations on the pavement surface. The corrugations shall be uniform in appearance and approximately 1/16 in (2 mm) in depth.

c. Artificial Turf Finish. If artificial turf is used to texture the surface, it shall be applied by dragging the surface of the pavement in the direction of concrete placement with an approved full-width drag made with artificial turf. The leading transverse edge of the artificial turf drag will be securely fastened to a lightweight pole on a traveling bridge. At least 2 feet of the artificial turf shall be in contact with the concrete surface during dragging operations. A variety of different types of artificial turf are available and approval of any one type will be done only after it has been demonstrated by the Contractor to provide a satisfactory texture. One type that has provided satisfactory texture consists of 7,200 approximately 0.85 inch-long polyethylene turf blades per square foot. The corrugations shall be uniform in appearance and approximately 1/16 in (2 mm) in depth.
SKID-RESISTANT SURFACES SAW-CUT GROOVING. If shown on the plans, skid-resistant surfaces for asphalt pavements shall be provided by construction of saw-cut grooves as shown in the plans. Saw-cut grooves must meet the requirements of Item P-621.

501-4.14 CURING. Immediately after finishing operations are completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-sawcut method is used to construct the contraction joint, the curing compound shall be applied to the sawcut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

a. Impervious Membrane Method. The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of 1 gallon (4 liters) to not more than 150 sq ft (14 sq m). The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. The mixture shall be thoroughly mixed before application of the compound by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the Engineer, a double application rate shall be used to insure coverage. The curing compound shall be of such character that the film will harden within 30 minutes after application. Should the film become damaged from any cause, including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

b. Polyethylene Films. The top surface and sides of the pavement shall be entirely covered with polyethylene sheeting. The units shall be lapped at least 18 in (457 mm). The sheeting shall be placed and weighted to cause it to remain in contact with the surface and sides. The sheeting shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the pavement. Unless otherwise specified, the sheeting shall be maintained in place for 7 days after the concrete has been placed. This sheeting will be on site to protect fresh pavement from unanticipated rain events that could mar the surface finish.

c-d. Waterproof Paper. The top surface and sides of the pavement shall be entirely covered with waterproofed paper. The units shall be lapped at least 18 in (457-mm). The paper shall be placed and weighted to cause it to remain in contact with the surface covered. The paper shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the slab. The surface of the pavement shall be thoroughly saturated prior to placing of the paper. Unless otherwise specified, the paper shall be maintained in place for 7 days after the concrete has been placed.

cd. White Burlap-Polyethylene Sheets. The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for 7 days after the concrete has been placed.
(1) Curing In Cold Weather. The concrete shall be maintained at a temperature of at least 50 °F (10 °C) for a period of 72 hours after placing and at a temperature above freezing for the remainder of the curing time. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather, and any concrete injured by freezing-low temperatures shall be removed and replaced at the Contractor's expense.

e. Water Method. The entire area shall be covered with burlap or other water-absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for 7 days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing-water on the subbase.

501-4.15 REMOVING FORMS. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently for at least 12 hours to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured as outlined in one of the methods indicated in paragraph 501-4.14. Major honeycombed areas shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-5.2(f).

501-4.16 SEALING JOINTS. The joints in the pavement shall be sealed in accordance with Item P-605.

501-4.17 PROTECTION OF PAVEMENT. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor's employees and agents. This shall include watchers to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense. The Contractor shall have available at all times, materials for the protection of the edges and surface of the unhardened concrete. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

501-4.18 OPENING TO TRAFFIC. The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C 31 have attained a flexural strength of 550 lb / sq In (3,792 kPa) when tested in accordance with ASTM C 78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion. The pavement shall be cleaned before opening for normal operations.

501-4.19 REPAIR, REMOVAL, REPLACEMENT OF SLABS.

a. General. New pavement slabs that are broken or contain cracks shall be removed and replaced as repaired--as specified hereinafter at no cost to the Owner. Spalls along joints not exceeding 15 percent of each slab's longitudinal joint edge shall be repaired as specified. Slabs exceeding this quantity regardless of spall size shall be removed and replaced. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The engineer will determine whether cracks extend full-depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be 4 in. (100 mm) diameter, shall be drilled by the Contractor and shall be filled by the Contractor with a well-consolidated concrete mixture bonded to the
walls of the hole with epoxy resin, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the owner. All epoxy resin used in this work shall conform to ASTM C 881, Type V.

b. Shrinkage Cracks. Shrinkage cracks, which do not exceed 4 in in depth, shall be cleaned and then-pressure injected with epoxy resin, Type IV, Grade 1, using procedures as approved. Care shall be taken to assure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the Engineer. Shrinkage cracks, which exceed 4 in in depth, shall be treated as full-depth cracks in accordance with paragraphs 4.19b and 4.19c.

c. Slabs With Cracks Through Interior Areas. Interior area is defined as that area more than 6 in (800 mm) from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the owner, when there are any full-depth cracks, or cracks greater than 4 in depth, that extend into the interior area.

d. Cracks Close To and Parallel To Joints. All cracks essentially parallel to original joints, extending full depth of the slab, and lying wholly within 6 in (150 mm) of either side of the joint shall be treated as specified hereinafter. Any crack extending more than 6 in (800 mm) from the joint shall be treated as specified above in subparagraph "Slabs With Cracks Through Interior Area."

(1) Full Depth Cracks Present, Original Joint Not Opened. When the original uncracked joint has not opened, the crack shall be sawed and sealed, and the original joint filled with epoxy resin as specified below. The crack shall be sawed with equipment specially designed to follow random cracks. The reservoir for joint sealant in the crack shall be formed by sawing to a depth of 2/4 in (10 mm), plus or minus 1/16 in (1.6 mm), and to a width of 6/8 in (16 mm), plus or minus 1/8 in (3.2 mm). Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent such raveling or spalling. The joint sealant shall be a liquid sealant as specified. Installation of joint sealant shall be as specified for sealing joints as so directed. If the joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly troweled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. If filler type material has been used to form a weakened plane in the transverse joint, it shall be completely sawed out and the saw cut pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked, and is the original joint shall be prepared and sealed as originally designed.

(2) Full Depth Cracks Present, Original Joint Also Cracked. At a joint, if there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced for the full lane width and length.

be. Removal and Replacement of Full Slabs. Where it is necessary to remove full slabs, unless there are keys or dowels present, all edges of the slab shall be cut full depth with a concrete saw. All saw cuts shall be perpendicular to the slab surface. If keys, dowels, or tie bars are present along any edges, these edges shall be sawed full depth 24 in (150 mm) from the edge if only keys are present, or just beyond the end of the dowels or tie bars if they are present. These joints shall then be carefully sawed on the joint line to within 1 in (25 mm) of the depth of the dowel or key.

The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed. Suitable equipment shall be used to provide a truly vertical lift, and approved safe lifting devices used for attachment to the slabs. The narrow strips along keyed or doweled edges shall be carefully broken up and removed using light, hand-held jackhammers, 30 lb (14 kg) or less, or other approved similar equipment.
Care shall be taken to prevent damage to the dowels, tie bars, or keys or to concrete to remain in place. The joint face below keys or dowels shall be suitably trimmed so that there is not abrupt offset in any direction greater than 1/2 in (12 mm) and no gradual offset greater than 1 in (25 mm) when tested in a horizontal direction with a 12 ft (3.6 m) straightedge.

No mechanical impact breakers, other than the above hand-held equipment shall be used for any removal of slabs. If underbreak between 1-1/2 and 4 in (37 and 100 mm) deep occurs at any point along any edge, the area shall be repaired as directed before replacing the removed slab. Procedures directed will be similar to those specified for surface spalls, modified as necessary.

If underbreak over 4 in (100 mm) deep occurs, the entire slab containing the underbreak shall be removed and replaced. Where there are no dowels, tie bars, or keys on an edge, or where they have been damaged, dowels of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete using procedures as specified. Original damaged dowels or tie bars shall be cut off flush with the joint face. Protruding portions of dowels shall be painted and lightly oiled. All 4 edges of the new slab shall thus contain dowels or original keys or original tie bars.

Placement of concrete shall be as specified for original construction. Prior to placement of new concrete, the underlying material (unless it is stabilized) shall be re-compacted and shaped as specified in the appropriate SECTION of these specifications. The surfaces of all four joint faces shall be cleaned of all loose material and contaminants and coated with a double application of membrane forming curing compound as bond breaker. Care shall be taken to prevent any curing compound from contacting dowels or tie bars. The resulting joints around the new slab shall be prepared and sealed as specified for original construction.

cf. Repairing Spalls Along Joints. Where directed, spalls along joints of new slabs, and along parallel cracks used as replacement joints, Spalls along joints not exceeding 15.0 percent of each slab's longitudinal joint edge shall be repaired by first making a vertical saw cut at least 1 in (25 mm) outside the spalled area and to a depth of at least 2 in (50 mm). Saw cuts shall be straight lines forming rectangular areas. The concrete between the saw cut and the joint, or crack, shall be chipped out to remove all unsound concrete and at least 1/2 in (12 mm) of visually sound concrete. The cavity thus formed shall be thoroughly cleaned with high-pressure water jets supplemented with compressed air to remove all loose material. Immediately before filling the cavity, a prime coat of epoxy resin, Type III, Grade I, shall be applied to the dry cleaned surface of all sides and bottom of the cavity, except any joint face. The prime coat shall be applied in a thin coating and scrubbed into the surface with a stiff-bristle brush. Pooling of epoxy resin shall be avoided. The cavity shall be filled with low slump Portland cement concrete or mortar or with epoxy resin concrete or mortar. Concrete shall be used for larger spalls, generally those more than 1/2 cu. ft. (0.014 m³) in size, and mortar shall be used for the smaller ones. Any spall less than 0.1 cu. ft. (0.003 m³) shall be repaired only with epoxy resin mortar or a Grade III epoxy resin. Portland cement concrete and mortar mixtures shall be proportioned as directed and shall be mixed, placed, consolidated, and cured as directed. Epoxy resin mortars shall be made with Type III, Grade 1, epoxy resin, using proportions and mixing and placing procedures as recommended by the manufacturer and approved by the Engineer. The epoxy resin materials shall be placed in the cavity in layers not over 2 in (50 mm) thick. The time interval between placement of additional layers shall be such that the temperature of the epoxy resin material does not exceed 140 °F (60 °C) at any time during hardening. Mechanical vibrators and hand tampers shall be used to consolidate the concrete or mortar. Any repair material on the surrounding surfaces of the existing concrete shall be removed before it hardens. Where the spalled area abuts a joint, an insert or other bond-breaking medium shall be used to prevent bond at the joint face. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints. If any spall penetrates half the depth of the slab or more, the entire slab shall be removed and replaced as previously specified.
501-4.20 EXISTING CONCRETE PAVEMENT REMOVAL AND REPAIR.

All operations shall be carefully controlled to prevent damage to the concrete pavement and to the underlying material to remain in place. All saw cuts shall be made perpendicular to the slab surface.

a. Removal of Existing Pavement Slab.

When it is necessary to remove existing concrete pavement and leave adjacent concrete in place, the joint between the removal area and adjoining pavement to stay in place, including dowels, tie bars or keys, shall first be cut full depth with a standard diamond-type concrete saw. If keys or dowels are present at this joint, the saw cut shall be made full depth 6 in (150 mm) from the joint if only keys are present, or just beyond the end of dowels if dowels are present. The edge shall then be carefully sawed on the joint line to within 1 in (25 mm) of the top of the dowel or key. Next, a full depth saw cut shall be made parallel to the joint at least 24 in (600 mm) from the joint and at least 12 in (300 mm) from the end of any dowels. All pavement between this last saw cut and the joint line shall be carefully broken up and removed using hand-held jackhammers, 30 lb. (14 kg) or less, or the approved light-duty equipment which will not cause stress to propagate across the joint saw cut and cause distress in the pavement which is to remain in place. Where dowels or keys are present, care shall be taken to produce an even, vertical joint face below the dowels or keys. If the Contractor is unable to produce such a joint face, or if underbreak or other distress occurs, the Contractor shall saw the dowels or keys flush with the joint. The Contractor shall then install new dowels, of the size and spacing used for other similar joints, by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph "Placing Dowels. All this shall be at no additional cost to the Owner. Dowels of the size and spacing indicated shall be installed as shown on the drawings by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph "Placing Dowels". The joint face shall be sawed or otherwise trimmed so that there is no abrupt offset in any direction greater than 1/2 in (12 mm) and no gradual offset greater than 1 in (25 mm) when tested in a horizontal direction with a 12 ft. (3.6 m) straightedge.

b. Edge Repair.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Areas that are damaged during construction shall be repaired at no cost to the Owner; repair of previously existing damage areas [will be paid for as listed in the bid schedule] will be considered a subsidiary part of concrete pavement construction.

(1) Spall Repair. Spalls shall be repaired where indicated and where directed. Repair materials and procedures shall be as previously specified in subparagraph "Repairing Spalls Along Joints."

(2) Underbreak Repair. All underbreak shall be repaired. First, all delaminated and loose material shall be carefully removed. Next, the underlying material shall be recompacted, without addition of any new material. Finally, the void shall be completely filled with paving concrete, thoroughly consolidated. Care shall be taken to produce an even joint face from top to bottom. Prior to placing concrete, the underlying material shall be thoroughly moistened. After placement, the exposed surface shall be heavily coated with curing compound.

(3) Underlying Material. The underlying material adjacent to the edge of an under the existing pavement which is to remain in place shall be protected from damage or disturbance during removal operations and until placement of new concrete, and shall be shaped as shown on the drawings or as directed. Sufficient material shall be kept in place outside the joint line to prevent disturbance (or sloughing) of material under the pavement that is to remain in place. Any material under the portion of the concrete pavement to remain in place, which is disturbed or loses its compaction shall be carefully removed and replaced with concrete as specified in paragraph "Underbreak Repair." The underlying material outside the joint line shall be thoroughly compacted and moist when new concrete is placed.
501-4.21 TEST SECTION. In order to adjust the concrete mix and validate the concrete placement methods and consolidation of concrete, the Contractor shall place a concrete test section a minimum 2 panels wide by 500 feet long minimum or more as required for the Contractor to demonstrate that production can be conducted in accordance with all requirements specified in Item P-501. The location of the test section shall be determined by the Engineer. The test section shall be placed a minimum of 3 days prior to start of paving operations and must be accepted by Engineer before the Contractor proceeds with any concrete paving operations.

The various placement parameters that affect the placement of the concrete shall be recorded by the Contractor during the test section placement. Those parameters include but are not limited to speed of the machine, placement of vibrators, frequency and amplitude of the vibrators, concrete characteristics, weather, concrete beam placement and initial curing methods, coring and handling of thickness cores. Before the test section is placed, the Engineer and the Contractor shall meet to discuss the proposed test section placement and agree to all of the various parameters to be recorded. The records are to be turned over to the Engineer at the end of the placement operation.

The Contractor will not be allowed to place the test section until the Contractor Quality Control Program, showing conformance with the requirements of Paragraph 501-6.1, has been approved, in writing, by the Engineer.

A minimum of 8 cores shall be taken by the Contractor and submitted to the Engineer within three (3) days of placement. The location of the cores shall be determined by the Engineer.

If the initial test section should prove to be unacceptable, it shall be removed at the Contractor’s expense and the necessary adjustments to the job mix formula, plant operation, placing procedures, etc. shall be made. Another test section shall then be placed. Additional test sections, if required, shall be constructed and evaluated for conformance to the specifications. Any sections that are not acceptable shall be removed at the Contractor’s expense. Full production shall not begin until an acceptable section has been constructed and accepted in writing by the Engineer. Once a test section is accepted by the Engineer, the Contractor shall not deviate from the placement methods and mix design used for the test section for the concrete paving operations.

Once an acceptable test section has been placed, payment for that test section shall be made in accordance with paragraph 501-8.1.

501-4.22 CURING COMPOUND REMOVAL. In accordance with the Drawings and Engineer direction, CONTRACTOR shall use high pressure water to remove curing compound in the areas to be painted by others.

MATERIAL ACCEPTANCE

501-5.1 ACCEPTANCE SAMPLING AND TESTING. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the Engineer at no cost to the Contractor. The Contractor shall bear the cost of providing curing facilities for the strength specimens, per paragraph 501-5.1a(3), and coring and filling operations, per paragraph 501-5.1b(1).

Testing organizations performing these tests shall meet the requirements of ASTM C 1077. The laboratory accreditation must be current and listed on the accrediting authority’s website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation. A copy of the laboratory’s current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction.

BROWARD COUNTY
FT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT
Terminal 4 Apron Expansion P-501-25

WP-404/408 TECHNICAL SPECIFICATIONS
May, 2013
Issued for Bid
Addendum No. 1
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Concrete shall be accepted for strength and thickness on a lot basis. A lot shall consist of:

4,000 square yards (4,000 square meters).

a. Flexural Strength.

(1) Sampling. Each lot shall be divided into four equal sublots. One sample shall be taken for each sublot from the plastic concrete delivered to the job site. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D 3665. The concrete shall be sampled in accordance with ASTM C 172.

(2) Testing. Two (2) specimens shall be made from each sample. Specimens shall be made in accordance with ASTM C 31 and the flexural strength of each specimen shall be determined in accordance with ASTM C 78. The flexural strength for each sublot shall be computed by averaging the results of the two test specimens representing that sublot.

Immediately prior to testing for flexural strength, the beam shall be weighed and measured for determination of a sample unit weight. Measurements shall be made for each dimension: height, depth, and length, at the mid-point of the specimen and reported to the nearest 1/10th in. The weight of the specimen shall be reported to the nearest 0.1 pound. The sample unit weight shall be calculated by dividing the sample weight by the calculated volume of the sample. This information shall be reported as companion information to the measured flexural strength for each specimen.

The samples will be transported while in the molds. The curing, except for the initial cure period, will be accomplished using the immersion in saturated lime water method.

Slump, air content, and temperature tests will also be conducted by the quality assurance laboratory for each set of strength test samples, per ASTM C 31.

The Contractor shall make, cure and deliver all required beams to Owner’s Q/A testing organization lab curing room within 48 hours of casting the beams. All beams shall be transported per ASTM/ACI methods approved by the Engineer. The Contractor shall observe all tests. All broken and/or unused test specimens and beams shall become the property of the Contractor and shall be removed off of airport property.

(3) Curing. The Contractor shall provide adequate facilities for the initial curing of beams. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60 °to 80 °F (16 °to 27 °C), and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather, or in heavyweight closed plastic bags, or using other suitable methods, provided the temperature and moisture loss requirements are met.

(4) Acceptance. Acceptance of pavement for flexural strength will be determined by the Engineer in accordance with paragraph 501-5.2b.

b. Pavement Thickness.

(1) Sampling. Each lot shall be divided into four equal sublots and one core shall be taken by the Contractor for each sublot. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D 3665. Areas, such as thickened edges, with planned variable thickness, shall be excluded from sample locations.

Cores shall be neatly cut with a core drill. The Contractor shall furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes shall be filled by the Contractor with a non-shrink grout approved by the Engineer within one day after sampling.
(2) Testing. The thickness of the cores shall be determined by the Engineer by the average caliper measurement in accordance with ASTM C 174.

(3) Acceptance. Acceptance of pavement for thickness shall be determined by the Engineer in accordance with paragraph 501-5.2c.

c. Partial Lots. When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot, or when the Contractor and Engineer agree in writing to allow overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they shall constitute a lot. Where one or two sublots have been produced, they shall be incorporated into the next lot or the previous lot and the total number of sublots shall be used in the acceptance criteria calculation, that is, \( n=5 \) or \( n=6 \).

d. Outliers. All individual flexural strength tests within a lot shall be checked for an outlier (test criterion) in accordance with ASTM E 178, at a significance level of 5 percent. Outliers shall be discarded, and the PWL shall be determined using the remaining test values.

501-5.2 ACCEPTANCE CRITERIA.

a. General. Acceptance will be based on the following characteristics of the completed pavement:

   (1) Flexural strength
   (2) Thickness
   (3) Smoothness
   (4) Grade
   (5) Edge slump
   (6) Dowel bar alignment

Flexural strength and thickness shall be evaluated for acceptance on a lot basis using the method of estimating percentage of material within specification limits (PWL). Acceptance using PWL considers the variability (standard deviation) of the material and the testing procedures, as well as the average (mean) value of the test results to calculate the percentage of material that is above the lower specification tolerance limit (L).

Acceptance for flexural strength will be based on the criteria contained in accordance with paragraph 501-5.2e(1). Acceptance for thickness will be based on the criteria contained in paragraph 501-5.2e(2). Acceptance for smoothness will be based on the criteria contained in paragraph 501-5.2e(3). Acceptance for grade will be based on the criteria contained in paragraph 501-5.2e(4).

The Engineer may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and if it can be demonstrated in the laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.
b. Flexural Strength. Acceptance of each lot of in-place pavement for flexural strength shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

c. Pavement Thickness. Acceptance of each lot of in-place pavement shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

d. Percentage of Material Within Limits (PWL). The percentage of material within limits (PWL) shall be determined in accordance with procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for flexural strength and thickness shall be:

<table>
<thead>
<tr>
<th>Flexural Strength</th>
<th>0.93 x strength specified in paragraph 501-3.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>Lot Plan Thickness in inches, -0.50 in</td>
</tr>
</tbody>
</table>

e. Acceptance Criteria.

(1) Flexural Strength. If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

(2) Thickness. If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

(3) Smoothness. As soon as the concrete has hardened sufficiently, the pavement surface shall be tested in the transverse direction with a 16 ft straightedge or other specified device. Surface smoothness deviations shall not exceed 1/4 in from a 16 ft straightedge at any location, including placement along and spanning any pavement joint or edge.

Areas in the slab showing high spots of more than 1/4 in but not exceeding 1/2 in in 16 feet shall be marked and immediately ground down with an approved grinding machine to an elevation that falls within the tolerance of 1/4 in or less. Where the departure from the correct cross section exceeds 1/2 in, the pavement shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

In addition to the 16 ft straight edge, the Contractor shall furnish a 25' wheel base California type profilograph and competent operator to be used to measure longitudinal pavement surface deviations. The profilograph shall be operated under the supervision of the Engineer and in accordance with the manufacturer's instructions. The profilograph shall be operated at a speed no greater than a normal walk. Original profilograms for the appropriate locations interpreted in accordance with ASTM E 1274 shall be furnished to the Engineer. The profilograms shall be recorded on a scale of 1 in equal to 25 feet longitudinally and 1 in equal to 1 in or full scale vertically. Records shall be maintained showing all smoothness measurements.

a. The surface of Runway and Taxiway pavements of continuous placement of 50 feet or more shall be tested and evaluated as described herein. Two passes shall be made in each paving lane greater than 20 feet in width; each pass shall be six feet from and parallel with the centerline of the paving lane. The average of the two passes shall be considered as the profilograph result for the paving lane. For paving lanes less than 20 feet in width, one pass along the centerline shall be required. Tests shall be run the next working day following concrete placement. Each trace shall be completely labeled to show paving lane, wheel pass, and stationing.
b. The Contractor shall furnish paving equipment and employ methods that produce a riding surface for each section of pavement having an average profile index meeting the requirements of paragraph 501-8.1c. A typical subsection will be considered to be the width of the paving lane and 1/10 mile long. The profile index will be determined in accordance with ASTM E 1274 using a 0.2 in blanking band. Within each 1/10th mile subsection, all areas represented by high points having a deviation in excess of 0.4 in in 25 feet or less shall be removed by the contractor using an approved grinding device or a device consisting of multiple diamond blades. The use of a bush hammer or other impact devices will not be permitted. After removing all individual deviations in excess of 0.4 in, additional corrective work shall be performed if necessary to achieve the required ride quality. All corrective work shall be completed prior to determination of pavement thickness.

c. On those pavement subsections where corrections were necessary, second profilograph runs will be performed to verify that the corrections have produced an average profile index of 15 in per mile or less. If the initial average profile index was less than 15, only those areas representing greater than 0.4 in deviation will be re-profiled for correction verification.

d. When the average profile index does not exceed 7 inches per mile, payment will be made for that section at the contract unit price for the completed pavement. When the average profile index exceeds 7 inches per mile, but does not exceed 15 in per mile, the Contractor may elect to accept a contract unit price adjustment in lieu of reducing the profile index.

e. Individual sections shorter than 50 feet and the last 15 feet of any section where the contractor is not responsible for the adjoining section, shall be straight edged in accordance with Section 501.5.2.e.(3).

f. If there is a section of 250 feet or less, the profilogram for that section shall be included in the evaluation of the previous section. If there is an independently placed section of 50 to 250 feet in length, a profilogram shall be made for that section and the pay adjustment factors for short sections of paragraph 8.1c shall apply.

g. Any corrective work required shall be performed prior to joint sealing and grooving operations.

h. All cost necessary to provide the profilograph and related to furnishing the appropriate profilograms as required in this provision are incidental to concrete pavement construction and no direct compensation will be made therefore.

(4) Grade. An evaluation of the surface grade shall be made by the Engineer for compliance to the tolerances contained below. The finish grade will be determined by running levels at intervals of 50 ft (15.2 m) or less longitudinally and all breaks in grade transversely (not to exceed 60 ft) - all slab corners and center slab to determine the elevation of the completed pavement. The Contractor shall pay the costs of surveying the level runs, and this work shall be performed by a licensed surveyor. The documentation, stamped and signed by a licensed surveyor, shall be provided by the Contractor to the Engineer.

Lateral Deviation. Lateral deviation from established alignment of the pavement edge shall not exceed plus or minus 0.10 ft (30 mm) in any lane.

Vertical Deviation. Vertical deviation from established grade shall not exceed plus or minus 0.04 ft (12 mm) at any point.

(5) Edge Slump. When slip-form paving is used, not more than 15 percent of the total free edge of each 500 ft (150 m) segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 in (6 mm), and none of the free edge of the pavement shall have an edge slump exceeding 3/8 in (10 mm). (The total free edge of 500 feet (150 m) of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet (150 m) of paving lane originally constructed as a separate lane will have 1,000 feet...
(300 m) of free edge, 500 feet (150 m) of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 in (457 mm) from the edge. **Excessive edge slump may be corrected during production prior to concrete hardening by removing the affected area, placing edge forms and a new concrete mix added to the removed area. Production shall be halted to assess the excessive edge slump problem.** When excessive edge slump cannot be corrected before the concrete has hardened, the area—slab or slabs with excessive edge slump shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

(6) Dowel Bar Alignment. Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerance on dowel bar alignment in each plane, horizontal and vertical, shall not exceed 2 percent or 1/4 in per ft (20 mm per meter) of a dowel bar. Vertical alignment of dowels shall be measured parallel to the designed top surface of the pavement, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes, shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge.

f. Removal and Replacement of Concrete. Any area or section of concrete that is removed and replaced shall be removed and replaced back to planned joints. The Contractor shall replace damaged dowels and the requirements for doweled longitudinal construction joints in paragraph 501-4.10 shall apply to all contraction joints exposed by concrete removal. Removal and replacement shall be in accordance with paragraph 501-4.19 of this specification.

**CONTRACTOR QUALITY CONTROL**

501-6.1 QUALITY CONTROL PROGRAM. The Contractor shall develop a Quality Control Program in accordance with Section 100 of the General Provisions. The program shall address all elements that affect the quality of the pavement including but not limited to:

a. Mix Design
b. Aggregate Gradation
c. Quality of Materials
d. Stockpile Management
e. Proportioning
f. Mixing and Transportation
g. Placing and Consolidation
h. Joints
i. Dowel Placement and Alignment
j. Flexural or Compressive Strength
k. Finishing and Curing
l. Surface Smoothness

501-6.2 QUALITY CONTROL TESTING. The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to this specification and as set forth in the Quality Control Program. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content.
A Quality Control Testing Plan shall be developed as part of the Quality Control Program.


(1) Gradation. A sieve analysis for each individual aggregate size shall be made at least twice daily in accordance with ASTM C 136 from randomly sampled material taken from the discharge gate of storage bins, or from the conveyor belt, or from the stockpile. If samples are taken from the stockpile, it shall be taken from the bucket of a front-end loader removed vertically from bottom to top of the stockpile.

(2) Moisture Content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C 70 or ASTM C 586.

b. Coarse Aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C 136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture Content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C 586.

c. Slump. Four slump tests shall be performed for each lot of material produced in accordance with the lot size defined in Section 501-5.1. One test shall be made for each sublot. Slump tests shall be performed in accordance with ASTM C 143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C 172.

d. Air Content. Four air content tests shall be performed for each lot of material produced in accordance with the lot size defined in Section 501-5.1. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C 231 for gravel and stone coarse aggregate and ASTM C 173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C 172.

d. Four unit weight and yield tests shall be made in accordance with ASTM C 138. The samples shall be taken in accordance with ASTM C 172 and at the same time as the air content tests.

501-6.3 CONTROL CHARTS. The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, combined aggregate WF and CF values, slump, and air content. Control charts shall be posted in a location satisfactory to the Engineer and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the Engineer may halt production or acceptance of the material.

a. Fine- and- Coarse Combined Aggregate Gradation. The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Specification limits contained in Tables 1 and 2 shall be superimposed on the Control Chart for job control. The Individual
gradations shall be mathematically combined and used to monitor each day’s batch weights to provide the target combined gradation. The workability and coarseness factor shall be calculated and plotted on the Aggregate Constructability Chart of Figure 1. The combined gradation using the batch tickets percentages shall be plus or minus 3 points for the Workability Factor and plus or minus 5 points for the Coarseness Factor for the Workability and Coarseness Factors established for the approved concrete mixture.

b. Slump and Air Content. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

Control Chart Limits

<table>
<thead>
<tr>
<th>Control Parameter</th>
<th>Individual Measurements</th>
<th>Range Suspension Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action Limit</td>
<td>Suspension Limit</td>
</tr>
<tr>
<td>Slump Form:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+0 to -1 in (0-25 mm)</td>
<td>+/- 1.5 in (38 mm)</td>
</tr>
<tr>
<td></td>
<td>+/- 1.2%</td>
<td>+/- 1.6%</td>
</tr>
<tr>
<td>Air Content</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+1 to -1.5 in (13-38 mm)</td>
<td>+/- 2.5%</td>
</tr>
<tr>
<td>Fixed Form:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+0.5 to -1 in (13-25 mm)</td>
<td>+/- 1.5 in (38 mm)</td>
</tr>
<tr>
<td></td>
<td>+/- 1.2%</td>
<td>+/- 1.8%</td>
</tr>
<tr>
<td>Air Content</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The individual measurement control charts shall use the mix design target values as indicators of central tendency.

501-6.4 CORRECTIVE ACTION. The Contractor Quality Control Program shall indicate that appropriate action shall be taken when the process is believed to be out of control. The Contractor Quality Control Program shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists.

a. Fine and Coarse Combined Aggregate Gradation. When two consecutive averages of five tests are outside of the Table 1 and Table 2 specification limits, immediate steps, including a halt to production, shall be taken to correct the grading; the tolerances of paragraph 501-6.3(a) are not met, the grading shall be considered out of control. When proportioning can solve the problem, adjustments to weights shall be conducted. If proportioning adjustments do not correct the problem production shall be halted and new stockpile aggregates shall be used.

b. Fine and Coarse Aggregate Moisture Content. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5 percent, the scale settings for the aggregate batcher and water batcher shall be adjusted.

c. Slump. The Contractor shall halt production and make appropriate adjustments whenever:

1. one point falls outside the Suspension Limit line for individual measurements or range OR
2. two points in a row fall outside the Action Limit line for individual measurements.

d. Air Content. The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:

1. one point falls outside the Suspension Limit line for individual measurements or range

OR
two points in a row fall outside the Action Limit line for individual measurements.

Whenever a point falls outside the Action Limits line, the air-entraining admixture dispenser shall be calibrated to ensure that it is operating correctly and with good reproducibility.

**METHOD OF MEASUREMENT**

501-7.1 Portland cement concrete pavement shall be measured by the number of square yards of either plain or reinforced pavement as specified in-place, completed and accepted. Saw-cut-grooving shall be measured by the number of square yards (square meters) of saw-cut-grooving as specified in-place, completed and accepted.

**BASIS OF PAYMENT**

501-8.1 **PAYMENT.** Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-5.2 Acceptance Criteria shall be based on results of smoothness, strength and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness and 501-8.1c for smoothness, subject to the limitation that: The total project payment for concrete pavement shall not exceed 100 percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under Table 3).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings. **No additional payment over the unit contract bid price shall be made for any pavement which has an average thickness in excess of that shown on the plans.** **No additional payments will be made for reinforced panels or for thickened edges.**

**a. Basis of Adjusted Payment.** The pay factor for each individual lot shall be calculated in accordance with Table 3. A pay factor shall be calculated for both flexural strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both flexural strength and thickness are 100 percent or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either flexural strength or thickness is 100 percent or higher. The lot pay factor shall be the lower of the two values when calculations for both flexural strength and thickness are less than 100 percent.

<table>
<thead>
<tr>
<th>Percentage of Materials Within Specification Limits (PWL)</th>
<th>Lot Pay Factor (Percent of Contract Unit Price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>96 – 100</td>
<td>106</td>
</tr>
<tr>
<td>90 – 95</td>
<td>PWL + 10</td>
</tr>
<tr>
<td>75 – 90</td>
<td>0.5 PWL + 55</td>
</tr>
<tr>
<td>55 – 74</td>
<td>1.4 PWL – 12</td>
</tr>
<tr>
<td>Below 55</td>
<td>Reject</td>
</tr>
</tbody>
</table>

---

**BROWARD COUNTY**
FT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT
Terminal 4 Apron Expansion

WP-404/408 TECHNICAL SPECIFICATIONS
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Although it is theoretically possible to achieve a pay factor of 106 percent for each lot, actual payment in excess of 100 percent shall be subject to the total project payment limitation specified in paragraph 501-8.1.

The lot shall be removed and replaced. However, the Engineer may decide to allow the rejected lot to remain. In that case, if the Engineer and contractor agree in writing that the lot shall not be removed, it shall be paid for at 50 percent of the contract unit price and the total project payment limitation shall be reduced by the amount withheld for the rejected lot.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 501-8.1. Payment in excess of 100 percent for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100 percent.

b. Payment. Payment shall be made under:

Item P-501-8.1 Portland Cement Concrete Pavement (15.5" Thick) – Per Square Yard

c. Basis of adjusted payment for Smoothness. Price adjustment for pavement smoothness will apply to the total area of concrete within a section of pavement and shall be applied in accordance the following equation and schedule:

\[(\text{Sq yd in section}) \times (\text{original unit price per sq yd}) \times (\text{PFm}) = \text{reduction in payment for area within section}\]

<table>
<thead>
<tr>
<th>Average Profile Index (Inches Per Mile)</th>
<th>Contract Unit Price Adjustment (PFm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavement Strength Rating</td>
<td></td>
</tr>
<tr>
<td>Over 30,000 lb</td>
<td>0.00</td>
</tr>
<tr>
<td>0 - 7</td>
<td>0.02</td>
</tr>
<tr>
<td>7.1 - 9</td>
<td>0.04</td>
</tr>
<tr>
<td>9.1 - 11</td>
<td>0.06</td>
</tr>
<tr>
<td>11.1 - 13</td>
<td>0.08</td>
</tr>
<tr>
<td>13.1 - 14</td>
<td>0.10</td>
</tr>
<tr>
<td>14.1 - 15</td>
<td>Corrective work required</td>
</tr>
<tr>
<td>15.1 and up</td>
<td></td>
</tr>
</tbody>
</table>

TESTING REQUIREMENTS

ASTM C 31 Making and Curing Concrete Test Specimens in the Field

ASTM C 39 Compressive Strength of Cylindrical Concrete Specimens ASTM C70 Surface Moisture in Fine Aggregate

ASTM C 78 Test for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)

ASTM C 88 Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C 131 Test for Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine

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ASTM C 136  Sieve Analysis of Fine and Coarse Aggregates
ASTM C 138  Test for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C 143  Test for Slump of Hydraulic Cement Concrete
ASTM C 172  Sampling Freshly Mixed Concrete
ASTM C 173  Test for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 174  Measuring Thickness of Concrete Elements Using Drilled Concrete Cores
ASTM C 227  Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)
ASTM C 231  Test for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 289  Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
ASTM C 295  Petrographic Examination of Aggregates for Concrete
ASTM C 114  Chemical Analysis of Hydraulic Cement
ASTM C 535  Test for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 566  Total Evaporable Moisture Content of Aggregates by Drying
ASTM C 642  Test for Density, Absorption, and Voids in Hardened Concrete
ASTM C 666  Resistance of Concrete to Rapid Freezing and Thawing
ASTM C 1077  Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction And Criteria for Laboratory Evaluation
ASTM C 1260  Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM D 3665  Random Sampling of Paving Materials
ASTM D 4791  Test Method for Flat or Elongated Particles in Coarse Aggregate
ASTM E 178  Dealing With Outlying Observations
ASTM E 1274  Test for Measuring Pavement Roughness Using a Profilograph
AASHTO T 26  Quality of Water to be Used in Concrete

MATERIAL REQUIREMENTS

ASTM A 184  Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement

ASTM A 185  Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement

ASTM A 497  Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement

ASTM A 615  Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

ASTM A 704  Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement

ASTM A 714  Specification for High-Strength Low-Alloy Welded and Seamless Steel Pipe

ASTM A 996  Specification for Rail-Steel and Axle Steel Deformed Bars for Concrete Reinforcement

ASTM C 33  Specification for Concrete Aggregates

ASTM C 94  Specification for Ready-Mixed Concrete

ASTM C 150  Specification for Portland Cement

ASTM C 171  Specification for Sheet Materials for Curing Concrete

ASTM C 260  Specification for Air-Entraining Admixtures for Concrete

ASTM C 309  Specification for Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C 494  Specification for Chemical Admixtures for Concrete

ASTM C 595  Specification for Blended Hydraulic Cements

ASTM C 618  Specification for Coal Flyash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete

ASTM C 881  Specification for Epoxy-Resin Base Bonding System for Concrete

ASTM C 989  Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

ASTM D 1751  Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752  Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving And Structural Construction
ACI 305R  Hot Weather Concreting
ACI 306R  Cold Weather Concreting
ACI 309  Guide for Consolidation of Concrete

Department of Defense MIL-DTL-4441/20a (1999) Paint, Epoxy-Polyamide, Green Primer, Formula 150, Type III

END ITEM P-501
NOTICE FOR BIDS

Solicitation No.: Z1145017C1
Solicitation Title: Terminal 4 Apron Expansion

Sealed bids for selling and delivering all necessary labor, materials, equipment, and services for the completion of the work, including installation of materials, supplies and equipment for the construction of Terminal 4 Apron Expansion located at the Fort Lauderdale-Hollywood International Airport, will be received by the Board of County Commissioners until 2:00 p.m. on Wednesday, July 31, 2013, at the offices of the Purchasing Division of Broward County, Governmental Center, Room 212, 115 South Andrews Avenue, Fort Lauderdale, Florida 33301. Bids will be publicly opened and read thereafter.

Scope of Work: The Scope of Work includes, but is not limited to, the furnishing of all labor, materials, equipment, services and incidentals for the construction of Terminal 4 Apron Expansion. The expansion and reconfiguration of the existing Terminal 4 aircraft apron to accommodate the new T4 concourse is comprised of site preparation, grading, building and pavement demolition, construction of concrete and asphalt pavement, base course, pavement markings, airfield lighting, electrical and communication ductbanks, storm drainage, underground water and sanitary sewer services, landscaping, fencing and retaining walls at the Fort Lauderdale-Hollywood International Airport.

The Cone of Silence is currently in effect for this solicitation. In accordance with Section 1-266, of the Broward County Code of Silence Ordinance, as amended, after the advertisement of the bid solicitation, potential vendors and their representatives are substantially restricted from communicating regarding the Bid with the County Administrator, Deputy County Administrator, Assistant County Administrator, Assistants to the County Administrator, their respective support staff, or any or any staff person that is to evaluate or recommend selection in this bid process. The Cone of Silence Ordinance further provides that after the bid opening for this solicitation, potential vendors and their representatives are substantially restricted from communicating regarding this Bid with the County Commissioners and their staff. For Invitations for Bids, the Cone of Silence shall be in effect for staff involved in the award decision process at the time of the solicitation advertisement. The Cone of Silence shall be in effect for the Board of County Commissioners upon bid opening for the solicitation. The Cone of Silence terminates when the County Commission or other awarding authority takes action which ends the solicitation. Any violations of this ordinance by any member(s) of the responding firm or joint venture may be reported to the County's Office of Professional Standards. If there is a determination of violation, a fine shall be imposed against the vendor as provided in the County Code of Ordinances. Additionally, a determination of violation shall render any award to a vendor who is found to have violated the Ordinance voidable, at the sole discretion of the Board of County Commissioners.
Pre-bid Conference: A Pre-Bid Conference will be held on Monday, July 8, 2013 at 10:00am at:

Secret Woods Nature Center
2701 W. State Road 84
Dania Beach, FL 33312
Julia Hall

Attendance at the Pre-Bid Conference is not mandatory but is highly encouraged as a source of information. Attendance at the Site Visit immediately following the Pre-Bid Conference is not mandatory but is highly encouraged as a source of information.

Goal Participation: This project will be funded in part by one or more grants from the Federal Aviation Administration (FAA) Airport Improvement Program. The Disadvantaged Business Enterprise (DBE) participation goal for this project is 22%.

Purchase of the Project Manual: A copy of the Contract Documents may be obtained at HDR Engineering, Inc., 3250 West Commercial Blvd, Suite 100, Ft. Lauderdale, FL 33309, contact Timothy J. Fish (954) 233-4926 for a non-refundable charge of $575.00, payable by cash or check; checks should be made payable to: HDR Engineering, Inc.

Inspection of the Project Manual: The Project Manual is open to public inspection at the offices of the Purchasing Division of Broward County, located at Governmental Center, Room 212, 115 South Andrews Avenue, Fort Lauderdale, Florida 33301.

Project Manager: Richard Waskiewicz, Expansion Project Administrator, Aviation Department, Email: nwaskiewicz@broward.org

Purchasing Agent: Sarah Townsend, Purchasing Agent III, Purchasing Division, Email: satownsend@broward.org

Addenda: All Addenda will be posted to the Broward County Purchasing Division's website under “Current Solicitations” at http://www.broward.org/purchasing/Pages/Default.aspx. Bidders shall be responsible for obtaining, reviewing, and executing addenda.

License Requirements: In order to be considered a responsive bidder for the scope of work set forth in these bid documents, the bidder must possess one of the following licenses at the time of bid submittal:

State: Certified General Contractor
OR
Broward County: General Building Contractor Class "A"
(Must be registered with the State)
OR
General Engineered Construction Builder

Bid Guaranty: Each bid shall be accompanied by a bid guaranty in an amount equal to five percent (5%) of the bid amount.
OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

LETTER OF INTENT BETWEEN BIDDER/OFFEROR AND DISADVANTAGED BUSINESS ENTERPRISE (DBE) / AIRPORT CONCESSIONS DISADVANTAGED BUSINESS ENTERPRISE (ACDBE) SUBCONTRACTOR/SUPPLIER

(Form to be completed and signed for each DBE/ACDBE firm)

<table>
<thead>
<tr>
<th>Solicitation Number:</th>
<th>Project Title:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z11450171C</td>
<td>Terminal 4 Apron Expansion - Fort Lauderdale Hollywood Airport</td>
</tr>
</tbody>
</table>

Bidder/Offeror Name: Tutor Perini Fort Lauderdale-Hollywood Venture

Address: 5555 Anglers Avenue - Suite 1 A  City: Ft. Lauderdale  State: FL  Zip: 33312

Authorized Representative: Kevin Woods - Authorized Representative  Phone: 954-414-9063

DBE/ACDBE Subcontractor/Supplier Name: Sorrel Enterprises, Inc.

Address: 8835 NW 95th Street  City: Medley  State: FL  Zip: 33178  Phone: (305)883-4860

ACDBE Authorized Representative: IGreg Velikopolski

A. This is a letter of intent between the bidder/offeror on this project and a DBE/ACDBE firm for the DBE/ACDBE to perform subcontracting work on this project, consistent with Title 49 CFR Parts 26 or 23 as applicable.

B. By signing below, the bidder/offeror is committing to utilize the above-named DBE/ACDBE to perform the work described below.

C. By signing below, the above-named DBE/ACDBE is committing to perform the work described below.

D. By signing below, the bidder/oferor and DBE/ACDBE affirm that if the DBE/ACDBE subcontracts any of the work described below, it may only subcontract that work to another DBE/ACDBE if it wishes to receive DBE/ACDBE credit for said work.

<table>
<thead>
<tr>
<th>Work to be performed by DBE/ACDBE Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Furnish - Wholesale Material</td>
</tr>
<tr>
<td>Trucking</td>
</tr>
</tbody>
</table>

AFFIRMATION: I hereby affirm that the information above is true and correct.

Bidder/Offeror Authorized Representative

(Kenir Woods)

(Title) 8/7/13

DBE/ACDBE Subcontractor/Supplier Authorized Representative

(Signature) (President) 08/07/2013

*Visit http://www.census.gov/erc/www/naics/ to search. Match type of work with NAICS code as closely as possible.

*To be provided only when the solicitation requires that bidder/ofer include a dollar amount in its bid-offer.

In the event the bidder/oferor does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

DBE ACDBE Letter of Intent - Rev. January 2013
**LETTER OF INTENT BETWEEN BIDDER/OFFEROR AND DISADVANTAGED BUSINESS ENTERPRISE (DBE) / AIRPORT CONCESSIONS DISADVANTAGED BUSINESS ENTERPRISE (ACDBE) SUBCONTRACTOR/SUPPLIER**

(Form to be completed and signed for each DBE/ACDBE firm)

---

**Solicitation Number:** Z11450171C  
**Project Title:** Terminal 4 Apron Expansion - Fort Lauderdale Hollywood Airport

**Bidder/Offeror Name:** Tutor Perini Fort Lauderdale-Hollywood Venture  
**Address:** 5555 Anglers Avenue - Suite 1 A  
City: Ft. Lauderdale  
State: FL  
Zip: 33312  
**Authorized Representative:** Kevin Woods - Authorized Representative  
**Phone:** 954-414-9063

**DBE/ACDBE Subcontractor/Supplier Name:** Southern Florida Paving Group, LLC.  
**Check one:**  
- DBE  
- ACDBE  
**Address:**  
City: Davie  
State: FL  
Zip: 33314  
**Authorized Representative:** Luis Sanchez  
**Phone:** 954-522-5680

---

A. This is a letter of intent between the bidder offorer on this project and a DBE/ACDBE firm for the DBE/ACDBE to perform subcontracting work on this project, consistent with Title 49 CFR Parts 26 or 23 as applicable.

B. By signing below, the bidder/offeror is committing to utilize the above-named DBE/ACDBE to perform the work described below.

C. By signing below, the above-named DBE/ACDBE is committing to perform the work described below.

D. By signing below, the bidder/offeror and DBE/ACDBE affirm that if the DBE/ACDBE subcontracts any of the work described below, it may only subcontract that work to another DBE/ACDBE if it wishes to receive DBE/ACDBE credit for said work.

---

### Work to be performed by DBE/ACDBE Firm

<table>
<thead>
<tr>
<th>Description</th>
<th>NAICS</th>
<th>DBE/ACDBE Contract Amount</th>
<th>DBE/ACDBE Percentage of Total Project Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth Work</td>
<td>23891</td>
<td>$3,142,005</td>
<td>8.28%</td>
</tr>
<tr>
<td>Underground Utility</td>
<td>2373/2371</td>
<td>$3,600,000</td>
<td>9.48%</td>
</tr>
</tbody>
</table>

**AFFIRMATION:** I hereby affirm that the information above is true and correct.

**Bidder/Offeror Authorized Representative**

**DBE/ACDBE Subcontractor/Supplier Authorized Representative**

---

Visit [http://www.census.gov/egowww/naics/](http://www.census.gov/egowww/naics/) to search. Match type of work with NAICS code as closely as possible.

To be provided only when the solicitation requires that bidder/offer include a dollar amount in its bid-offer.

---

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

DBE ACDBE Letter of Intent - Rev. January 2013
Affidavit of E. Todd Wilkowski

STATE OF OHIO
COUNTY OF BUTLER

I, E. Todd Wilkowski, being first duly sworn and cautioned, depose and state upon personal knowledge as follows:

1. I am an attorney in good standing licensed to practice law within the State of Ohio.

2. Since April 2007, I have served as the general counsel for Baker Concrete Construction, Inc. ("Baker") with an office at 900 N. Garver Road, Monroe, OH 45050. I also now serve as Baker's corporate secretary.

3. Pursuant to paragraph 15 of the bid, I have conducted a reasonable and good faith search of Baker's records and the EPA's on-line records to determine if Baker received any citations and violations.

4. Based on this review, Baker has not received any such citations or violations.

FURTHER AFFIANT SAYETH NAUGHT.

E. Todd Wilkowski

SWORN TO AND SUBSCRIBED BEFORE ME, this 12th day of July, 2013.

My Commission Expires:

Notary Public

www.bakerconcrete.com • Toll Free: 800.539.2224
CORPORATE OFFICE
900 North Garver Road • Monroe, OH 45050
Phone: 513.539.4000 • Fax: 513.539.4380
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FORM 14: BUY AMERICA CERTIFICATION

Buy America Certification
(Title 49 U.S.C. Section 50101)

PROJECT NAME: Terminal 4 Apron Expansion - Z1145017C1
AIRPORT NAME: Fort Lauderdale - Hollywood International Airport (FLL)
AIP NUMBER: (Not Available)

This solicitation and any resulting contract are subject to the Buy America requirements of 49 U.S.C. Section 50101. The bidder certifies it and all associated subcontractors will comply with the Buy American preferences established under Title 49 U.S.C. Section 50101 as follows:

U.S.C. Section 50101 - Buying goods produced in the United States
(a) Preference. - The Secretary of Transportation may obligate an amount that may be appropriated to carry out section 109(b), 44502(a)(2), or 44509, subchapter I of chapter 471 (except section 47127), or chapter 481 (except sections 48102(e), 48106, 48107, and 48110) of this title for a project only if steel and manufactured goods used in the project are produced in the United States.
(b) Waiver. - The Secretary may waive subsection (a) of this section if the Secretary finds that:
(1) Applying subsection (a) would be inconsistent with the public interest;
(2) The steel and goods produced in the United States are not produced in a sufficient and reasonably available amount or are not of a satisfactory quality;
(3) When procuring a facility or equipment under section 44502(a)(2) or 44509, subchapter I of chapter 471 (except section 47127), or chapter 481 (except sections 48102(e), 48106, 48107, and 48110) of this title -
   A. The cost of components and subcomponents produced in the United States is more than 50 percent of the cost of all components of the facility or equipment; and
   B. Final assembly of the facility or equipment has occurred in the United States; or
(4) Including domestic material will increase the cost of the overall project by more than 25 percent.
(c) Labor Costs. - In this section, labor costs involved in final assembly are not included in calculating the cost of components.

As a matter of bid responsiveness, the bidder or offeror must complete and submit this certification with their bid proposal. The bidder must sign and date the certification. The bidder/offeror must indicate how they propose to comply with the Buy America provision by selecting one of the following certification statements.

☐ The bidder hereby certifies that it will comply with Title 49 U.S.C Section 50101(a) by only installing steel and manufactured products produced in the United States of America. The bidder further agrees that if chosen as the apparent low bid, it will submit documentation to the owner that demonstrate all steel and manufactured products are 100% manufactured in the United States.

☐ The bidder hereby certifies that it cannot fully comply with the Buy America preferences of Title 49 U.S.C Section 50101(a); bidder therefore requests a waiver per Title 49 U.S.C Section 50101(b) subject to the following conditions:
   - For equipment and material the FAA has already issued a waiver to AIP Buy American preferences as indicated on the current FAA Buy American conformance list, bidder shall submit a listing of specific equipment and material it proposes to install on the project prior to the issuance of a Notice-to-Proceed.
   - For equipment and material the FAA has not previously issued a waiver to Buy American preferences, the bidder identified with the apparent low bid agrees to prepare and submit to the owner a waiver request and component calculation information within 15 calendar days of the date of the notice of apparent award of contract.

Tutor Perini Fort Lauderdale - Hollywood Venture
8/7/2013
Bidder's Firm Name
Date

5-1-2013
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Z1145017C1 Terminal 4 Apron Expansion
at the Fort Lauderdale-Hollywood International Airport (FLL)
Document Submission: August 16, 2013 4:30PM

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<thead>
<tr>
<th>Tab 1</th>
<th>Form 3</th>
<th>Bidder Qualifications Questionnaire</th>
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<td>Tab 2</td>
<td>Form 4</td>
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<td>Form 5</td>
<td>Drug Free Workplace Certification</td>
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<td>Form 8</td>
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<td>Form 9</td>
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<td>Form 12</td>
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<td>Travelers Casualty and Surety Company of America</td>
<td>Eric Block</td>
</tr>
<tr>
<td>One Tower Square, Hartford, CT 06183</td>
<td>(909) 612-3674</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:eblock@travelers.com">eblock@travelers.com</a></td>
</tr>
<tr>
<td>Liberty Mutual Insurance Company</td>
<td>Brett Asmus</td>
</tr>
<tr>
<td>175 Berkeley Street, Boston, MA 02116</td>
<td>(714) 634-5712</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:brett.asmus@libertymutual.com">brett.asmus@libertymutual.com</a></td>
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<tr>
<td>Fidelity and Deposit Company of Maryland and Zurich American Insurance Company</td>
<td>Dan Abram</td>
</tr>
<tr>
<td>1400 American Lane, Tower 1, 18th Floor, Schaumburg, IL 60196</td>
<td>(617) 570-8992</td>
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<td></td>
<td><a href="mailto:daniel.abram@zurichna.com">daniel.abram@zurichna.com</a></td>
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<tr>
<td>Federal Insurance Company</td>
<td>Kevin O’Brien</td>
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<tr>
<td>15 Mountain View Road, Warren NJ 07059</td>
<td>(908) 903-7928</td>
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<td><a href="mailto:kobrien@chubb.com">kobrien@chubb.com</a></td>
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Broker: Alliant Insurance Services, Inc.
333 S. Hope Street, Suite 3750
Los Angeles, CA 90071
Attn: Charlene Nakamura
cnakamura@alliant.com
Tutor Perini
FORM 3: BIDDER QUALIFICATIONS QUESTIONNAIRE

INFORMATION CONTAINED IN THIS DOCUMENT WILL BE USED BY THE COUNTY IN DETERMINING THE RESPONSIBILITY OF A RESPONDENT. THERE MUST BE A RESPONSE TO ALL QUESTIONS IN THIS DOCUMENT.

INFORMATION MUST EITHER BE PROVIDED OR AN INDICATION OF "NONE" (IF APPROPRIATE). DO NOT USE "N/A" AS A RESPONSE TO ANY QUESTION.

THIS COMPLETED FORM, INCLUDING A RESPONSE TO ALL QUESTIONS, SHOULD BE SUBMITTED WITH THE SOLICITATION; HOWEVER, IT MUST BE SUBMITTED WITHIN FIVE (5) WORKING DAYS OF THE COUNTY’S REQUEST. FAILURE TO PROVIDE THE COMPLETED FORM MAY RESULT IN THE SOLICITATION BEING DEEMED NON-RESPONSIVE.

The undersigned authorized representative of the Bidder certifies the truth and accuracy of all statements and the answers contained herein.

1. How many years has your organization been in business while possessing one of the licenses, certifications or registrations requested?

<table>
<thead>
<tr>
<th>License/Certification Registration</th>
<th># Years</th>
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<tbody>
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<td>See Attachment &quot;License #CGC023777&quot;</td>
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</table>

1.1. What business are you in? Construction

2. What is the last project of this nature that you have completed?

   Port Authority of NY & NJ (PANYNJ) JFK-1020

   *** See Previous Experience Tab for additional projects of this nature***

3. Have you ever failed to complete any work awarded to you? If so, where and why?

   No

3.1. Give owner names, addresses and telephone numbers, and surety and project names, for all projects for which you have performed work, where your surety has intervened to assist in completion of the project, whether or not a claim was made.

   None

PRINT NAME OF BIDDER: Tutor Perini Corporation (formerly known as Perini Corporation)

   See Attachment "Name Change"

5-1-2013
Bidder Qualifications Questionnaire

Form 3: Question 1

License #CGC023777
Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbecue restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto www.myfloridalicense.com. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!

The Department of State is leading the commemoration of Florida's 500th anniversary in 2013. For more information, please go to www.VivaFlorida.org.
**Data Contained In Search Results Is Current As Of 08/14/2013 07:54 AM.**

**Search Results**

Please see our [glossary of terms](#) for an explanation of the license status shown in these search results.

For additional information, including any complaints or discipline, click on the name.

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<td>FRO5580</td>
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*denotes*

Main Address - This address is the Primary Address on file.
Mailing Address - This is the address where the mail associated with a particular license will be sent (if different from the Main or License Location addresses).
License Location Address - This is the address where the place of business is physically located.

---

The State of Florida is an AA/EEO employer. [Copyright 2007-2010 State of Florida, Privacy Statement](#)

Under Florida law, email addresses are public records. If you do not want your email address released in response to a public-records request, do not send electronic mail to this entity. Instead, contact the office by phone or by traditional mail. If you have any questions, please contact 850-487-1295. *Pursuant to Section 455.275(1), Florida Statutes, effective October 1, 2013, licensees licensed under Chapter 455, F.S. must provide the Department with an email address if they have one. The email provided may be used for official communication with the licensee. However email addresses are public record. If you do not wish to supply a personal address, please provide the Department with an email address which can be made available to the public. Please see our [Chapter 455](#) page to determine if you are affected by this change.

Bidder Qualifications Questionnaire
Form 3: Name Change
**FILING RECEIPT**

**ENTITY NAME:** TUTOR PERINI CORPORATION  
**DOCUMENT TYPE:** AMENDMENT (FOR, BUS)  
**FILMED:** 05/23/2009  
**DURATION:**  
**CASH:** $090623000549  
**FILM #:** 090623000542  
**COUNTRY:** NEWY

**REGISTERED AGENT:**

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**SERVICE COMPANY:** CT CORPORATION SYSTEM - 07  
**SERVICE CODE:** 07

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70117521CA  
DOS-1025 (04/2007)
STATE OF NEW YORK

DEPARTMENT OF STATE

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

WITNESS my hand and official seal of the Department of State, at the City of Albany, on June 23, 2009.

Daniel E. Shapiro
First Deputy Secretary of State
CERTIFICATE OF AMENDMENT OF
APPLICATION FOR AUTHORITY
OF
Perini Corporation
UNDER SECTION 1309 OF THE BUSINESS CORPORATION LAW

1. The name of the corporation as it appears on the Index of names of existing domestic and authorized foreign corporations of any type or kind in the Department of State, Division of Corporations, is

Perini Corporation

☐ The fictitious name the corporation has agreed to use in New York pursuant to paragraph (d) of section 1301 of the Business Corporation Law is Not Applicable

2. It is incorporated under the laws of Massachusetts

3. The date it was authorized to do business in New York was

SEPTMBER 16, 1932

4. The Application for Authority is amended:

☒ (a) To change the name of the corporation from Perini Corporation to Tutor Perini Corporation

said change having been effected under the laws of the jurisdiction of its incorporation on 05/28/2009

☐ The fictitious name which the corporation agrees to use in New York is

☐ (b) To change the purposes which the corporation proposes to do in New York to read as follows:

No Change

The corporation is authorized to do in the jurisdiction of its incorporation the business which it proposes to do in New York.
(c) To change the location of the corporation's office in New York from No Change \(\text{County}\) to No Change \(\text{County}\),

(d) To change its jurisdiction of incorporation to No Change, as permitted by \(\text{of} \quad \text{of} \quad \text{of} \quad \text{of} \), said change having been effected on \(\text{Annexed to this Certificate is the certificate from the corporation's new jurisdiction of incorporation as required by paragraph (b) of section 1309 of the Business Corporation Law of New York.}\)

Tutor Peral Corporation
\(\text{New name of corporation}\)

By Steven M. Meilhake, Vice President
STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
Albany, New York

CONSENT TO FILING WITH THE DEPARTMENT OF STATE
(Certificate of Amendment with Name Change)

Consent is hereby given to the filing by

Perini Corporation

[Name of entity]

of the annexed certificate of amendment, including a change of name to

Tutor Perini Corporation

[new name]

pursuant to the applicable provisions of the Education Law, the Not-for-Profit Corporation Law, the Business Corporation Law, the Limited Liability Company Law or any other applicable statute.

This consent is issued solely for purposes of filing the annexed document by the Department of State and shall not be construed as approval by the Board of Regents, the Commissioner of Education or the State Education Department of the purposes or objects of such entity, nor shall it be construed as giving the officers or agents of such entity the right to use the name of the Board of Regents, the Commissioner of Education, the University of the State of New York or the State Education Department in its publications or advertising matter.

IN WITNESS WHEREOF this instrument is executed and the seal of the State Education Department is affixed.

RICHARD P. MILLS
Commissioner of Education

Kathleen Marinelli

Commissioner's authorized designee

Date

6/9/09

THIS DOCUMENT IS NOT VALID WITHOUT THE SIGNATURE OF THE COMMISSIONER'S AUTHORIZED DESIGNEE AND THE OFFICIAL SEAL OF THE STATE EDUCATION DEPARTMENT.
Certificate of Amendment of Application for Authority

STATE OF NEW YORK
DEPARTMENT OF STATE

FILED JUN 23 2009

Perini Corporation

Under Section 1309 of the Business Corporation Law

Filed by:

Perini Corporation

73 Mt. Wayte Avenue
Framingham, MA 01702
In reply refer to: 0231592481
Apr 09, 2010 LTR 147C
04-1717070

TUTOR PERINI CORPORATION
C. LOWE
M PAYROLL DEPT
72 MOUNT WAYNE AVE
FRAMINGHAM MA 01702-5803 734

Taxpayer Identification Number: 04-1717070
Form(s):

Dear Taxpayer:

This letter is in response to your telephone inquiry of April 9th, 2010.

Your Employer Identification Number (EIN) is 04-1717070. Please keep this number in your permanent records. You should enter your name and your EIN, exactly as shown above, in all business federal tax forms that require its use, and on any related correspondence documents.

If you have any questions regarding this letter, please call our Customer Service Department at 1-800-829-0119 between the hours of 7:00 AM and 10:00 PM. If you prefer, you may write to us at the address shown at the top of the first page of this letter. When you write, please include a telephone number where you may be reached and the best time to call.

Sincerely,

[Signature]
Ernest Slaughter
0196645
Customer Service Representative

TOTAL P. 001
4. Give names, addresses and telephone numbers of three individuals, corporations, agencies, or institutions for which you have performed work:

<table>
<thead>
<tr>
<th>Org/Comp</th>
<th>Project Name</th>
<th>Contact Name</th>
<th>Address</th>
<th>Phone</th>
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<tr>
<td>4.1</td>
<td>U.S. 1/FEC RR Structures (design-Build) for the Expansion of Runway 9R-27L</td>
<td>Ron Murtha</td>
<td>100 Aviation Blvd., Fort Lauderdale, FL 33315</td>
<td>305/218-1934</td>
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<tr>
<td>4.2</td>
<td>Runway 13R/31L Reconstruction at JFK</td>
<td>Thomas Amoia</td>
<td>JFK International Airport, 14-1 Jamaica Blvd., Jamaica, NY 11430</td>
<td>718/244-4194</td>
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<tr>
<td>4.3</td>
<td>MTA - Capital Construction Plaza Substation and Queens Structures</td>
<td>Alan Paskoff</td>
<td>697 7th Avenue, New York, NY 10018</td>
<td>212/967-0118</td>
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<td>CQ-032</td>
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4.1 Scope of Project:
Construction of runway and taxiway structures over US Route 1.

4.2 Scope of Project:
Widening one of the longest runways in the nation, including milling, overlay, new runway lighting and electrical infrastructure.

4.3 Scope of Project:
Construction of tunnel structures, power substations, and commission, operation, upgrade and maintain existing and new temporary construction power tunnel ventilation, tunnel drainage, water supply, lighting and dewatering systems.

PRINT NAME OF BIDDER: Tutor Perini Corporation (formerly known as Perini Corporation)
Bidder Qualifications Questionnaire
Form 3: Question 5
Work-on-Hand

Tutor Perini
5. List the following information concerning all contracts in progress as of the date of submission of this Solicitation. (In case of co-venture, list the information for all co-venturers.)

<table>
<thead>
<tr>
<th>NAME OF PROJECT</th>
<th>OWNER OF CONTRACT</th>
<th>TOTAL CONTRACT VALUE</th>
<th>DATE OF COMPLETION PER CONTRACT</th>
<th>% OF COMPLETION TO DATE</th>
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</table>

See attachment "Work-on-Hand"  

(Continue list on insert sheet, if necessary.)

6. Has a representative of the Respondent completely inspected the proposed project site and does the Respondent have a complete plan for its performance?

Yes

7. What equipment do you own that is available for the work?

See attachment "Equipment Listing"  

8. What equipment will you purchase for the proposed work?

TBD - None contemplated at this time.

9. What equipment will you rent for the proposed work?

TBD - None contemplated at this time.

PRINT NAME OF BIDDER: Tutor Perini Corporation (formerly known as Perini Corporation)
<table>
<thead>
<tr>
<th>CURRENT PROJECTS</th>
<th>Civil Group East</th>
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<tbody>
<tr>
<td><strong>As of 7/17/2013</strong></td>
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<tr>
<td><strong>PROJECT</strong></td>
<td><strong>DESCRIPTION</strong></td>
</tr>
<tr>
<td>CQ032 PLAZA SUBSTATION AND QUEENS STRUCTURES CONTRACT NO. CQ032</td>
<td>MTA - Capital Construction (MTA-CC) 2 Broadway New York, NY 10004 Alvaro Buendia (718) 391-4739 (office) (917) 208-9587 (cell)</td>
</tr>
<tr>
<td><strong>Provide all labor, equipment, material necessary for the Construction of tunnel structures, power substations, and commission, operation, upgrade, and maintaining of existing and new temporary construction power tunnel ventilation, tunnel drainage, water supply, lighting, and dewatering systems, including but not limited to the following facilities along the existing 63rd Street tunnel.</strong></td>
<td></td>
</tr>
<tr>
<td>TACONIC STATE PARKWAY - CONTRACT NO. D261478</td>
<td>New York State Department of Transportation (NYSDOT) 4 Burnett Blvd. Poughkeepsie, NY Region 8 Paul Tirum (914) 302-7088</td>
</tr>
<tr>
<td><strong>Bridge Rehabilitation of the Taconic State Reservoir and 6 miles of asphalt concrete resurfacing on the TSP in the Towns of Yorktown and New Castle.</strong></td>
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<tr>
<td>I-95 NEW HAVEN CORRIDOR IMPROVEMENTS-CONTRACT E PROJECT NO. 92-531/622/627</td>
<td>Connecticut Department of Transportation (ConnDOT) 424 Chapel Street New Haven, CT 06511 Brian Mercure - Asst. District Engineer - District 3A (203) 765-8082</td>
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<td><strong>Reconstruction of I-95, I-91 and Route 34 interchange associated with Q-Bridge Replacement.</strong></td>
<td></td>
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<tr>
<td>NEW JERSEY TURNPIKE NEWARK BAY BRIDGE STRUCTURE NO. N2.01</td>
<td>New Jersey Turnpike Authority (NJTA) PO Box 1121 New Brunswick, NJ 08903 Richard Raczyński (732) 247-0900</td>
</tr>
<tr>
<td><strong>This contract will provide for bridge deck reconstruction and miscellaneous structural, roadway and lighting improvements on the Newark Bay Bridge and approach spans from Milepost N1.5 to N2.8 in Essex and Hudson Counties, New Jersey. Along this 7,000 foot long project, a total of 560,000 square feet of bridge deck will be replaced using 1749 precast panels.</strong></td>
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<tr>
<td>Project Description</td>
<td>Prime Contractor</td>
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<tr>
<td>TAPPAN ZEE BRIDGE DECK REPLACEMENT</td>
<td>NYS Thruway Authority (NYSTA) New York Division Construction Management Unit 4 Executive Boulevard Suffern, New York 10901 Emanuel Gallego (914) 347-3213</td>
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<tr>
<td>Replacement of the existing bridge superstructure, including installation of pre-cast concrete deck segments, movable barrier and exodermic panels...</td>
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<tr>
<td>HAROLD STRUCTURES PART 2A</td>
<td>MTA Capital Construction (MTA-CC) 2 Broadway New York, NY 10004 Garth Lawrence (718) 391-4709 (office) (646) 372-9584 (cell)</td>
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<tr>
<td>Queens, NY Contract No. CH054A</td>
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<tr>
<td>Demolition of existing track; excavation and support of excavation; utility relocation; construction of retaining walls, and civil elements for LIRR East Side Access Infrastructure within the Harold Interlocking along Skillman Avenue between 47th Avenue and 44th Street in Queens.</td>
<td></td>
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<tr>
<td>HAROLD STRUCTURES PART 1</td>
<td>MTA - Capital Construction (MTA-CC) 2 Broadway New York, NY 10004 James Pagano (718) 391-4719 (office) (631) 332-9526 (cell)</td>
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<td>Queens, NY Contract No. CH053</td>
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<td>Construct civil infrastructure elements in the Harold Interlocking expanding the existing LIRR/Amtrak right-of-way, including construction of the TBM launch pit, retaining walls and track bridge, foundation for new substation, two new track bridges, micro-tunnels for duct banks below mainline tracks and utility relocations.</td>
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<tr>
<td>Project Description</td>
<td>Contractor</td>
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<tr>
<td>Fort Lauderdale Airport Runway Expansion</td>
<td>Broward County Aviation Department</td>
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This project will consist of the construction of runway and taxiway structures over U.S. Route 1, the Florida East Coast Railway and the airport's east perimeter road. This contract consists of architectural design, civil, drainage, traffic, environmental, geotechnical, structural, mechanical and electrical services to provide for two multi-cell bridge structures with a combined deck area of approximately 556,000 square feet. This project is the first of a three phase construction program.

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Contractor</th>
<th>Contract No.</th>
<th>Award Date</th>
<th>Contract Amount</th>
<th>Additional Information</th>
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</thead>
<tbody>
<tr>
<td>Staten Island Verrazano Bridge Upper Deck Replacement</td>
<td>MTA-Triborough Bridge and Tunnel Authority (MTA-TBTA)</td>
<td>2 Broadway, New York, NY 10004</td>
<td>(646) 252-7080</td>
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Removal of the existing upper level deck and replacement with a new orthotropic steel deck asphalt overlay. Associated maintenance and protection of traffic, electrical, waterproofing temporary shielding, miscellaneous metal work, paint removal, and painting will be invoiced.

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<tr>
<th>Project Description</th>
<th>Contractor</th>
<th>Contract No.</th>
<th>Award Date</th>
<th>Contract Amount</th>
<th>Additional Information</th>
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<tr>
<td>Stewart International Airport - Rehabilitation of Runway 9-27 and 16-34</td>
<td>Port Authority of NY&amp;NJ (PANYNJ)</td>
<td>225 Park Ave South, New York, NY 10003</td>
<td>(212) 435-5531</td>
<td>JV (TPC - 60% Intercounty Paving - 40%)</td>
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Rehabilitation of Runways and associated taxiways via mill and overlay, including electrical system rehabilitation and upgrades, installation of new duct bank crossings for future electrical/communications requirements, improving the existing filets, installing 35-foot shoulders to both sides of Runway 16-34 and constructing a new high-speed taxiway exit for Runway 9-27.

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<tr>
<th>Project Description</th>
<th>Contractor</th>
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<th>Award Date</th>
<th>Contract Amount</th>
<th>Additional Information</th>
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<tr>
<td>Replacement of City Island Bridge over Eastchester Bay</td>
<td>New York City Department of Transporation (NYCDOT)</td>
<td>55 Water Street, 8th Floor, New York, NY 10007</td>
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The project entails removal of the existing bridge and replacement with a new single tower cable span bridge along with approach roadways and utilities. Installation and removal of a temporary bridge and associated temporary approaches.
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<td>Rehabilitation of the Harlem River Lift Bridge Located on Hudson Line Contract No. 1000015491</td>
<td>Hardesty &amp; Hanover, Jacobs Engineering, HDR, Longi Engineering, EPM</td>
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<td>Replacement of Circuit Breaker House 6 &amp; 7 (Manhattan &amp; Bronx), Power and Control Upgrades, Replace Drive Motors and Wire Rope Replacement</td>
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TOTAL ACTIVE PROJECTS $1,325,850,972 $470,718,320 $855,132,652
Bidder Qualifications Questionnaire

Form 3: Question 7

Equipment Listing
## DEPRECIATION REPORT

### DEPRECIATION CODES

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### METHODS

- 0-STRAIGHT LINE
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- 2-DROPHING BALANCE
- 3-DROPHING BALANCE TO STRAIGHT LINE
- 4-125% DECLINING BALANCE
- 5-125% DECLINING BALANCE TO STRAIGHT LINE
- 6-150% DECLINING BALANCE
- 7-150% DECLINING BALANCE TO STRAIGHT LINE
- 8-ACRS STRAIGHT LINE

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G/L NO. TOTAL: 1,030,249.11

DIVISION TOTAL: 30,631,384.42

COMPANY TOTAL: 30,631,384.42
Bidder Qualifications Questionnaire
Form 3: Question 10
Damon Petrillo - Resume
10. State the name of your proposed project manager and superintendent and give details of his or her qualifications and experience in managing similar work.

Damon Petrillo, see attached Resume

11. State the true, exact, correct and complete name of the partnership, corporation or trade name under which you do business and the address of the place of business. (If a corporation, state the name of the president and secretary. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name).

11.1 The correct name of the Respondent is:
Tutor Perini Corporation

11.2 The business is a (Sole Proprietorship) (Partnership) (Corporation):
Corporation

11.3 The address of principal place of business is:
15901 Olden Street, Sylmar, CA 91342

11.4 The names of the corporate officers, or partners, or individuals doing business under a trade name, are as follows:
James A. Frost, Executive Vice President and CEO - Civil Group
William B. Sparks, Executive Vice President, Treasurer, Corporate Secretary & Clerk

11.5 List all organizations which were predecessors to Respondent or in which the principals or officers of the Respondent were principals or officers
None

PRINT NAME OF BIDDER: Tutor Perini Corporation (formerly known as Perini Corporation)
NAME Damon Petrillo, PE
POSITION Project Manager
EDUCATION BS, Civil Engineering, Michigan Technological University
REGISTRATION Professional Engineer, NY #074853
Fellow – National Society of Professional Engineers
Fellow – American Society of Civil Engineers
AFFILIATIONS Harvard Business School – Member Harvard Management Update
Chi Epsilon, National Civil Engineering Honor Society

PROJECT EXPERIENCE

Tutor Perini Corporation (Civil Group), New Rochelle, NY – 2006- Present

Jan 2012 - Present,
U.S. 1/FEC RR Structures for the expansion of Runway 9R-27, Fort Lauderdale-Hollywood Airport, FL
Project Manager for $200 million Design-Build Bridges Structure Project. The project is designed to raise one of its runways up and over a major highway and rail line. Responsibilities include design coordination, the preparation and submission of project estimate, the assembling, organization, and management of the Joint Venture "Project Team", the formation and revisions of the project schedule – to ensure the successful completion of project milestones and budget.

Mar 2011 – Jan 2012,
Replace West Runway 01L-19R, Department of Defense / Army Corp of Engineers, Andrews Air Force Base, MD
Concrete Manager for $83 million project that involves reconstructing, widening and lengthening one of the most high profile runways in the US – the "President's Runway". Responsibilities included the redesign of the Slipform Concrete Mix, establishment and management of onsite concrete batch plants, concrete slipform and hand/pour paving crews, including subgrade, subbase, and concrete "fill-in" lanes.

Jan 2009 – Dec 2011,
Runway 13R/31L (Bay Runway) Reconstruction, JFK International Airport, Port Authority of NY & NJ, Queens, NY
Project Manager / Lead Estimator for this $230 million project that involved reconstructing, widening and lengthening one of the longest runways in the US. Responsibilities included the preparation and submission of project estimate, the assembling, organization, and management of the "Project Team", the formation and revisions of the project schedule - resulting in the successful completion of all project milestones.

Jan – Dec 2008,
Harold Structures, Part 1, MTA Capital Construction/Long Island Railroad, New York, NY
Project Manager for this $139 million civil infrastructure project for improvements in Sunnyside Yards to accommodate the East Side Access extension of LIRR service to Grand Central Terminal - Contract CH-063

Croton Water Treatment Plant
Project Engineer responsible for assignment, preparation, submission and approval of all required submittals in conjunction with Project CRO-312G,

Senior Estimator responsible for quantification, qualification, and cost workups in preparation of CONNDOT 92-532 "Q Bridge" estimate. Sept 2006 – Nov 2006

Senior Vice President, Jan 2002 – Aug 2006
Managed $60M in annual revenues for a Heavy/Highway Contractor, which included bidding, purchasing and building construction projects. Responsibilities included estimating, project buyouts, project management, claims management, company budgets/forecasts, A/P management and major company purchases (insurance renewals, heavy equipment purchases). Supervised a staff of Vice Presidents and Project Managers including the following departments: Estimating, Purchasing, Project Management, Contracts Administration. Reported to the Owner, in conjunction with the Controller – Cash Flow, Accounts Receivables, Accounts Payables. Prepared Monthly Company Projections and Actual, including Work In Progress Statements for the Bonding Company and Banks.

Vice President/General Superintendent, 2000 – 2002
Responsible for scheduling and coordination of labor, material and equipment for Columbus' projects while managing productivity and efficiency through a staff of job superintendents. Monitored and edited project philosophies for maximum profitability utilizing a Computerized Cost Tracking System and reporting weekly with the Owner and project Managers for Cost Reviews and Job Forecasting. Manage Columbus Garage for the repair, maintenance and purchasing of Equipment and Small Tools including the establishment of a Computerized Inventory Program.

Project Manager, 1996 – 2000
Responsibilities included management of various projects. Tasks included: project scheduling billing, change order negotiation, owner liaison, material and subcontractor buyout, submittals and approvals. Project Leader working with a staff of project superintendents and project engineers monitoring project's scheduling and profitability.

Project Superintendent, 1992 – 1996
Responsibilities included the daily scheduling of labor, material and equipment for Columbus' projects while monitoring and seeking to maximize profitability.

Project Manager/Superintendent
Responsible for direct control of all field operations, including scheduling (CPM – Primavera), traffic logistics, client contact and correspondence, Order-on-Contract initializing and processing for various NYSDOT R-11 projects.

Superintendent/Project Engineer
Responsibilities included scheduling, procuring and directing personnel,
11.6 List and describe all bankruptcy petitions (voluntary or involuntary) which have been filed by or against the Respondent, its parent or subsidiaries or predecessor organizations during the past three (3) years. Include in the description the disposition of each such petition.

None


12. List and describe all successful Performance or Payment Bond claims made to your surety(ies) during the last three (3) years. The list and descriptions should include claims against the bond of the Respondent and its predecessor organization(s).

None


12.1 Has the Respondent, its principals, officers or predecessor organization(s) been debarred or suspended from bidding by any government during the last three (3) years? If yes, provide details.

No


12.2 Under what conditions does the Respondent request Change Orders.

Changed Conditions and Extra Work.


PRINT NAME OF BIDDER: Tutor Perini Corporation (formerly known as Perini Corporation)
13. LITIGATION HISTORY REQUIREMENT: The COUNTY will consider a vendor's litigation history information in its review and determination of responsibility. All vendors are required to disclose to the COUNTY all "material" cases filed or resolved in the three (3) year period ending with the solicitation response due date, whether such cases were brought by or against the vendor, any parent or subsidiary of the vendor, or any predecessor organization. If the vendor is a joint venture, the information provided should encompass the joint venture (if it is not newly-formed for purposes of responding to the solicitation) and each of the entities forming the joint venture. For purpose of this disclosure requirement, a "case" includes lawsuits, administrative hearings and arbitrations. A case is considered to be "material" if it relates, in whole or in part, to any of the following:

13.1. A similar type of work that the vendor is seeking to perform for the COUNTY under the current solicitation;
13.2. An allegation of negligence, error or omissions, or malpractice against the vendor or any of its principals or agents who would be performing work under the current solicitation;
13.3. A vendor’s default, termination, suspension, failure to perform, or improper performance in connection with any contract;
13.4. The financial condition of the vendor, including any bankruptcy petition (voluntary and involuntary); or
13.5. A criminal proceeding or hearing concerning business-related offenses in which the vendor or its principals (including officers) were/are defendants.

Notwithstanding the descriptions listed in paragraphs 13.1-13.5 above, a case is not considered to be "material" if the claims raised in the case involve only garnishment, auto negligence, personal injury, or a proof of claim filed by the vendor.

For each material case, the vendor is required to provide all information identified on the Litigation History Form.

A Vendor is also required to disclose to the COUNTY any and all case(s) that exist between the COUNTY and any of the vendor’s subcontractors/subconsultants proposed to work on this project.

Failure to disclose any material case, or to provide all requested information in connection with each such case, may result in the vendor being deemed non-responsive. Prior to making such determination, the vendor will have the ability to clarify the submittal and to explain why an undisclosed case is not material.

PRINT NAME OF BIDDER: Tutor Perini Corporation (formerly known as Perini Corporation)
Baker Concrete Construction
FORM 3: BIDDER QUALIFICATIONS QUESTIONNAIRE

INFORMATION CONTAINED IN THIS DOCUMENT WILL BE USED BY THE COUNTY IN DETERMINING THE RESPONSIBILITY OF A RESPONDENT. THERE MUST BE A RESPONSE TO ALL QUESTIONS IN THIS DOCUMENT.

INFORMATION MUST EITHER BE PROVIDED OR AN INDICATION OF "NONE" (IF APPROPRIATE). DO NOT USE "N/A" AS A RESPONSE TO ANY QUESTION.

THIS COMPLETED FORM, INCLUDING A RESPONSE TO ALL QUESTIONS, SHOULD BE SUBMITTED WITH THE SOLICITATION; HOWEVER, IT MUST BE SUBMITTED WITHIN FIVE (5) WORKING DAYS OF THE COUNTY’S REQUEST. FAILURE TO PROVIDE THE COMPLETED FORM MAY RESULT IN THE SOLICITATION BEING DEEMED NON-RESPONSIVE.

The undersigned authorized representative of the Bidder certifies the truth and accuracy of all statements and the answers contained herein.

1. How many years has your organization been in business while possessing one of the licenses, certifications or registrations requested?

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1.1. What business are you in? Concrete Construction - Division 03

2. What is the last project of this nature that you have completed?

Baker Concrete Construction, Inc. (www.bakerconcrete.com) is the nation's leading concrete construction firm specializing in all types of cast-in-place concrete construction. For specific similar project experience of this nature, please refer to the Tutor-Perini JV package.

3. Have you ever failed to complete any work awarded to you? If so, where and why?

No

3.1. Give owner names, addresses and telephone numbers, and surety and project names, for all projects for which you have performed work, where your surety has intervened to assist in completion of the project, whether or not a claim was made.

n/a

PRINT NAME OF BIDDER: Baker Concrete Construction, Inc.

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NOTE: "NOT REQUIRED" APPLIES TO BAKER'S SPECIALTY TRADE OF CONCRETE. OTHER THAN CONCRETE WORK-LICENSE MAY BE REQUIRED.

Page 2 of 2
As of 5/16/13
I certify from the records of this office that BAKER CONCRETE CONSTRUCTION, INC., is a corporation organized under the laws of the State of Florida, filed on February 16, 1981.

The document number of this corporation is 848285.

I further certify that said corporation has paid all fees due this office through December 31, 2013, that its most recent annual report/uniform business report was filed on February 5, 2013, and its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Eighteenth day of March, 2013

Ken Detzner
Secretary of State
STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
CONSTRUCTION INDUSTRY LICENSING BOARD

AG#6255596

DATE: 08/06/2012
LICENSE NO.: LG0123999
THE GENERAL CONTRACTOR
NAME: HERNANDEZ, MICHAEL GENE
LICENSED Firm: BAKER CONCRETE CONSTRUCTION INC.
5555 ANGLERS AVE, STE 1A
FT LAUDERDALE, FL 33312

EXPIRATION DATE: AUG 31, 2014

RICK SCOTT
GOVERNOR

DISPLAY AS REQUIRED BY LAW
BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT
115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, Fl. 33301-1896 - 954-431-4000
VALID OCTOBER 1, 2012 THROUGH SEPTEMBER 30, 2013

DBA:
BAKER CONCRETE CONSTRUCTION INC

Receipt #: 180-0756
GENERAL CONTRACTOR (GENERAL
Business Type: CONTRACTOR)

Owner Name: JOSEPH CRR
Business Location: 5555 ANGLERS AVE 1
DANIA BEACH
Business Phone: 954-964-6027

Name: JOSEPH CRR
Type: CONTRACTOR
Owner

State/County/Cert #: C00063443
Exemption Code:

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

When validated

This tax is levied for the privilege of doing business within Broward County and is
non-regulatory in nature. You must meet all County and/or Municipal planning
and zoning requirements. This Business Tax Receipt must be transferred when
the business is sold, business name has changed or you have moved the
business location. This receipt does not indicate that the business is legal or that
it is in compliance with State or local laws and regulations.

Mailing Address:
JOSEPH CRR
900 N GRAVER RD
MONROE, OH 45050

Receipt #: 012-11-00012822
Paid 09/25/2012 $4.00

2012 - 2013
CITY OF Dania Beach
Business Tax Receipt

VALID THROUGH 9/30/2021

[Address Information]

[Business Information]

[Amounts and Tax Details]

MUST BE POSTED CONSPICUOUSLY AT BUSINESS LOCATION
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<td>$12926</td>
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<td>HERNANDEZ, MICHAEL GENE</td>
<td>Primary Qualifying Agent for Business</td>
<td>02/14/2007</td>
<td>Certified General Contractor</td>
<td>08/31/2014</td>
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Detail by Entity Name

Foreign Profit Corporation
BAKER CONCRETE CONSTRUCTION, INC.

This detail screen does not contain information about the 2013 Annual Report. Click the 'Search Now' button to determine if the 2013 Annual Report has been filed.

Filing Information

Document Number: 848285
FEIN/EIN Number: 510817881
Date Filed: 02/16/1981
State: OH
Status: ACTIVE
Last Event: NAME CHANGE AMENDMENT
Event Date Filed: 10/15/1981
Event Effective Date: NONE

Principal Address
900 NORTH GARVER RD.
MONROE OH 45050
Changed: 07/23/2003

Mailing Address
900 NORTH GARVER RD.
MONROE OH 45050
Changed: 07/23/2003

Registered Agent Name & Address
NRAI SERVICES, INC.
515 E. PARK AVENUE
TALLAHASSEE FL 32301 US
Name Changed: 07/23/2003
Address Changed: 02/11/2011

Officer/Director Detail
Name & Address
Title: T

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<td>2012</td>
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4. Give names, addresses and telephone numbers of three individuals, corporations, agencies, or institutions for which you have performed work:

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<td>561.832.1616</td>
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<td>Scope of Project:</td>
<td>Concrete Construction</td>
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</table>

PRINT NAME OF BIDDER: Baker Concrete Construction, Inc.

5-1-2013
5. List the following information concerning all contracts in progress as of the date of submission of this Solicitation. (In case of co-venture, list the information for all co-venturers.)

<table>
<thead>
<tr>
<th>TOTAL % OF OWNER OF CONTRACT</th>
<th>DATE OF COMPLETION</th>
<th>COMPLETION TO DATE</th>
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</thead>
<tbody>
<tr>
<td>NAME OF PROJECT</td>
<td>PHONE NO.</td>
<td>VALUE</td>
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Baker has many contracts in progress at any point in time. Please refer to attached major work in progress document.

(Continue list on insert sheet, if necessary.)

6. Has a representative of the Respondent completely inspected the proposed project site and does the Respondent have a complete plan for its performance?

Yes

7. What equipment do you own that is available for the work?

Please see attached.

8. What equipment will you purchase for the proposed work?

To Be Determined - None contemplated at this time.

9. What equipment will you rent for the proposed work?

To Be Determined - None contemplated at this time.

PRINT NAME OF BIDDER: Baker Concrete Construction, Inc.
PROJECT EXPERIENCE - MAJOR WORK IN PROGRESS

**EMCC OFFICE BUILDINGS**
City, State: Spring, TX  
Owner: Palmetto TransOceanic  
Project Description: CMM-Office Building  
Contract Amount: $92,293,500  
Start Date: 2/1/2012  
Substantial Completion: 1/28/2014

**I-595 BRIDGES**
City, State: Davie, FL  
Owner: Florida Department of Transportation  
Project Description: HWY-Bridge / Tunnel  
Contract Amount: $31,882,751  
Start Date: 3/6/2010  
Substantial Completion: 9/1/2013

**MELDAHL CONCRETE**
City, State: Foster, KY  
Owner: American Municipal Power  
Project Description: PWR-Electric Power Gen. Plant  
Contract Amount: $58,285,000  
Start Date: 11/1/2011  
Substantial Completion: 11/1/2013

**NATIONAL ENRICHMENT FACILITY - NEF BLDG 1003**
City, State: Eunice, NM  
Owner: URENCO USA  
Project Description: MFG-Petro / Chemical / Coal  
Contract Amount: $114,425,004  
Start Date: 2/2/2010  
Substantial Completion: 8/31/2013
# PROJECT EXPERIENCE - MAJOR WORK IN PROGRESS

## NEW ORLEANS VETERAN AFFAIRS HOSPITAL
- **City, State:** New Orleans, LA
- **Owner:** The Department of Veterans Affairs
- **Project Description:** HLTH-Hospital / Medical Center
- **Contract Amount:** $62,970,000
- **Start Date:** 3/1/2012
- **Substantial Completion:** 10/30/2013

## PROJECT DELTA GARAGES
- **City, State:** Spring, TX
- **Owner:** Palmetto TransOceanic
- **Project Description:** CMM-Parking Garage / Lot
- **Contract Amount:** $50,569,000
- **Start Date:** 4/4/2011
- **Substantial Completion:** 10/31/2013

## URENCO PHASE III BUILDINGS
- **City, State:** Eunice, NM
- **Owner:** URENCO USA
- **Project Description:** MFG-Petro / Chemical / Coal
- **Contract Amount:** $190,000,000
- **Start Date:** 1/2/2013
- **Substantial Completion:** 6/1/2014

## US1 FEC RR STRUCTURES FOR RUNWAY 9R-27L EXP. AT FLL
- **City, State:** Ft. Lauderdale, FL
- **Owner:** Broward Co. Aviation
- **Project Description:** HWY-Highway / Streetscape
- **Contract Amount:** $52,916,400
- **Start Date:** 9/6/2011
- **Substantial Completion:** 4/1/2014
Baker was awarded the concrete pavement package for the $86 million Lewistown Bypass project by Mashuda Corporation, the project general contractor. Baker’s scope was to install 212,000 square yards, or 1.9 million square feet of 10” concrete pavement and shoulder as part of State Route 22.

Challenges & Accomplishments

- In order to ensure quality and also maintain costs, Baker’s scope included an on-site batch plant. Baker successfully operated the plant as it generated 83,000 cubic yards of 4,000 psi concrete. The batch plant was rated at a 350 cy/hour capacity. The largest placement for the project was 2,500 cy. As part of a PDOT project, the concrete and concrete placement was held to the PDOT statistical quality control program. Baker received no penalties on strength, slump or air. Baker also received a pavement bonus for smoothness on the project.
Project Details

Located on the plains of West Texas, Fort Bliss provides a base of operations for the state's Combat Air Brigade. Baker was tasked by Mapco, Inc. with performing the concrete for the government facility's large parking and streetscapes.

Baker's scope included over 1.4 million square feet of concrete paving including paving with a monolithic curb work. This included the installation and compaction of a 6" base course and placement of 8" unreinforced concrete pavement. To correctly address the technical challenges of the project, the Baker team utilized a slip form paver and laser screed for accuracy in all placement.

The paving project is scheduled for completion in July of 2010.
Project Details

Baker Concrete Construction won a competitive bid for the construction of the International Passenger Terminal Apron Construction at the Rickenbacker International Airport. The project consisted of removal of existing paving and utilities, lime stabilization of sixteen inches of sub-grade, installation of storm sewer and drainage, installation of water lines, and 12,000 SY 16"/10" P-501 PCC pavement on 6" asphalt base. During construction the client also added an additional 7,000 SY of ramp area. The total construction cost was $2,741,200.00.

Rickenbacker is an international multi-modal cargo airport, a charter passenger terminal, a U.S. Foreign-Trade Zone airport. Construction of the passenger terminal occurred while the rest of the airport was operating. Baker Concrete was also required to coordinate work with a building contractor who was under a separate contract. The Columbus airport authority required work to be complete for the holiday travel season. When the terminal general contractor fell behind schedule, Baker concrete was asked to accelerate our schedule to meet the opening deadline. Baker Concrete worked a dawn to dusk schedule to complete work on time and in budget.

REFERENCE
Mike DeVoy,
R.W. Armstrong
317.766.0461
As of March 31, 2012

Major Equipment Listing

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72178 00072178 MULE
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72477 00072477 CHAIN HOIST/COMPENSATOR
72485 00072485 MULE
72493 00072493 4' PAN-DOUBLE TROWEL
72506 00072506 4' PAN-DOUBLE TROWEL
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0075635 SCISSOR LIFT-19' STD ELECTRI
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0075926 BOLT TENSION CALIBRATOR BEAM
0076021 BOAT MOTOR
0076224 BOAT
0076486 PAN DOUBLE-5' HI PERSF PS DI
0076494 PAN DOUBLE-4' 34HP HI PERF D
0076507 PAN DOUBLE 4' 34HP HI PERF D
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0076558 LIGHT TOWER
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 1476  0001476 MESH DEPRESSER HOME
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 7037  0007037 GENERATOR CAT 200KW
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 7603  0007603 ROLLER SCREED
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43220  0043220 CMI 450 extrusion meter
43406  0043406 rebuild engine/motor for 118
 72514  0072514 REFURBISH GOMACO PAVER
 72805  0072805 REFURBISH GOMACO PAVER
 73007  0073007 REBUILD BIDWELL BOOM TRUSS
   378  0000378 FLATBED-UTILITY
   380  0000380 OFFICE/TMOL
   405  0000405 VAN BOX-BCCI-40'
   482  0000482 GOOSENECK TRAILER
   520  0000520 OFFICE/TMOL
   798  0000798 OFFICE/TMOL
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 1138  0001138 FLATBED-GOOSENECK
 1139  0001139 40' FLATBED TRAILER

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<td>J-2011</td>
<td>WATER TANK - INSULATED 15K GAL</td>
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J-2012 WATER TANK - INSULATED 20K GAL
J-2013 CONVEYOR W/REC HOPPER 80'X30"
J-2016 BOBCAT - JD328 W/AXU HYD
J-2017 FORKLIFT - 6000 # ROUGH TERRAIN
J-2018 SOFFCUT SAW - 10" X-2500
J-2039 BOBCAT - JD328 W/AXU HYD
J-2047 BOBCAT - JD328 W/AXU HYD
J-2050 WATER TANK - NON INSULATED 42K GAL
J-2067 BOBCAT - JD 270
J-2070 WATER CHILLER - ON TRAILER J-2069
J-2095 IRON WORKER - 70 TON
J-2096 BRIDGE CRANE - NORTH AMERICAN 5T 58'
J-2097 BAN SAW - VERTICAL MARVEL 8 MARK III
J-2099 PLASMA BURN TABLE - CNC W/HPR260
J-2120 FORKLIFT - 6000# 34'-36' EXT BOOM NO
J-2122 PIPE BENDER
J-2165 TRENCHER - DITCHWITCH 7610
J-2176 BOOM LIFT - ARTIC 2WD DIESEL 52'
J-2177 FORKLIFT - 6000# 34'-36' EXT BOOM NO
J-2179 BOBCAT - JD328 W/AXU HYD
J-2192 FORKLIFT - 6000# 34'-36' EXT BOOM NO
J-2193 BACKHOE - 4WD EXT JD 410G W/CAB-AC
J-2195 BOBCAT - JD328 W/AXU HYD
J-2197 MOTOR SCRAPER - CAT 633D 34 YD
J-2198 MOTOR SCRAPER - CAT 633D 34 YD
J-2199 ROLLER - 84" RIDE ON
J-2200 MOTOR GRADER - JD 770D 14' BLADE
J-2201 TRACTOR - 4WD JD 8420
J-2202 LASER SCRAPER - 15'9 CY
J-2207 PAVER - GAMACO COMMANDER III 4 TRACK
J-2216 SOFFCUT SAW - X-150 GAS 6"
J-2249 BACKHOE - 4 WD CAT 420E W/O CAB
J-2308 GENERATOR - STATIONARY 125KW/150 KVA
J-2309 GENERATOR - STATIONARY 125KW/150 KVA
J-2310 BOBCAT TRACK LOADER - CT332 W/AXU HY
J-2312 BOBCAT TRACK LOADER - CT322 W/AXU HY
J-2314 WHEEL LOADER - 4.25 CY CAP
J-2315 WHEEL LOADER - 4.25 CY CAP
J-2316 ARTICULATED DUMP TRUCK - CAT 725 18.
J-2318 EXCAVATOR - CAT 345CL - 99,150 LB
J-2319 FORKLIFT - 7000# 42' EXT BOOM W/CAB
J-2326 BATCH PLANT
J-2328 GENERATOR - STATIONARY 125KW/150 KVA
J-2334 WATER TANK - NON INSULATED 20K GAL
J-2335 WATER TANK - INSULATED 20K GAL
J-2336 WATER TANK - INSULATED 20K GAL
J-2337 WATER TANK - INSULATED 20K GAL
J-2338 GENERATOR - STATIONARY 125KW/150 KVA
J-2345 WATER CHILLER - ON TRAILER
J-2346 WATER CHILLER - ON TRAILER
J-2349 CONVEYOR - W/REC HOPPER 75'X30''
J-2350 CEMENT GUPPIE TRAILER - TROLLEX
J-2353 EXCAVATOR BUCKET - 54'' PC300
J-2359 GENERATOR - STATIONARY 125KW/150 KVA
J-2360 GENERATOR - STATIONARY 125KW/150 KVA
J-2431 WATER TANK - INSULATED 20K GAL
J-2438 FORKLIFT - 6000# 34'-36' EXT BOOM NO
J-2089 WHEEL LOADER - 4.25 CY CAP
J-2351 CONVEYOR - NO HOPPER 80'X30''
K-3000 SPECIAL EQUIPMENT
J-2000 CONCRETE PUMP TRUCK - 41 METER
J-2001 CONCRETE PUMP TRUCK - 39 METER
J-2002 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2003 FLAT UTIL TRAILER - 14' PW/500 GAL T
J-2005 PICKUP TRUCK - 4WD 1T CREW/EXT CAB
J-2022 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2023 PICKUP TRUCK - 4WD 1/2 TON
J-2024 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2041 TRAVEL TRAILER - STD HITCH 31'
J-2056 FLAT SEMI TRAILER - 45' STRAIGHT
J-2057 CONCRETE MIXER TRUCK - 10 CY
J-2058 CONCRETE MIXER TRUCK - 10 CY
J-2060 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2062 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2079 TRAVEL TRAILER - 5TH WHEEL 34'
J-2080 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2126 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2127 PICKUP TRUCK - 4WD 1/2 TON
J-2128 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2132 FLAT UTILITY TRAILER - 20'
J-2147 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2164 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2171 TRAVEL TRAILER - 5TH WHEEL 36'
J-2173 TRAVEL TRAILER - 5TH WHEEL 35'
J-2178 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2188 FLATBED TRUCK - 4WD 3/4T CREW/EXT CA
J-2203 UTILITY TRUCK - 2WD 3/4T CREW/EXT CA
J-2206 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2223 WATER TRUCK - 4000 GAL
J-2224 SERVICE TRUCK - T300 W/CRANE
J-2227 FLAT UTILITY TRAILER - 20' GOOSENECK
J-2235 AIRPLANE - PIPER PA-31-325
J-2237 BOX UTILITY TRAILER - 20'
J-2240 PICKUP TRUCK - 4WD 3/4T
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J-2416 TRAVEL TRAILER - 5TH WHEEL 32'
J-2424 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2426 SUV - 4WD
J-2430 CONCRETE MIXER TRUCK - 10 CY
J-2437 TRAVEL TRAILER - 5TH WHEEL 33'
J-2442 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2443 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2059 CONCRETE MIXER TRUCK - 10 CY
J-2446 CABLE TAILER - 4 SPOOL
10. State the name of your proposed project manager and superintendent and give details of his or her qualifications and experience in managing similar work.

Kevin Hanson, Superintendent. See attached resume.

11. State the true, exact, correct and complete name of the partnership, corporation or trade name under which you do business and the address of the place of business. (If a corporation, state the name of the president and secretary. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name).

11.1 The correct name of the Respondent is:
Baker Concrete Construction, Inc.

11.2 The business is a (Sole Proprietorship) (Partnership) (Corporation):
Corporation

11.3 The address of principal place of business is:
Corporate Office: 900 N. Main Street, Monroe, OH 45050
South Florida Office: 5555 Anglers Ave., Ft. Lauderdale, FL 33312

11.4 The names of the corporate officers, or partners, or individuals doing business under a trade name, are as follows:

Please refer to attached for Baker Concrete Construction, Inc.

11.5 List all organizations which were predecessors to Respondent or in which the principals or officers of the Respondent were principals or officers
n/a

PRINT NAME OF BIDDER: Baker Concrete Construction, Inc.
KEVIN HANSON

Superintendent

Kevin's Heavy Civil experience includes knowledge in budgeting, planning and implementing work schedules, quality control, estimating, purchasing and information management. His previous work with pilings, superstructures, roadways, bridges and drainage operations offers a broad knowledge base which contributes to the successful completion of projects on time and within budget.

Skills

• Document Control Management — Reading and interpreting plans, Submittals, RFI's, and Change Orders.
• Material/subcontractor buyouts.
• In-depth knowledge of FDOT - Specifications
• Scheduling — Work plans, critical lift plans, crews and subcontractors.
• Cost Control — Budgeting, production tracking, and pay applications.

Overall Project Experience

• Fort Lauderdale Runway Expansion – Fort Lauderdale, FL
  Plant manager for an FDOT-certified precast prestressed concrete plant producing 118'-long Type VI Florida I-beams.
• SE 15th Ave Bridges – Fort Lauderdale, FL
  Major activities included demolition, concrete piling, prestressed concrete slab erection, and cast-in-place structural concrete.
• Tamiami Trail (US 41) – AASHTO Beam Bridge - Miami, FL
  Responsible for engineering and cost controls including — project schedule updates, pay applications, RFI’s and submittals.
• NW 5th Street – Bascule Bridge – Miami, FL
  Responsible for piling, superstructure, roadway and drainage operations including - Procurement of materials, scheduling operations and managing subcontractors.
• Miami Intermodal Connector (MIC) – Miami, Fl
  Inspected completed work for compliance with contract documents.

Certifications & Special Training

• Licensed Professional Engineer
• ACI Concrete Transportation Construction Inspector
• ACI Concrete Field Testing Technician — Grade 1
• ATSSA Florida advances Work Zone Traffic Control Supervisor
• FDOT Pile Driving Inspector
• FDOT Concrete Field Technician – Levels 1 & 2
• FDOT Earthwork Construction Inspection – Levels 1 & 2
• FDOT Asphalt Paving Technician – Levels 1 & 2
• FDEP Qualified Storm water Management Inspector
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<th>At Baker Since</th>
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<tr>
<td>Daniel L. Baker</td>
<td>C.E.O. / Chairman of the Board</td>
<td>1964</td>
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<td>Bradley E. Wucherpfennig</td>
<td>President</td>
<td>1987</td>
<td>2011</td>
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<td>Thomas J. Bell</td>
<td>Chief Financial Officer</td>
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<td>Michael J. Schneider</td>
<td>Senior V.P. / Chief People Officer</td>
<td>1973</td>
<td>1978</td>
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<td>Robert M. Baker</td>
<td>V.P., Accounting / Treasurer</td>
<td>1990</td>
<td>2005</td>
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<tr>
<td>Stephen E. Martin</td>
<td>V.P., Estimating / General Manager of Midwest Commercial/Civil Region</td>
<td>1970</td>
<td>1981</td>
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<td>Martin L. Jordana</td>
<td>V.P., Southern Operations</td>
<td>1984</td>
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<td>E. Todd Wilkowski</td>
<td>Secretary / General Counsel</td>
<td>2000</td>
<td>2007</td>
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11.6 List and describe all bankruptcy petitions (voluntary or involuntary) which have been filed by or against the Respondent, its parent or subsidiaries or predecessor organizations during the past three (3) years. Include in the description the disposition of each such petition.

n/a

12. List and describe all successful Performance or Payment Bond claims made to your surety(ies) during the last three (3) years. The list and descriptions should include claims against the bond of the Respondent and its predecessor organization(s).

n/a

12.1 Has the Respondent, its principals, officers or predecessor organization(s) been debarred or suspended from bidding by any government during the last three (3) years? If yes, provide details.

No

12.2 Under what conditions does the Respondent request Change Orders.

Baker works diligently to clarify and resolve any scope or schedule items during preconstruction and as part of its premobilization review to reduce the need for change orders on the project. However, due to dynamic project site conditions, incomplete drawings, requests for additional work, extended schedule durations, and other unexpected project conditions, Baker requests that it be fairly compensated for its additional associated costs resulting from these events.

PRINT NAME OF BIDDER: Baker Concrete Construction, Inc.
13. LITIGATION HISTORY REQUIREMENT: The COUNTY will consider a vendor's litigation history information in its review and determination of responsibility. All vendors are required to disclose to the COUNTY all "material" cases filed or resolved in the three (3) year period ending with the solicitation response due date, whether such cases were brought by or against the vendor, any parent or subsidiary of the vendor, or any predecessor organization. If the vendor is a joint venture, the information provided should encompass the joint venture (if it is not newly-formed for purposes of responding to the solicitation) and each of the entities forming the joint venture. For purpose of this disclosure requirement, a "case" includes lawsuits, administrative hearings and arbitrations. A case is considered to be "material" if it relates, in whole or in part, to any of the following:

13.1. A similar type of work that the vendor is seeking to perform for the COUNTY under the current solicitation;
13.2. An allegation of negligence, error or omissions, or malpractice against the vendor or any of its principals or agents who would be performing work under the current solicitation;
13.3. A vendor's default, termination, suspension, failure to perform, or improper performance in connection with any contract;
13.4. The financial condition of the vendor, including any bankruptcy petition (voluntary and involuntary); or
13.5. A criminal proceeding or hearing concerning business-related offenses in which the vendor or its principals (including officers) were/are defendants.

Notwithstanding the descriptions listed in paragraphs 13.1-13.5 above, a case is not considered to be "material" if the claims raised in the case involve only garnishment, auto negligence, personal injury, or a proof of claim filed by the vendor.

For each material case, the vendor is required to provide all information identified on the Litigation History Form.

A Vendor is also required to disclose to the COUNTY any and all case(s) that exist between the COUNTY and any of the vendor's subcontractors/subconsultants proposed to work on this project.

Failure to disclose any material case, or to provide all requested information in connection with each such case, may result in the vendor being deemed non-responsive. Prior to making such determination, the vendor will have the ability to clarify the submittal and to explain why an undisclosed case is not material.

PRINT NAME OF BIDDER: Baker Concrete Construction, Inc.
Tutor Perini
Fort Lauderdale-Hollywood Venture
FORM 3: BIDDER QUALIFICATIONS QUESTIONNAIRE

INFORMATION CONTAINED IN THIS DOCUMENT WILL BE USED BY THE COUNTY IN DETERMINING THE RESPONSIBILITY OF A RESPONDENT. THERE MUST BE A RESPONSE TO ALL QUESTIONS IN THIS DOCUMENT.

INFORMATION MUST EITHER BE PROVIDED OR AN INDICATION OF "NONE" (IF APPROPRIATE). DO NOT USE "N/A" AS A RESPONSE TO ANY QUESTION.

THIS COMPLETED FORM, INCLUDING A RESPONSE TO ALL QUESTIONS, SHOULD BE SUBMITTED WITH THE SOLICITATION; HOWEVER, IT MUST BE SUBMITTED WITHIN FIVE (5) WORKING DAYS OF THE COUNTY'S REQUEST. FAILURE TO PROVIDE THE COMPLETED FORM MAY RESULT IN THE SOLICITATION BEING DEEMED NON-RESPONSIVE.

The undersigned authorized representative of the Bidder certifies the truth and accuracy of all statements and the answers contained herein.

1. How many years has your organization been in business while possessing one of the licenses, certifications or registrations requested?

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1.1. What business are you in?  Construction

2. What is the last project of this nature that you have completed?

U.S. 1/FEC RR Structures for the expansion of Runway 9R-27L - Fort Lauderdale-Hollywood

International Airport - (In Progress)

3. Have you ever failed to complete any work awarded to you? If so, where and why?

No

3.1. Give owner names, addresses and telephone numbers, and surety and project names, for all projects for which you have performed work, where your surety has intervened to assist in completion of the project, whether or not a claim was made.

None

PRINT NAME OF BIDDER: Tutor Perini Fort Lauderdale-Hollywood Venture
Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto www.myfloridalicense.com. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!
**BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT**

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1695 – 954-831-4000

**VALID OCTOBER 1, 2012 THROUGH SEPTEMBER 30, 2013**

**DBA:** TUTOR PERINI FORT LAUDERDALE-HOLLYWOOD VENTURE

**Business Name:**

**Owner Name:** MICHAEL LANCIANTU

**Business Location:** 100 AVIATION BLVD

**FT LAUDERDALE**

**Business Phone:** 954 414 9063

**Receipt #: 180-254326**

**Business Type:** GENERAL CONTRACTOR

**Business Opened:** 03/15/2013

**State/County/Cert/Reg:** CGC025756

**Exemption Code:**

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**THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS**

**THIS BECOMES A TAX RECEIPT**

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

**Mailing Address:**

TUTOR PERINI FORT LAUDERDALE-HOLLY

100 AVIATION BLVD

FT LAUDERDALE, FL 33315

Receipt #016-12-00006902

Paid 03/15/2013 27.00

**2012 - 2013**
I certify from the records of this office that TUTOR PERINI FORT LAUDERDALE-HOLLYWOOD VENTURE is a Florida partnership, filed on September 16, 2011.

The document number issued to this registration is GR1100001217.

I further certify said partnership has not been canceled.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Eighteenth day of March, 2013

Ken Detter
Secretary of State
4. Give names, addresses and telephone numbers of three individuals, corporations, agencies, or institutions for which you have performed work:

4.1 Broward County Board of Commissioners 9R-27L
(Organization/Company) 100 Aviation Boulevard (Project Name)
Ron Murtha Fort Lauderdale, FL 33315 (Contact Name) (Address)
305-218-1934 (Phone No.)
R0840412R1 $209,456,651.00 10/2011-Current (Contract Number) (Project Value) (Date Services Provided)
Scope of Project: Construction of runway and taxiway structures over US Route 1.

4.2 N/A
(Organization/Company) (Project Name)
(Contact Name) (Address) (Phone No.)
(Contract Number) (Project Value) (Date Services Provided)
Scope of Project:

4.3 N/A
(Organization/Company) (Project Name)
(Contact Name) (Address) (Phone No.)
(Contract Number) (Project Value) (Date Services Provided)
Scope of Project:

PRINT NAME OF BIDDER: Tutor Perini Fort Lauderdale-Hollywood Venture
5. List the following information concerning all contracts in progress as of the date of submission of this Solicitation. (In case of co-venture, list the information for all co-venturers.)

<table>
<thead>
<tr>
<th>TOTAL % (OWNER OF CONTRACT)</th>
<th>VALUE</th>
<th>DATE OF COMPLETION</th>
<th>PER CONTRACT % OF COMPLETION TO DATE</th>
</tr>
</thead>
</table>

See attached "Work-on-Hand" from both partners - Tutor Perini Fort Lauderdale-Hollywood Venture

(Continue list on insert sheet, if necessary.)

6. Has a representative of the Respondent completely inspected the proposed project site and does the Respondent have a complete plan for its performance?

Yes

7. What equipment do you own that is available for the work?

See attachments - from both partners - Tutor Perini Fort Lauderdale-Hollywood Venture

8. What equipment will you purchase for the proposed work?

TBD - None contemplated at this time

9. What equipment will you rent for the proposed work?

TBD - Will be provided by either of the Joint Venture partners and rented according to the JV agreement.

PRINT NAME OF BIDDER: Tutor Perini Fort Lauderdale-Hollywood Venture
PROJECT EXPERIENCE - MAJOR WORK IN PROGRESS

EMCC OFFICE BUILDINGS
City, State: Spring, TX
Owner: Palmetto TransOceanic
Project Description: CMM-Office Building
Contract Amount: $92,293,500
Start Date: 2/1/2012
Substantial Completion: 1/28/2014

I-595 BRIDGES
City, State: Davie, FL
Owner: Florida Department of Transportation
Project Description: HWY-Bridge / Tunnel
Contract Amount: $31,882,751
Start Date: 3/6/2010
Substantial Completion: 9/1/2013

MELDAHL CONCRETE
City, State: Foster, KY
Owner: American Municipal Power
Project Description: PWR-Electric Power Gen. Plant
Contract Amount: $58,285,000
Start Date: 11/1/2011
Substantial Completion: 11/1/2013

NATIONAL ENRICHMENT FACILITY - NEF BLDG 1003
City, State: Eunice, NM
Owner: URENCO USA
Project Description: MFG-Petro / Chemical / Coal
Contract Amount: $114,425,004
Start Date: 2/2/2010
Substantial Completion: 8/31/2013
PROJECT EXPERIENCE - MAJOR WORK IN PROGRESS

NEW ORLEANS VETERAN AFFAIRS HOSPITAL
City, State: New Orleans, LA
Owner: The Department of Veterans Affairs
Project Description: HLTH-Hospital / Medical Center
Contract Amount: $62,970,000
Start Date: 3/1/2012
Substantial Completion: 10/30/2013

PROJECT DELTA GARAGES
City, State: Spring, TX
Owner: Palmetto TransOceanic
Project Description: CMM-Parking Garage / Lot
Contract Amount: $50,569,000
Start Date: 4/4/2011
Substantial Completion: 10/31/2013

URENCO PHASE III BUILDINGS
City, State: Eunice, NM
Owner: URENCO USA
Project Description: MFG-Petro / Chemical / Coal
Contract Amount: $190,000,000
Start Date: 1/2/2013
Substantial Completion: 6/1/2014

US1 FEC RR STRUCTURES FOR RUNWAY 9R-27L EXP. AT FLL
City, State: Ft. Lauderdale, FL
Owner: Broward Co. Aviation
Project Description: HWY-Highway / Streetscape TSP-Airport / Aerospace
Contract Amount: $52,916,400
Start Date: 9/6/2011
Substantial Completion: 4/1/2014
<table>
<thead>
<tr>
<th>CURRENT PROJECTS</th>
<th>Civil Group East</th>
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</thead>
<tbody>
<tr>
<td><strong>As of 7/17/2013</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CQ032 PLAZA SUBSTATION AND QUEENS STRUCTURES CONTRACT NO. CQ032</strong></td>
<td></td>
</tr>
<tr>
<td>MTA - Capital Construction (MTA-CC) 2 Broadway New York, NY 10004 Álvaro Buendia (718) 391-4739 (office) (917) 209-5557 (cell)</td>
<td>Prime GEC (General Engineering Consultants) 6/30/2010 $155,029,000 $26,908,413 $128,116,587 Nov-14 17.36%</td>
</tr>
<tr>
<td>Provide all labor, equipment, material necessary for the construction of tunnel structures, power substation, and commission, operation, upgrade, and maintaining of existing and new temporary construction power tunnel ventilation, tunnel drainage, water supply, lighting, and dewatering systems, including but not limited to the following facilities along the existing 63rd Street tunnel.</td>
<td></td>
</tr>
<tr>
<td><strong>TACONIC STATE PARKWAY - CONTRACT NO. D261478</strong></td>
<td></td>
</tr>
<tr>
<td>New York State Department of Transportation (NYSDOT) 4 Burnett Blvd. Poughkeepsie, NY Region 8 Paul Tiruns (814) 302-7088</td>
<td>Prime AECOM 12/2/2010 $26,470,000 $23,101,940 $3,368,060 Apr-13 87.28%</td>
</tr>
<tr>
<td>Bridge Rehabilitation of the Taconic State Parkway NB Bridge over the new Croton Reservoir and 6 miles of asphalt concrete resurfacing on the TSP in the Towns of Yorktown and New Castle.</td>
<td></td>
</tr>
<tr>
<td><strong>I-95 NEW HAVEN CORRIDOR IMPROVEMENTS-CONTRACT E PROJECT NO. 92-531/622/627</strong></td>
<td></td>
</tr>
<tr>
<td>Connecticut Department of Transportation (ConnDOT) 424 Chapel Street New Haven, CT 06511 Brian Mercure - Asst. District Engineer - District 3A (203) 765-8082</td>
<td>JV (O&amp;G Industries - 70% - TPC - 30%) Berger Lehman Associates 10/13/2010 $108,304,326 $24,824,561 $83,479,765 Mar-17 22.92%</td>
</tr>
<tr>
<td>Reconstruction of I-95, I-91 and Route 34 Interchange associated with Q-Bridge Replacement.</td>
<td></td>
</tr>
<tr>
<td><strong>NEW JERSEY TURNPIKE NEWARK BAY BRIDGE STRUCTURE NO. N2.01</strong></td>
<td></td>
</tr>
<tr>
<td>New Jersey Turnpike Authority (NJTA) PO Box 1121 New Brunswick, NJ 08903 Richard Raczyński (732) 247-0900</td>
<td>JV (Ferreira - 51% - TPC 49%) URS Corp. 6/2010 $52,110,746 $36,595,017 $15,510,729 Aug-13 70.23%</td>
</tr>
<tr>
<td>This contract will provide for bridge deck reconstruction and miscellaneous structural, roadway and lighting improvements on the Newark Bay Bridge and approach spans from Milepost N1.5 to N2.9 in Essex and Hudson Counties, New Jersey. Along this 7,000 foot long project, a total of 550,000 square feet of bridge deck will be replaced using 1749 precast panels.</td>
<td></td>
</tr>
</tbody>
</table>
**TAPPAN ZEE BRIDGE DECK REPLACEMENT**
Westchester & Rockland Counties
Contract No. TANY 10-9B D213861

<table>
<thead>
<tr>
<th>Prime</th>
<th>NYS Thruway Authority (NYSTA) New York Division Construction Management Unit 4 Executive Boulevard Suffern, New York 10901 Emanuel Gallego (914) 347-3213</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYS Thruway, TranSystems and HDR</td>
<td>5/26/2010</td>
</tr>
</tbody>
</table>

Replacement of the existing bridge superstructure, including installation of pre-cast concrete deck segments, movable barrier and exoemeric panels.

**HAROLD STRUCTURES PART 2A**
Queens, NY
Contract No. CH054A

<table>
<thead>
<tr>
<th>Prime</th>
<th>MTA Capital Construction (MTA-CC) 2 Broadway New York, NY 10004 Garth Lawrence (718) 391-4709 (office) (646) 372-9584 (cell)</th>
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</thead>
<tbody>
<tr>
<td>GEC (General Engineering Consultants)</td>
<td>8/2009</td>
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</tbody>
</table>

Demolition of existing track; excavation and support of excavation; utility relocation; construction of retaining walls, and civil elements for LIRR East Side Access infrastructure within the Harold Interlocking along Skillman Avenue between 47th Avenue and 44th Street in Queens.

**HAROLD STRUCTURES PART 1**
Queens, NY
Contract No. CH053

<table>
<thead>
<tr>
<th>Prime</th>
<th>MTA - Capital Construction (MTA-CC) 2 Broadway New York, NY 10004 James Pagano (718) 391-4719 (office) (631) 332-9526 (cell)</th>
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</thead>
<tbody>
<tr>
<td>GEC (General Engineering Consultants)</td>
<td>12/2007</td>
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</tbody>
</table>

Construct civil infrastructure elements in the Harold Interlocking expanding the existing LIRR-Amtrak right-of-way, including construction of the TBM launch pit, retaining walls and track bridge, foundation for new substation, two new track bridges, micro-tunnels for duct banks below mainline tracks and utility relocations.
This project will consist of the construction of runway and taxiway structures over U.S. Route 1, the Florida East Coast Railway and the airport's east perimeter road. This contract consists of architectural design, civil, drainage, traffic, environmental, geotechnical, structural, mechanical and electrical services to provide for two multi-cell bridge structures with a combined deck area of approximately 556,000 square feet. This project is the first of a three phase construction program.

**Staten Island Verrazano Bridge Upper Deck Replacement**

**Contract No. VN-80/B**

MTA-Triborough Bridge and Tunnel Authority (MTA-TBTA)
2 Broadway
New York, NY 10004
Gavin Masterson (646) 252-7080

Removal of the existing upper level deck and replacement with a new orthotropic steel deck asphalt overlay. Associated maintenance and protection of traffic, electrical, waterproofing temporary shielding, miscellaneous metal work, paint removal, and painting will involved.

**Stewart International Airport - Rehabilitation of Runway 9-27 and 16-34**

**Contract No. SWF-164.039**

Port Authority of NY&NJ (PANYNJ)
225 Park Ave South
New York, NY 10003
Mark Pagliettini, Asst. Director, WTC (212) 435-5531

Rehabilitation of Runways and associated taxiways via mill and overlay, including electrical system rehabilitation and upgrades, installation of new duct bank crossings for future electrical communications requirements, improving the existing fillets, installing 35-foot shoulders to both sides of Runway 16-34 and constructing a new high-speed taxiway exit for Runway 9-27.

**Replacement of City Island Bridge over Eastchester Bay**

**Contract No. HBX1164**

New York City Department of Transportation (NYCDOT)
55 Water Street, 8th Floor
New York, NY 10007

The project entails removal of the existing bridge and replacement with a new single tower cable span bridge along with approach roadways and utilities. Installation and removal of a temporary bridge and associated temporary approaches.
<table>
<thead>
<tr>
<th>Description</th>
<th>Prime</th>
<th>NOA dated</th>
<th>Amount</th>
<th>Status</th>
<th>Percentage</th>
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<td>Rehabilitation of the Harlem River LIRR Bridge Located on Hudson Line</td>
<td>Hardesty &amp; Hanover, Jacobs</td>
<td>7/31/13</td>
<td>$29,880,000</td>
<td>$0</td>
<td>$29,880,000</td>
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<tr>
<td>Contract No. 1000015491</td>
<td>Engineering, HDR, Longi Engineering, EPM</td>
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<tr>
<td>Replacement of Circuit Breaker House 6 &amp; 7 (Manhattan &amp; Bronx), Power and Control Upgrades, Replace Drive Motors and Wire Rope Replacement</td>
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<td>TOTAL ACTIVE PROJECTS</td>
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<td>$1,325,650,972</td>
<td>$470,718,320</td>
<td>$855,132,652</td>
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<td>00000948 SOFFCUT SAW</td>
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<td>00000984 FORKLIFT</td>
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<td>0001051 MINI PLACER</td>
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<td>0001067 DIPSTICK</td>
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<td>0003376 DOZER</td>
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7910  00007910 FORKLIFT
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7923  00007923 CONCRETE BUCKET
8046  00008046 GENERATOR
8054  00008054 SOFF CUT
8055  00008055 AIR COMPRESSOR
8056  00008056 WELDER
8057  00008057 WELDER
8091  00008091 SOFF-CUT
8092  00008092 TRANSIT
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8202  00008202 CURE SPRAYER
8208  00008208 GENERATOR
8210  00008210 CURE SPRAYER
8211  00008211 SCARIFIER
8212  00008212 WELDER
8213  00008213 LASER
8243  00008243 LASER
8245  00008245 GENERATOR
8246  00008246 LASER
8274  00008274 TOTAL STATION
8279  00008279 AIR COMPRESSOR
8281  00008281 LASER
8282  00008282 LASER
8284  00008284 LASER
8286  00008286 TROWEL MACHINE 3'
8287  00008287 LIGHT PLANT
8532  00008532 GENERATOR
8535  00008535 LASER
8536  00008536 TOTAL STATION
8538  00008538 TRANSIT
8542  00008542 LASER
8599  00008599 TROWEL MACHINE 4'
8600  00008600 TROWEL MACHINE 4'
8606  00008606 WELDER
8607  00008607 WELDER
8608  00008608 CONCRETE BUCKET
8613  00008613 GENERATOR
8800  00008800 UNISAW
8811  00008811 WET MAGIC SCREED
8812  00008812 MAGIC SCREED
8814  00008814 TOTAL STATION
8855  00008855 MAGIC SCREED
8857  00008857 GENERATOR
Page 3 of 23
10716 00010716 HC VIBRATOR
10717 00010717 FORKLIFT
10719 00010719 CONCRETE BUCKET
10722 00010722 TRANSIT
10723 00010723 LASER
10724 00010724 LASER
10727 00010727 BOLT STRETCHER
10780 00010780 LIGHT PLANT
10781 00010781 LIGHT PLANT
10782 00010782 WELDER
10788 00010788 LASER
10789 00010789 RADIAL ARM SAW
10794 00010794 TRANSIT
10801 00010801 PLASMA CUTTER
10802 00010802 WELDER
10882 00010882 DOUBLE TROWEL
10883 00010883 PRESSURE WASHER
10885 00010885 MAGIC SCREED
10887 00010887 LASER
10888 00010888 LASER
10896 00010896 G-2000 SOFFCUT
10897 00010897 WELDER
10901 00010901 AIR COMPRESSOR
10907 00010907 WELDER
10908 00010908 WELDER
10913 00010913 TOTAL STATION
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10987 00010987 AIR COMPRESSOR
10993 00010993 PRESSURE WASHER
10997 00010997 PLASMA CUTTER
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11000 00011000 TROWEL MACHINE 4'
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11002 00011002 BACKHOE
11003 00011003 BACKHOE
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11116 00011116 FORKLIFT/CRANE DUMPSTER
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11126 00011126 CONTAINER 20'
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11133 00011133 GENERATOR
11134 00011134 GENERATOR
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11137 00011137 GENERATOR
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11143 00011143 POWER SCREED
11145 00011145 HC VIBRATOR
11146 00011146 HC VIBRATOR
11147 00011147 HC VIBRATOR
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75926 00075926 BOLT TENSION CALIBRATOR BEAM
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76224 00076224 BOAT
76486 00076486 PAN DOUBLE-5' HI PERSF PS DI
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76507 00076507 PAN DOUBLE 4' 34HP HI PERF D
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76558 00076558 LIGHT TOWER
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10478  00010478 SCHWING PUMP
10677  00010677 BOOM PUMP
11248  00011248 PUMP/TRUCK
11844  00011844 MINI PLACER
51844  00051844 PUMP TRUCK
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J-2012 WATER TANK - INSULATED 20K GAL
J-2013 CONVEYOR W/REC HOPPER 80'X30'
J-2016 BOBCAT - JD328 W/AXU HYD
J-2017 FORKLIFT - 6000 # ROUGH TERRAIN
J-2018 SOFFCUT SAW - 10" X-2500
J-2039 BOBCAT - JD328 W/AXU HYD
J-2047 BOBCAT - JD328 W/AXU HYD
J-2050 WATER TANK - NON INSULATED 42K GAL
J-2067 BOBCAT - JD 270
J-2070 WATER CHILLER - ON TRAILER J-2069
J-2095 IRON WORKER - 70 TON
J-2096 BRIDGE CRANE - NORTH AMERICAN ST 58'
J-2097 BAN SAW - VERTICAL MARVEL 8 MARK III
J-2099 PLASMA BURN TABLE - CNC W/HPR260
J-2120 FORKLIFT - 6000# 34'-36' EXT BOOM NO
J-2122 PIPE BENDER
J-2165 TRENCHER - DITCHWITCH 7610
J-2176 BOOM LIFT - ARTIC 2WD DIESEL 52'
J-2177 FORKLIFT - 6000# 34'-36' EXT BOOM NO
J-2179 BOBCAT - JD328 W/AXU HYD
J-2192 FORKLIFT - 6000# 34'-36' EXT BOOM NO
J-2193 BACKHOE - 4WD EXT JD 410G W/CAB-AC
J-2195 BOBCAT - JD328 W/AXU HYD
J-2197 MOTOR SCRAPER - CAT 633D 34 YD
J-2198 MOTOR SCRAPER - CAT 633D 34 YD
J-2199 ROLLER - 84" RIDE ON
J-2200 MOTOR GRADER - JD 770D 14' BLADE
J-2201 TRACTOR - 4WD JD 8420
J-2202 LASER SCRAPER - 15'9 CY
J-2207 PAVER - GAMACO COMMANDER III 4 TRACK
J-2216 SOFFCUT SAW - X-150 GAS 6"
J-2249 BACKHOE - 4 WD CAT 420E W/O CAB
J-2308 GENERATOR - STATIONARY 125KW/150 KVA
J-2309 GENERATOR - STATIONARY 125KW/150 KVA
J-2310 BOBCAT TRACK LOADER - CT322 W/AXU HY
J-2312 BOBCAT TRACK LOADER - CT322 W/AXU HY
J-2314 WHEEL LOADER - 4.25 CY CAP
J-2315 WHEEL LOADER - 4.25 CY CAP
J-2316 ARTICULATED DUMP TRUCK - CAT 725 18.
J-2318 EXCAVATOR - CAT 345CL - 99,150 LB
J-2319 FORKLIFT - 7000# 42' EXT BOOM W/CAB
J-2326 BATCH PLANT
J-2328 GENERATOR - STATIONARY 125KW/150 KVA
J-2334 WATER TANK - NON INSULATED 20K GAL
J-2335 WATER TANK - INSULATED 20K GAL
J-2336 WATER TANK - INSULATED 20K GAL
J-2337 WATER TANK - INSULATED 20K GAL
J-2338 GENERATOR - STATIONARY 125KW/150 KVA
J-2345 WATER CHILLER - ON TRAILER
J-2346 WATER CHILLER - ON TRAILER
J-2349 CONVEYOR - W/REC HOPPER 75'X30"
J-2350 CEMENT GUPPIE TRAILER - TROLLEX
J-2353 EXCAVATOR BUCKET - 54" PC300
J-2359 GENERATOR - STATIONARY 125KW/150 KVA
J-2360 GENERATOR - STATIONARY 125KW/150 KVA
J-2431 WATER TANK - INSULATED 20K GAL
J-2438 FORKLIFT - 6000# 34'-36' EXT BOOM NO
J-2089 WHEEL LOADER - 4.25 CY CAP
J-2351 CONVEYOR - NO HOPPER 80'X30"
K-3000 SPECIAL EQUIPMENT
J-2000 CONCRETE PUMP TRUCK - 41 METER
J-2001 CONCRETE PUMP TRUCK - 39 METER
J-2002 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2003 FLAT UTIL TRAILER - 14' PW/500 GAL T
J-2005 PICKUP TRUCK - 4WD 1T CREW/EXT CAB
J-2022 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2023 PICKUP TRUCK - 4WD 1/2 TON
J-2024 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2041 TRAVEL TRAILER - STD HITCH 31'
J-2056 FLAT SEMI TRAILER - 45' STRAIGHT
J-2057 CONCRETE MIXER TRUCK - 10 CY
J-2058 CONCRETE MIXER TRUCK - 10 CY
J-2060 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2062 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2079 TRAVEL TRAILER - 5TH WHEEL 34'
J-2080 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2126 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2127 PICKUP TRUCK - 4WD 1/2 TON
J-2128 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2132 FLAT UTILITY TRAILER - 20'
J-2147 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2164 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2171 TRAVEL TRAILER - 5TH WHEEL 36'
J-2173 TRAVEL TRAILER - 5TH WHEEL 35'
J-2178 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2188 FLATBED TRUCK - 4WD 3/4T CREW/EXT CA
J-2203 UTILITY TRUCK - 2WD 3/4T CREW/EXT CA
J-2206 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2223 WATER TRUCK - 4000 GAL
J-2224 SERVICE TRUCK - T300 W/CRANE
J-2227 FLAT UTILITY TRAILER - 20' GOOSENECK
J-2235 AIRPLANE - PIPER PA-31-325
J-2237 BOX UTILITY TRAILER - 20'
J-2240 PICKUP TRUCK - 4WD 3/4T
J-2251 TRAVEL TRAILER - 5TH WHEEL 36'
J-2252 TRAVEL TRAILER - 5TH WHEEL 34'
J-2297 SEMI TRACTOR - ROAD
J-2298 UTILITY TRUCK - 4WD 3/4T
J-2300 UTILITY TRUCK - 4WD 3/4T
J-2302 PASSENGER VAN - 1 TON
J-2303 PASSENGER VAN - 3/4 TON
J-2304 PASSENGER VAN - 3/4 TON
J-2305 PASSENGER VAN - 3/4 TON
J-2306 PASSENGER VAN - 3/4 TON
J-2307 PASSENGER VAN - 3/4 TON
J-2330 BOX VAN - 48' REEFER
J-2333 FLATBED TRUCK - 11' BED CDL
J-2362 FLAT UTILITY TRAILER - 18'
J-2363 SERVICE TRUCK - FUEL/LUBE
J-2364 SERVICE TRUCK - T300 W/CRANE
J-2365 CONCRETE MIXER TRUCK - 10 CY
J-2382 OFFICE TRAILER - 30'
J-2385 TRAVEL TRAILER - STD HITCH 34'
J-2386 OFFICE TRAILER - 30'
J-2387 CONCRETE MIXER TRUCK - 10 CY
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J-2407 CONCRETE MIXER TRUCK - 10 CY
J-2408 CONCRETE MIXER TRUCK - 10 CY
J-2409 CONCRETE MIXER TRUCK - 10 CY
J-2410 CONCRETE MIXER TRUCK - 10 CY
J-2411 CONCRETE MIXER TRUCK - 10 CY
J-2412 CONCRETE MIXER TRUCK - 10 CY
J-2415 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA

Page 22 of 23
J-2416 TRAVEL TRAILER - 5TH WHEEL 32'
J-2424 PICKUP TRUCK - 4WD 1/2T CREW/EXT CAB
J-2426 SUV - 4WD
J-2430 CONCRETE MIXER TRUCK - 10 CY
J-2437 TRAVEL TRAILER - 5TH WHEEL 33'
J-2442 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2443 PICKUP TRUCK - 4WD 3/4T CREW/ EXT CA
J-2059 CONCRETE MIXER TRUCK - 10 CY
J-2446 CABLE TAILER - 4 SPOOL
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## METHODS

- **A1**: AMT 10 YEARS
- **A2**: AMT 7 YEARS
- **A3**: AMT 3 YEARS
- **A4**: AMT 5 YEARS
- **A5**: AMT 6 YEARS
- **C1**: ACE 10 YEARS
- **C2**: ACE 5 YEARS
- **C3**: ACE 3 YEARS
- **C4**: ACE 2 YEARS
- **C5**: ACE 1 YEAR
- **C6**: ACE 0.5 YEARS
- **C7**: ACE 0.25 YEARS
- **C8**: ACE 0.125 YEARS
- **C9**: ACE 0.0625 YEARS

## DEPRECIATION RATES

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G/L NO. TOTAL: 1,030,249.11 B
DIVISION TOTAL: 30,631,384.42 B
COMPANY TOTAL: 30,631,384.42 B
10. State the name of your proposed project manager and superintendent and give details of his or her qualifications and experience in managing similar work.
   Damon Petrillo - Project Manager (See attached Resume)
   Kevin Hanson - Superintendent (See attached Resume)

11. State the true, exact, correct and complete name of the partnership, corporation or trade name under which you do business and the address of the place of business. (If a corporation, state the name of the president and secretary. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name).

11.1 The correct name of the Respondent is:
   Tutor Perini Fort Lauderdale-Hollywood Venture

11.2 The business is a (Sole Proprietorship) (Partnership) (Corporation):
   Partnership

11.3 The address of principal place of business is:
   5555 Anglers Avenue - Suite 1A, Fort Lauderdale, FL 33312

11.4 The names of the corporate officers, or partners, or individuals doing business under a trade name, are as follows:
   Kevin J. Woods - Authorized Representative
   Daniel L. Baker - Authorized Representative
   James A. Frost - Authorized Representative

11.5 List all organizations which were predecessors to Respondent or in which the principals or officers of the Respondent were principals or officers
   None

PRINT NAME OF BIDDER: Tutor Perini Fort Lauderdale-Hollywood Venture
10. State the name of your proposed project manager and superintendent and give details of his or her qualifications and experience in managing similar work.

Damon Petrillo, see attached Resume

11. State the true, exact, correct and complete name of the partnership, corporation or trade name under which you do business and the address of the place of business. (If a corporation, state the name of the president and secretary. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name).

11.1 The correct name of the Respondent is:
Tutor Perini Corporation

11.2 The business is a (Sole Proprietorship) (Partnership) (Corporation):
Corporation

11.3 The address of principal place of business is:
15901 Olden Street, Sylmar, CA 91342

11.4 The names of the corporate officers, or partners, or individuals doing business under a trade name, are as follows:
James A. Frost, Executive Vice President and CEO - Civil Group
William B. Sparks, Executive Vice President, Treasurer, Corporate Secretary & Clerk

11.5 List all organizations which were predecessors to Respondent or in which the principals or officers of the Respondent were principals or officers
None

PRINT NAME OF BIDDER: Tutor Perini Corporation (formerly known as Perini Corporation)
NAME

Damon Petrillo, PE

POSITION

Project Manager

EDUCATION

BS, Civil Engineering, Michigan Technological University

REGISTRATION

Professional Engineer, NY #074853
Fellow – National Society of Professional Engineers
Fellow – American Society of Civil Engineers

AFFILIATIONS

Harvard Business School – Member Harvard Management Update
Chi Epsilon, National Civil Engineering Honor Society

PROJECT EXPERIENCE

Tutor Perini Corporation (Civil Group), New Rochelle, NY – 2006- Present

Jan 2012 - Present,
U.S. 1/FEC RR Structures for the expansion of Runway 9R-27, Fort Lauderdale-Hollywood Airport, FL
Project Manager for $200 million Design-Build Bridges Structure Project. The project is designed to raise one of its runways up and over a major highway and rail line. Responsibilities include design coordination, the preparation and submission of project estimate, the assembling, organization, and management of the Joint Venture “Project Team”, the formation and revisions of the project schedule – to ensure the successful completion of project milestones and budget.

Mar 2011 – Jan 2012,
Replace West Runway 01L-19R, Department of Defense / Army Corp of Engineers, Andrews Air Force Base, MD
Concrete Manager for $83 million project that involves reconstructing, widening and lengthening one of the most high profile runways in the US – the "President's Runway". Responsibilities included the redesign of the Slipform Concrete Mix, establishment and management of onsite concrete batch plants, concrete slipform and handpour paving crews, including subgrade, subbase, and concrete "fill-in" lanes.

Jan 2009 – Dec 2011,
Runway 13R/31L (Bay Runway) Reconstruction, JFK International Airport, Port Authority of NY & NJ, Queens, NY
Project Manager / Lead Estimator for this $230 million project that involved reconstructing, widening and lengthening one of the longest runways in the US. Responsibilities included the preparation and submission of project estimate, the assembling, organization, and management of the “Project Team”, the formation and revisions of the project schedule - resulting in the successful completion of all project milestones.

Jan – Dec 2008,
Harold Structures, Part 1, MTA Capital Construction/Long Island Railroad, New York, NY
Project Manager for this $139 million civil infrastructure project for improvements in Sunnyside Yards to accommodate the East Side Access extension of LIRR service to Grand Central Terminal - Contract CH-053

Croton Water Treatment Plant
Project Engineer responsible for assignment, preparation, submission and approval of all required submittals in conjunction with Project CRO-312G,

Senior Estimator responsible for quantification, qualification, and cost workups in preparation of CONNDOT 92-532 “Q Bridge” estimate. Sept 2006 – Nov 2006


Senior Vice President, Jan 2002 – Aug 2006
Managed $60M in annual revenues for a Heavy/Highway Contractor, which included bidding, purchasing and building construction projects. Responsibilities included estimating, project buyouts, project management, claims management, company budgets/forecasts, A/P management and major company purchases (insurance renewals, heavy equipment purchases). Supervised a staff of Vice Presidents and Project Managers including the following departments: Estimating, Purchasing, Project Management, Contracts Administration. Reported to the Owner, in conjunction with the Controller – Cash Flow, Accounts Receivables, Accounts Payables. Prepared Monthly Company Projections and Actual, including Work In Progress Statements for the Bonding Company and Banks.

Vice President/General Superintendent, 2000 – 2002
Responsible for scheduling and coordination of labor, material and equipment for Columbus’ projects while managing productivity and efficiency through a staff of job superintendents. Monitored and edited project philosophies for maximum profitability utilizing a Computerized Cost Tracking System and reporting weekly with the Owner and project Managers for Cost Reviews and Job Forecasting. Manage Columbus Garage for the repair, maintenance and purchasing of Equipment and Small Tools including the establishment of a Computerized Inventory Program.

Project Manager, 1996 – 2000
Responsibilities included management of various projects. Tasks included: project scheduling billing, change order negotiation, owner liaison, material and subcontractor buyout, submittals and approvals. Project Leader working with a staff of project superintendents and project engineers monitoring project’s scheduling and profitability.

Project Superintendent, 1992 – 1996
Responsibilities included the daily scheduling of labor, material and equipment for Columbus’ projects while monitoring and seeking to maximize profitability.

Project Manager/Superintendent
Responsible for direct control of all field operations, including scheduling (CPM – Primavera), traffic logistics, client contact and correspondence, Order-on-Contract initializing and processing for various NYSDOT R-11 projects.

Superintendent/Project Engineer
Responsibilities included scheduling, procuring and directing personnel,
# KEVIN HANSON

**Superintendent**

Kevin's Heavy Civil experience includes knowledge in budgeting, planning and implementing work schedules, quality control, estimating, purchasing and information management. His previous work with pilings, superstructures, roadways, bridges and drainage operations offers a broad knowledge base which contributes to the successful completion of projects on time and within budget.

### Skills
- Document Control Management – Reading and interpreting plans, Submittals, RFI's, and Change Orders.
- Material/subcontractor buyouts.
- In-depth knowledge of FDOT - Specifications
- Scheduling – Work plans, critical lift plans, crews and subcontractors.
- Cost Control – Budgeting, production tracking, and pay applications.

### Overall Project Experience
- **Fort Lauderdale Runway Expansion** – Fort Lauderdale, FL
  Plant manager for an FDOT-certified precast prestressed concrete plant producing 118'-long Type VI Florida I-beams.
- **SE 15th Ave Bridges** – Fort Lauderdale, FL
  Major activities included demolition, concrete piling, prestressed concrete slab erection, and cast-in-place structural concrete.
- **Tamiami Trail (US 41) – AASHTO Beam Bridge** – Miami, FL
  Responsible for engineering and cost controls including – project schedule updates, pay applications, RFI's and submittals.
- **NW 5th Street – Bascule Bridge** – Miami, FL
  Responsible for piling, superstructure, roadway and drainage operations including - Procurement of materials, scheduling operations and managing subcontractors.
- **Miami Intermodal Connector (MIC)** – Miami, FL
  Inspected completed work for compliance with contract documents.

### Certifications & Special Training
- Licensed Professional Engineer
- ACI Concrete Transportation Construction Inspector
- ACI Concrete Field Testing Technician – Grade 1
- ATSSA Florida advances Work Zone Traffic Control Supervisor
- FDOT Pile Driving Inspector
- FDOT Concrete Field Technician – Levels 1 & 2
- FDOT Earthwork Construction Inspection – Levels 1 & 2
- FDOT Asphalt Paving Technician – Levels 1 & 2
- FDEP Qualified Storm water Management Inspector
11.6 List and describe all bankruptcy petitions (voluntary or involuntary) which have been filed by or against the Respondent, its parent or subsidiaries or predecessor organizations during the past three (3) years. Include in the description the disposition of each such petition.

None

12. List and describe all successful Performance or Payment Bond claims made to your surety(ies) during the last three (3) years. The list and descriptions should include claims against the bond of the Respondent and its predecessor organization(s).

None

12.1 Has the Respondent, its principals, officers or predecessor organization(s) been debarred or suspended from bidding by any government during the last three (3) years? If yes, provide details.

No

12.2 Under what conditions does the Respondent request Change Orders.

**Changed Conditions and Extra Work**

PRINT NAME OF BIDDER: Tutor Perini Fort Lauderdale-Hollywood Venture

5-1-2013
13. LITIGATION HISTORY REQUIREMENT: The COUNTY will consider a vendor's litigation history information in its review and determination of responsibility. All vendors are required to disclose to the COUNTY all "material" cases filed or resolved in the three (3) year period ending with the solicitation response due date, whether such cases were brought by or against the vendor, any parent or subsidiary of the vendor, or any predecessor organization. If the vendor is a joint venture, the information provided should encompass the joint venture (if it is not newly-formed for purposes of responding to the solicitation) and each of the entities forming the joint venture. For purpose of this disclosure requirement, a "case" includes lawsuits, administrative hearings and arbitrations. A case is considered to be "material" if it relates, in whole or in part, to any of the following:

13.1. A similar type of work that the vendor is seeking to perform for the COUNTY under the current solicitation;
13.2. An allegation of negligence, error or omissions, or malpractice against the vendor or any of its principals or agents who would be performing work under the current solicitation;
13.3. A vendor's default, termination, suspension, failure to perform, or improper performance in connection with any contract;
13.4. The financial condition of the vendor, including any bankruptcy petition (voluntary and involuntary); or
13.5. A criminal proceeding or hearing concerning business-related offenses in which the vendor or its principals (including officers) were/are defendants.

Notwithstanding the descriptions listed in paragraphs 13.1-13.5 above, a case is not considered to be "material" if the claims raised in the case involve only garnishment, auto negligence, personal injury, or a proof of claim filed by the vendor.

For each material case, the vendor is required to provide all information identified on the Litigation History Form.

A Vendor is also required to disclose to the COUNTY any and all case(s) that exist between the COUNTY and any of the vendor's subcontractors/subconsultants proposed to work on this project.

Failure to disclose any material case, or to provide all requested information in connection with each such case, may result in the vendor being deemed non-responsive. Prior to making such determination, the vendor will have the ability to clarify the submittal and to explain why an undisclosed case is not material.

PRINT NAME OF BIDDER: Tutor Perini Fort Lauderdale-Hollywood Venture
Z1145017C1 Terminal 4 Apron Expansion
at the Fort Lauderdale-Hollywood International Airport (FLL)
Document Submission: August 16, 2013 4:30PM

FORM 3 – Litigation History

For Vendor/Subcontractor Litigation History please refer to:
Tab 9 – Form 13 – Vendors List

Tutor Perini Fort Lauderdale-Hollywood Venture
5555 Anglers Avenue – Suite 1A
Ft. Lauderdale, FL 33312
Phone: (954) 414-9083/(954)964-6027
Fax: (954) 359-8579
## FORM 4: LITIGATION HISTORY

<table>
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<tr>
<th>Party</th>
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**NAME OF BIDDER:** Tutor Perini Corporation (formerly known as Perini Corporation)

5-1-2013
FORM 4: LITIGATION HISTORY

All vendors are required to disclose to the COUNTY all "material cases filed or resolved in the three (3) year period ending with the solicitation response due date, whether such cases were brought by or against the vendor, any parent or subsidiary of the vendor, or any predecessor organization.

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Description: This matter relates to TPC's construction of New Bedford High School in 1972. The original plaintiffs are three homeowners who sued the City of New Bedford in 2008 regarding environmental contamination at the Parker Street Waste Site, which is a state hazardous waste cleanup site. In March 2010, the City of New Bedford has impleaded a number of parties, including TPC. TPC is alleged to be liable as a result of moving contaminated material around during the construction of the New Bedford High School, located on the site.
Status: Pending

Case Name: KDC Systems, Inc. v. Johnson Controls, et al.
Court: Los Angeles Superior Court
Case No.: SC115327
Date Filed: 2011
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Description: TSC contracted with UCLA to construct the Project. Lower tier subcontractor has sued for breach of contract damages on project before construction has been completed.
Status: Pending

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Case Name: Shasta v. Becho, et al.
Court: AAA Arbitration and consolidated cases in Sacramento Superior Court
Case No.: AAA Case No.: 74 110 Y 00894 09 WYGI; 34-2009-00066490; 34-2011-0003939-CU-CL-ODS; 34-2011-00103761-CU-BC-ODS
Date Filed: 2009
Project: Shasta
Description: Becho filed a demand for arbitration with the American Arbitration Association ("AAA") pursuant to the terms of the Subcontract between Becho and Shasta, alleging breach of contract and prompt payment violations. Shasta filed a complaint in state court, in Sacramento County, for injunctive and declaratory relief seeking to prevent Becho from proceeding with its claims in AAA. Shasta also filed a counterclaim in AAA alleging claims for damages. The AAA arbitration hearing began in June, 2011, and ended in September, 2011. The Arbitrator awarded a net sum to Becho. A dismissal of the entire action was filed in Sacramento Superior Court in June 2012.
Status: Resolved
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Case Name: Brice Building Company, LLC v The State of Louisiana Department of Education, Recovery School District; and Yeates and Yeates Architects, LLC
Court: 19th Judicial District Court for the Parish of East Baton Rouge, State of Louisiana
Case No.:
Date Filed: 2013
Project: Replacement of Fannie C. Williams School
Description: Breach of Contract
Status: Pending

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Case Name: Desert Mechanical, Inc. v Walsh Austin Joint Venture
Court: Arbitration
Case No.: 7244140079812LGBAAA
Date Filed: 2012
Project: Tom Bradley International Terminal
Description: Desert Mechanical, Inc. ("DMI") was terminated for convenience. Walsh Austin Joint Venture (WAJV) failed to pay reasonable value of work performed.
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Case No.:
Date Filed: 2011
Project: 45th Street Hotel
Description: Breach of Contract
Status: Pending

Case Name: Five Star Electric Corp. v Waterscape Resort, LLC et al.
Court: New York County Supreme Court
Case No.: (consolidated with Five Star Electric v. Pavarini McGovern, LLC)
Date Filed: 2011
Project: 45th Street Hotel
Description: Foreclosure of mechanic’s lien; Recovery
Status: Pending

Case Name: Five Star Electric Corp. v City of New York (acting by and through the NYC DEP; NC36E)
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Case No.:
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Project: Newtown Creek Water Pollution Control Plant
Description: Breach of Contract
Status: Pending
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Case Name: Case Atlantic C. v. J.A. Cummings, Safeco Insurance Company of America, and Liberty Mutual Insurance Company
Court: Pinellas County Circuit Court
Date Filed: 2010
Description: Subcontractor dispute over payment of retention.
Status: Resolved

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Case Name: Arkel Anderson Joint Venture #2 v Jones Masonry Constructors, Inc.
Court: American Arbitration Association
Case No.:  
Date Filed: 2012
Project: Central Intermediate & Middle Schools
Description: Claim to recover all excess completion costs and delays costs
Status: Pending

SUPERIOR GUNITE

Case Name: Kone, Inc. v. Accent Builders, Inc., BC 446694, et al.
Court: Los Angeles Superior Court
Case No.: BC446694
Date Filed: 2012
Project: La Plaza de Cultura y Artes
Description: Superior Gunite Inc. ("SGI") performed work as a subcontractor on a project to restore two historic buildings in downtown Los Angeles owned by the County of Los Angeles. The prime contractor, Accent Builders Inc. ("ABI"), contracted to seismically retrofit and restore the two buildings for use by the leasee as a museum. After the contract was awarded, the leasee assigned the contract to the County of Los Angeles. The County has sued ABI and SGI under the California False Claims Act ("FCA") relating to extra work claims.
Status: Pending

Case Name: Superior Gunite v Yonkers Contracting Company, Inc.; Zurich America Insurance Company
Court: New York County Supreme Court
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Date Filed: 2013
Project: T1 Connector Tunnel and Ventilation Building and Station Entrance Structure at Site J
Description: Breach of Contract
Status: Pending

TUTOR-SALIBA CORPORATION

Case Name: Boelter Contact & Design, LLC v. Tutor-Saliba Corporation, Travelers Casualty & Surety Co. of America
Court: District Court, Clark County, NV
Case No.: A-09-598227-C
Date Filed: 2009
Project: Encore at Wynn Las Vegas
Description: Claims for additional payment for unapproved overtime, entitlements and work that is unsupported by backup.
Status: Settled

Case Name: MVE, Inc. v. Tutor-Saliba Corporation
Court: Los Angeles Superior Court
Case No.: PC053325
Date Filed: 2012
Project: I-5 Shasta County I-5 Bridge Replacement project
Description: TSC contracted with CalTrans to construct the Project. MVE was retained to provide surveying and engineering work. MVE abandoned the Project and filed suit for unpaid work.
Status: Pending

Case Name: Tutor-Saliba-Perini JV v Regents of the University of California
Court: Los Angeles Superior Court
Case No.: 
Date Filed: 2011
Project: Santa Monica UCLA Medical Center and Orthopaedic Hospital
Description: Breach of Contract
Status: Pending

WDF INC.

Case Name: Independent Temperature Control Services, Inc. v WDF Inc.; Fidelity & Deposit Co. of Maryland, M.A. Angeliades, Inc., Federal Insurance Co., and NYC School Construction Authority.
Court: Supreme Court of the State of New York, County of Queens
Case No.: 
Date Filed: 2011
Project: Art Leathers High School
Description: Compensatory Damages
Status: Pending

Case Name: WDF Inc. v City of New York
Court: New York County Supreme Court
Case No.: 
Date Filed: 2005
Project: Newtown Creek
Description: Delay Damages
Status: Stipulation of Discontinuance and Release signed 6-3-13

Case Name: Tyrek Heights Erectors, Inc. v WDF Inc., Fidelity and Deposit Company of Maryland, et al.
Court: New York County Supreme Court
Case No.: 
Date Filed: 2012
Project: Stations Projects
Description: Breach of Contract (WDF against Tyrek)
Status: Pending
**FORM 4: LITIGATION HISTORY**

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**NAME OF BIDDER:** Baker Concrete Construction, Inc.

5-1-2013
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NAME OF BIDDER: Tutor Perini Fort Lauderdale-Hollywood Venture
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Status: Pending

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Case No.: 
Date Filed: 2005
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Case No.: 
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* Additional Case Information Available Upon Request, if required.
FORM 5: DRUG FREE WORKPLACE CERTIFICATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

The undersigned Bidder hereby certifies that it will provide a drug-free workplace program by:

1. Publishing a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the offeror’s workplace, and specifying the actions that will be taken against employees for violations of such prohibition;

2. Establishing a continuing drug-free awareness program to inform its employees about:

   (i) The dangers of drug abuse in the workplace;

   (ii) The Bidder’s policy of maintaining a drug-free workplace;

   (iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

   (iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

3. Giving all employees engaged in performance of the Contract a copy of the statement required by subparagraph (1);

4. Notifying all employees, in writing, of the statement required by subparagraph (1), that as a condition of employment on a covered Contract, the employee shall:

   (i) Abide by the terms of the statement; and

   (ii) Notify the employer in writing of the employee’s conviction under a criminal drug statute for a violation occurring in the workplace no later than five (5) calendar days after such conviction;

5. Notifying Broward County government in writing within ten (10) calendar days after receiving notice under subdivision (4) (ii) above, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

6. Within thirty (30) calendar days after receiving notice under subparagraph (4) of a conviction, taking one of the following actions with respect to an employee who is convicted of a drug abuse violation occurring in the workplace:

   (i) Taking appropriate personnel action against such employee, up to and including termination; or

   (ii) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency; and

7. Making a good faith effort to maintain a drug-free workplace program through implementation of subparagraphs (1) through (6).
FORM 5: DRUG FREE WORKPLACE CERTIFICATION (continued)

Tutor Perini Fort Lauderdale - Hollywood Venture
(Print Vendor Name)

STATE OF New York

COUNTY OF Westchester

The foregoing instrument was acknowledged before me this 13th day of August, 2013, by Kevin J. Woods (name of person whose signature is being notarized) as Authorized Representative (title) of Tutor Perini Fort Lauderdale - Hollywood Venture (name of corporation/company), known to me to be the person described herein, or who produced driver's license as identification, and who did/did not take an oath.

NOTARY PUBLIC:

(Signature)

Christine A. Buggy
(Print Name)

My commission expires: 8/20/15

State of New York at Large (SEAL)
FORM 8: NON-COLLUSION CERTIFICATE

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

By submission of this bid, Bidder certifies that this bid is made independently and free from collusion. Bidder shall disclose below, to the best of its knowledge, any Broward County officer or employee, or any spouse, son, daughter, stepson, stepdaughter, or parent of any such officer or employee, who is an officer or director of, or has a material interest in, the Bidder's business who is in a position to influence this procurement. Any Broward County officer or employee who has any input into the writing of specifications or requirements, solicitation of offers, decision to award, evaluation of offers, or any other activity pertinent to this procurement is presumed, for purposes hereof, to be in a position to influence this procurement. For purposes hereof, a person has a material interest if he or she directly or indirectly owns more than five percent (5%) of the total assets or capital stock of any business entity, or if he or she otherwise stands to personally gain if the Contract is awarded to this vendor. Failure of a vendor to disclose any relationship described herein shall be reason for debarment in accordance with the provisions of the Broward County Procurement Code.

NAME RELATIONSHIPS

N/A N/A

N/A N/A

New York
STATE OF FLORIDA
Westchester ) SS.
COUNTY OF BROWARD

The foregoing instrument was acknowledged before me this 13th day of August, 2013, by Kevin J. Woods who is personally known to me or who has produced driver's license as identification and who did/did not take an oath.

WITNESS my hand and official seal, this 13th day of August, 2013.

(NOTARY SEAL)

Kevin J. Woods

(Name of officer taking acknowledgment - Typed, printed, or stamped)

Authorized Representative

(TITLE OR RANK) N/A

(SERIAL NUMBER, IF ANY)

5-1-2013

christine a. burley
Notary Public, State of New York
No. 01553172261
Qualified in Orange County
Term Expires August 24, 2015
FORM 9: LOBBYIST REGISTRATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

The Vendor, by virtue of the signature below, certifies that:

a. It understands if it has retained a lobbyist(s) to lobby in connection with a competitive solicitation, it shall be deemed non-responsive unless the firm, in responding to the competitive solicitation, certifies that each lobbyist retained has timely filed the registration or amended registration required under Section 1-262, Broward County Code of Ordinances; and

b. It understands that if, after awarding a contract in connection with the solicitation, the County learns that the certification was erroneous, and upon investigation determines that the error was willful or intentional on the part of the vendor, the County may, on that basis, exercise any contractual right to terminate the contract for convenience.

Based upon these understandings, the vendor further certifies that: (Check One)

1. x It has not retained a lobbyist(s) to lobby in connection with this competitive solicitation; however, if retained after the solicitation, the County will be notified.

2. _____ It has retained a lobbyist(s) to lobby in connection with this competitive solicitation and certified that each lobbyist retained has timely filed the registration or amended registration required under Section 1-262, Broward County Code of Ordinances. It is a requirement of this solicitation that the names of any and all lobbyists retained to lobby in connection with this solicitation be listed below:

<table>
<thead>
<tr>
<th>Name of Lobbyist</th>
<th>Lobbyist's Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Name of Lobbyist</td>
<td>Lobbyist's Firm</td>
</tr>
<tr>
<td>Name of Lobbyist</td>
<td>N/A</td>
</tr>
<tr>
<td>STATE OF</td>
<td>Lobbyist's Firm</td>
</tr>
<tr>
<td>New York</td>
<td>Tutor Perini Fort Lauderdale - Hollywood Venture</td>
</tr>
<tr>
<td>COUNTY OF</td>
<td>(Vendor Signature)</td>
</tr>
<tr>
<td>Westchester</td>
<td>(Print Vendor Name)</td>
</tr>
</tbody>
</table>

The foregoing instrument was acknowledged before me this 13th day of August, 2013, by

Kevin J. Woods

(Name of person who's signature is being notarized) as Authorized Representative of

Tutor Perini Fort Lauderdale - Hollywood Venture

(Title)

known to me to be the person described herein, or

(Name of Corporation/Company)

who produced driver's license as identification, and who did/did not take an oath.

My commission expires: 5-1-2013

5-1-2013
FORM 10: OWNER CONTROLLED INSURANCE PROGRAM CERTIFICATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

The undersigned vendor hereby certifies that:

1. The vendor has read and understands the insurance requirements set forth in the contract documents, including but not limited to the Owner Controlled Insurance Program ("OCIP") requirements set forth in the general conditions, and in the OCIP Insurance Manual, and the OCIP Safety and Loss Prevention Manual.

2. The vendor acknowledges and understands that the OCIP will provide to enrolled parties, as specified in the insurance requirements, workers’ compensation and employer’s liability insurance, commercial general liability insurance, excess liability insurance, builder’s risk insurance, U.S. Longshoremen & Harbor Workers’ act, Jones Act and contractor’s pollution liability insurance.

3. The vendor has removed from its bid or bids submitted for the project the cost to provide any of the insurance provided under the OCIP, as instructed in the insurance requirements, and vendor shall not include, in any request for payment, request for compensation, change order, or claim, any of vendor's costs to provide the insurance coverages provided under the OCIP.

4. The vendor acknowledges and understands that vendor will still be required to provide additional insurance for risks and losses not covered by the OCIP, including but not limited to automobile liability insurance, commercial general liability insurance, workers’ compensation, and employer’s liability insurance, for off-site exposures, and such other insurance as required by owner, all as specified in the insurance requirements.

5. The vendor acknowledges and understands that COUNTY, its agents, employees, and officers, and the OCIP administrator, are not and have not acted as an insurance agent or broker for vendor. Vendor has reviewed and understands the OCIP coverages, and has solely relied upon vendor’s own independent review and analysis of the OCIP coverages in formulating any understanding and/or belief as to the amount, nature, type, or extent of any OCIP coverage and its potential applicability to any potential claim or loss, or in deciding, in whole or in part, to submit a bid for the project.

6. The vendor acknowledges and agrees that COUNTY, its agents, employees, and officers, and the OCIP administrator are not agents, partners, or guarantors of the insurance companies providing coverage under the OCIP, and that neither COUNTY, its agents, employees, officers, nor the OCIP Administrator are responsible for any claims or disputes between or among vendor and any OCIP insurer.
FORM 10: OWNER CONTROLLED INSURANCE PROGRAM CERTIFICATION  
(continued)

Tutor Perini Fort Lauderdale - Hollywood Venture  
VENDOR
By: [Signature]

Kevin J. Woods, Authorized Representative  
(Print/Type Name and Title)

STATE OF New York
COUNTY OF Westchester

The foregoing instrument was acknowledged before me this 13th day of August, 20___, by Kevin J. Woods (Name of person whose signature is being notarized) as Authorized Representative (Title) of Tutor Perini Fort Lauderdale - Hollywood Venture (Name of Corporation/Company) known to me to be the person described herein, or who produced driver's license

(Type of Identification) as identification, and who did/did not take an oath.

[Signature]

CHRISTINE A. BUBEY  
Notary Public, State of New York;  
No. 018L6172961  
Qualified in Orange County  
Term Expires August 31, 2015

My commission expires: 8/2015

5-1-2013
FORM 11: SCRUTINIZED COMPANIES CERTIFICATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

The Vendor, by virtue of the signature below, certifies that:

a. The Vendor, owners, or principals are aware of the requirements of Section 287.135, Florida Statutes, regarding Companies on the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List; and

b. The Vendor, owners, or principals, are eligible to participate in this solicitation and not listed on either the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List; and

c. If awarded the Contract, the Vendor, owners, or principals will immediately notify the COUNTY in writing if any of its principals are placed on the Scrutinized Companies with Activities in Sudan List or on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

[Signature]
(Authorized Signature)

Kevin J. Woods, Authorized Representative
(Print Name and Title)

Tutor Perini Fort Lauderdale - Hollywood Venture
(Name of Firm)

STATE OF New York

COUNTY OF Westchester

The foregoing instrument was acknowledged before me this 13th day of August, 2013,
by Kevin J. Woods
(Name of person whose signature is being notarized)
as Authorized Representative
>Title)
of Tutor Perini Fort Lauderdale - Hollywood Venture
(Name of Corporation/Company)

known to me to be the person described herein, or who produced

driver's license
(Type of Identification)

[Signature]
(Notary Public)

My commission expires: 8/20/15

5-1-2013
FORM 12: TRENCH SAFETY ACT CERTIFICATION

THIS FORM SHOULD BE SUBMITTED WITH THE BID; OR IF NOT SUBMITTED WITH BID, IT MUST BE SUBMITTED WITHIN 5 BUSINESS DAYS OF REQUEST FROM THE COUNTY.

On October 1, 1990 House Bill 3181, known as the Trench Safety Act became law. This incorporates the Occupational Safety & Health Administration (OSHA) revised excavation safety standards, citation 29 CFR.S.1926.650, as Florida's own standards.

The Bidder, by virtue of the signature below, affirms that the Bidder is aware of this Act, and will comply with all applicable trench safety standards. Such assurance shall be legally binding on all persons employed by the Bidder and subcontractors. The Bidder is also obligated to identify the anticipated method and cost of compliance with the applicable trench safety standards.

BIDDER ACKNOWLEDGES THAT INCLUDED IN THE VARIOUS ITEMS OF THE PROPOSAL AND IN THE TOTAL BID PRICE ARE COSTS FOR COMPLYING WITH THE FLORIDA TRENCH SAFETY ACT. THESE ITEMS ARE A BREAKOUT OF THE RESPECTIVE ITEMS INVOLVING TRENCHING AND WILL NOT BE PAID SEPARATELY. THEY ARE NOT TO BE CONFUSED WITH BID ITEMS IN THE SCHEDULE OF PRICES, NOR BE CONSIDERED ADDITIONAL WORK.

COMPLETION REQUIRES FILLING IN THE APPROPRIATE DETAILS UNDER THE HEADINGS, i.e., DESCRIPTION, UNIT, QUANTITY, UNIT PRICE, EXTENDED, AND METHOD.

The Bidder further identified the costs and methods summarized below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Extended</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structures LS</td>
<td>LS</td>
<td>1</td>
<td>49,152'</td>
<td>49,152'</td>
<td>SHEETING</td>
</tr>
<tr>
<td>Pipe</td>
<td>LF</td>
<td>18445'</td>
<td>1.869</td>
<td>34,847'</td>
<td>TRENCH Box</td>
</tr>
</tbody>
</table>

Total $75,000

Tutor Perini Fort Lauderdale - Hollywood Venture
Name of Bidder

Authorized Signature of Bidder

5-1-2013
### FORM 13: VENDORS LIST (NON-CERTIFIED SUBCONTRACTORS AND SUPPLIERS)

This form should be submitted with the bid; or if not submitted with the bid, it must be submitted within 5 business days of request from the county.

Provide this information for any sub vendor(s) who will provide a service to the county for this solicitation. This includes major suppliers as well.

1. Firm’s Name: ___________________________  See Attachment "Vendors List"

2. Firm’s Address: ___________________________

3. Firm’s Telephone Number: ____________  Firm Email Address: ____________

4. Contact Name and Position: ___________________________

5. Alternate Contact Name and Position: ____________

6. Alternate Contact Telephone Number: ____________  Email Address: ____________

7. Bid/Proposal Number: ____________  Contracted Amount: ____________

8. Type of Work/Supplies Bid: ____________  Award Date: ____________

I certify that the information submitted in this report is in fact true and correct to the best of my knowledge.

[Signature]  Perini Fort Lauderdale - Hollywood Venture  8/13/13

Note: The information provided herein is subject to verification by the Purchasing Division. Use additional sheets for more subcontractors or suppliers as necessary.
IN THE COUNTY COURT OF THE SEVENTEENTH JUDICIAL CIRCUIT
IN AND FOR BROWARD COUNTY, FLORIDA

BROWARD COUNTY, a political
Subdivision of the state of
Florida,

Plaintiff,

vs.

COMMUNITY ASPHALT CORPORATION,
a Florida corporation,

Defendant.

______________________________  
SUMMONS

THE STATE OF FLORIDA:

To Each Sheriff of the State:

YOU ARE COMMANDED to serve this summons and a copy of the complaint or petition in this action on defendant COMMUNITY ASPHALT CORPORATION, by serving its president: Ignacio Halley, 9725 NW 117th Avenue, Suite 110, Miami, Florida 33178.

Each defendant is required to serve written defenses to the complaint or petition on Maya Moore, Assistant County Attorney for Broward County, whose address is 115 South Andrews Avenue, Room 423, Fort Lauderdale, Florida 33301, within 20 days after service of this summons on that defendant, exclusive of the day of service, and to file an original of the defenses with the clerk of this court either before service on plaintiff's attorney or immediately thereafter. If a defendant fails to do so, a default will be entered against that defendant for the relief demanded in the complaint or petition.

DATED on this _____ day of January, 2012.

Howard C. Forman
As Clerk of the Circuit Court for the Seventeenth Judicial Circuit

By ____________________________
As Deputy Clerk

SEAL

BROWARD COUNTY, FLORIDA

12-00514

COCE
IN THE COUNTY COURT OF THE SEVENTEENTH JUDICIAL CIRCUIT
IN AND FOR BROWARD COUNTY, FLORIDA

BROWARD COUNTY, a political subdivision of the state of Florida,

Plaintiff,

vs.

COMMUNITY ASPHALT CORPORATION, a Florida corporation,

Defendant.

COMPLAINT

COMES NOW Plaintiff, BROWARD COUNTY (the "County") by and through undersigned counsel and sues Defendant COMMUNITY ASPHALT CORPORATION ("Community Asphalt") and alleges:

1. This is an action for damages not exceeding fifteen thousand dollars ($15,000.00).

2. At all times material to this complaint, the County was and is a political subdivision of the state of Florida.

3. At all times material hereto, defendant Community Asphalt was and is a Florida corporation doing business in Broward County, Florida.

4. The actions giving rise to this cause of action occurred in Broward County, Florida. Accordingly, venue is proper in Broward County, Florida. See §§47.011 and 47.051, Fla. Stat. (2011).

5. On or about August 5, 2009, Community Asphalt was the contractor assigned to a road improvement project on NW 36th Terrace Broward County Water and Wastewater Services Project No. 9142 that required digging up the roadway.
6. At said time and place, Community Asphalt broke four valve boxes and the stem of one eight inch gate valve owned by the County while performing the work.

7. Community Asphalt had a duty to exercise reasonable care in digging up the roadway.

8. Community Asphalt breached this duty by:
   a. Failing to request utility locations prior to paving as required by statute;
   b. Failing to protect the installed valve boxes above the subgrade and painted blue for heightened visibility;
   c. Failing to exercise due care during the course of construction;
   d. Causing damage to the valves;
   e. Failing to adequately supervise construction.

9. As a direct and proximate result of Community Asphalt's negligence, the County sustained damages in the amount of thirteen thousand six hundred seventy-eight dollars and forty-six cents ($13,678.46). See copy of invoices attached hereto as Exhibit "A".

WHEREFORE, the County demands judgment for its damages in the amount of thirteen thousand six hundred seventy-eight dollars and forty-six cents ($13,678.46), plus court costs, filing fees, pre-judgment and post judgment interest and any other relief the court deems just and proper.

JONI ARMSTRONG COFFEY
Broward County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (954) 357-7600
Facsimile: (954) 357-7641

By

Maya Moore
Assistant County Attorney
Florida Bar No. 35414
IN THE COUNTY COURT OF THE 17TH JUDICIAL CIRCUIT IN AND FOR BROWARD COUNTY, FLORIDA

BROWARD COUNTY, a political Subdivision of the state of Florida,

Plaintiff,

vs.

COMMUNITY ASPHALT CORPORATION, a Florida corporation,

Defendant.

ORDER OF DISMISSAL WITH PREJUDICE

THIS CAUSE coming on to be heard upon the above and foregoing Stipulation, and the Court being otherwise duly advised in the premises thereof, it is

ORDERED AND ADJUDGED that the above and foregoing cause be and the same is hereby dismissed with prejudice to Plaintiff herein, and Defendant shall go hence without day, and that each party shall bear its own costs and attorney's fees heretofore and herein incurred.

DONE AND ORDERED in Chambers, at Ft. Lauderdale, Broward County, Florida, this ____ day of ____________, 2012.

ROBERT W. LEE
DEC 31 2012
JUDGE ROBERT W. LEE TRUE COPY

Copies furnished to:
Maya Moore, 115 South Andrews Avenue Suite 423, Ft. Lauderdale, FL 33301
Joe Hankin, 7450 Griffin Road, Suite 270, Davie, FL 33314
<table>
<thead>
<tr>
<th>Form 13, Vendor List</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vendor</strong></td>
</tr>
<tr>
<td><strong>Blade Engineering &amp; Fabrication, Inc.</strong></td>
</tr>
<tr>
<td><strong>Central Equipment Company</strong></td>
</tr>
<tr>
<td><strong>Crown Chemical Company</strong></td>
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<tr>
<td><strong>Danner Chemical Company</strong></td>
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<tr>
<td><strong>Ferguson Chemical Company</strong></td>
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<tr>
<td><strong>Gulf South Chemical Company</strong></td>
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<tr>
<td><strong>Hunt Chemical Company</strong></td>
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<tr>
<td><strong>Koch Chemical Company</strong></td>
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<tr>
<td><strong>Lafarge Chemical Company</strong></td>
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<td><strong>Metcalf Chemical Company</strong></td>
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<tr>
<td><strong>Midwest Chemical Company</strong></td>
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<tr>
<td><strong>National Chemical Company</strong></td>
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<tr>
<td><strong>O'Reilly Chemical Company</strong></td>
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<tr>
<td><strong>Parker Chemical Company</strong></td>
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<tr>
<td><strong>Reed Chemical Company</strong></td>
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<td><strong>Richter Chemical Company</strong></td>
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<td><strong>S&amp;S Chemical Company</strong></td>
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<td><strong>Sherwin-Williams Chemical Company</strong></td>
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<td><strong>Stokes Chemical Company</strong></td>
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<tr>
<td><strong>Taylor Chemical Company</strong></td>
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<tr>
<td><strong>United Chemical Company</strong></td>
</tr>
<tr>
<td><strong>Ward Chemical Company</strong></td>
</tr>
<tr>
<td><strong>Wexner Chemical Company</strong></td>
</tr>
</tbody>
</table>
Project Title & Description: B-C Apron Reconstruction
Airport Designation: BWI - Large Hub Airport
Initial Award Amount: $17,677,652 + 20% base + Alternates 1, 2, 3, & 4
Change order history: N/A
Final Construction Cost: $14,192,979
Date of Completion: 2007
Client's contact Name: Cons.Mills
Phone Number: 410.694.0394
Email: smills@bwlgpa1.com

Project Scope:
- Sacrifice paving, approximately 74,600 sq. yds
- Trench drains
- Grading and excavation
- Taxiway lighting, airport lighting systems, and glycol power & control systems
From: Chris Mills [mailto:cmills1@bwiairport.com]
Sent: Tuesday, August 13, 2013 5:39 PM
To: Bernie Beauchemin
Subject: RE: Reference Project B-C Aprons Reconstruction at BWI Airport MAA-CO-05-001

Bernie,

This is to confirm the following:

Cherry Hill Construction completed the BC Apron Reconstruction (Maryland Aviation Administration Contract MAA-CO-05-001, AIP Grant No. 3-24-0005-076/077) at BWI Airport on August 11, 2006, which was 79 days earlier than the contractual completion date of October 29, 2006. The original bid was $17,477,605.43 and the final constructed cost was $14,255,509.21. No change order was required.

Chris Mills, PM

Parsons

CMI Consultant to the MAA

410-977-7231 cell

410-694-0694 office
LOS ANGELES INTERNATIONAL AIRPORT

Project Title & Description: LAX Runway 25L Relocation & Center Taxiway Improvements
Airport Designation: LAX - Large Hub Airport
Initial Award Amount: $261,770,113
Change order history: 135 change orders issued by LAWA
Final Construction Cost: $262,669,077
Date of Completion: June 15, 2008
Client's contact Name: Mark Massman
Phone Number: (408) 942-6167
Email: mark.massman@vta.org

Project Scope:
- Placed approximately 326,000 CY of concrete and FCO for the runways, taxiways, and aircraft parking aprons using an on-site batch plant.
- Excavation and grading included 600,000 CY of cut and fill.
- Construction included a new fiber optics system, airfield lighting, and other utilities.
From: Massman, Mark [Mark.Massman@vta.org]
Sent: Wednesday, August 14, 2013 8:51 AM
To: Mike Barge; Christine Busey; Ardita Krasniqi
Cc: Stephen Buschmeyer
Subject: RE: LAX Information

While I was at LAWA through the design, award, and launch of this construction project I was not there through completion. Subsequent to completion conversations I have had with Jake Adams the LAWA Project Manager on the project, indicated that LAWA feels that Tutor-Saliba performed very well on this project!

Mark

Project Title and Description
LAX 25L South Runway Relocation and Center Taxiway Improvements Airport Designation LAX Initial Award Amount
$241,770,113
Change Order History
135 change orders issued by LAWA
Final Construction Cost
$266,609,077
Date of Completion
June 15, 2008
Client’s Contact Name
Mark T. Massman, P.E.
Former Deputy Executive Director for Project and Facilities Development, Los Angeles World Airports Current Project Director Silicon, Valley Berryessa Extension Project, Santa Clara Valley Transportation Authority Phone Number
(408) 942-6107
E-mail Address
mark.massman@vta.org<mailto:mark.massman@vta.org>
"The importance of completing construction as quickly as possible was paramount and the TPC JV team overcame numerous challenges to deliver this project on schedule and on budget."

—Jake Adams, AIP Program Manager, Los Angeles World Airports
October 1, 2009

Re: Runway 25L Relocation and Center Taxiway Improvements
Los Angeles International Airport

To Whom It May Concern:

In December 2005, Tutor-Saliba Corporation/O&G Industries, Inc. JV (TSC/O&GJV) was awarded a $242 million contract for construction of the Runway 25L Relocation and Center Taxiway Improvements project.

This project required an unprecedented eight month closure of one of Los Angeles International Airport’s (LAX) busiest runways. As such, Los Angeles World Airports (LAWA) made strong commitments to the Federal Aviation Administration, the airlines, adjacent communities, and other stakeholders that the runway closure and its associated impacts would be kept to a minimum. The importance of completing construction as quickly as possible was paramount and the TSC/O&G JV team overcome numerous challenges to deliver this project on schedule and on budget.

I am pleased to provide this letter of recommendation for TSC/O&G JV and their project team is to be commended for all of their efforts in making this project a tremendous success.

Sincerely,

Jake Adams
SAIP Program Manager

JLA:jla
Project Title & Description: JFK - Runway 18R-36L Repave, Repair & Improvements

Airport Designation: JFK - LaGuardia Airport

Initial Award Amount: $204,000.00

Change order history: 8/2/95 $55,000.00; 2/28/96 $5,000.00 (Estimated work and net cost work only)

Final Construction Cost: $328,332.912.07 (Classified work and unclassified work-est.)

Date of Completion: November 18, 2010

Client's contact Name: Thomas Amico, P E, Engineer of Construction

Phone Number: (718) 246-4646

Email: tamico@pengruff.com

Project Scope:
- Widening and resurfacing of the Runway, including taxiway extensions, lighting, and navigation equipment.
- Approximately 2,300 CY of concrete placed on the taxiway which is 300 ft wide and 18 in. thick.
- Installed, sealed, and maintained a mobile concrete batch plant onsite.
- PCC Pavement - 340,480 CY Runway and taxiway.
- Asphalt paving - 34,000 tons.
From: Amola, Thomas [mailto: tamola@panynj.gov]
Sent: Thursday, August 15, 2013 7:38 AM
To: Muneeruddin Ahmed
Cc: Damon Petrillo
Subject: JFK 1020 Reference Information

Muneer,

As per your request, the following is a summary for the Bay Runway which Tutor Perini completed at JFK.

Project Title and Description: JFK 1020 – Runway 13R-31L Reconstruction and Access Improvements
Airport Designation: John F. Kennedy International Airport
Initial Award Amount: $204,000,000.00
Change Order History: $14,915,438.52 (Extra Work and Net Cost Work Only)
Final Construction Cost: $208,135,812.47 (Classified Work and Unclassified Work Only)
Date of Completion: 11/15/2010
Client’s Contact Name: Thomas Amola, PE - Engineer of Construction
Phone Number: (718) 244 - 4194
E-mail Address: tamola@panynj.gov

If you need any additional assistance, please let me know.

Tom
"I want to thank our Port Authority team, our main contractor Tutor Perini, the FAA and all of the airlines for the incredible amount of planning and coordination that went into making this project so successful."

—Chris Ward, Port Authority Executive Director, John F. Kennedy International Airport
July 15, 2010

Mr. Damon Petrillo, Project Manager
Perini Corporation
1022 Lower South Street
Peekskill, NY 10566

SUBJECT: JOHN F. KENNEDY INTERNATIONAL AIRPORT—CONTRACT JFK 1020
RUNWAY 13R-31L RECONSTRUCTION AND ACCESS IMPROVEMENTS

Dear Mr. Petrillo:

I want to take this opportunity to congratulate you and your company on your early completion of the 120 day milestone, consequently entitling your company to the $5,000,000 bonus as stipulated in the Contract Specification Section 30A. entitled “Additional Compensation for Early and on Time Completion”

We look forward to working together for the successful completion of the remainder of the Contract.

Yours truly,

[Signature]

Thomas Amiola, P.E.
Engineer of Construction
JFK International Airport

TA/as
Project Title & Description: Dulles Airport, Taxiway E, Phase II & Tunnel Boxes
Airport Designation: IAD - Large Hub Airport
Initial Award Amount: $32,668,546
Change order history: N/A
Final Construction Cost: $32,205,626
Date of Completion: 2004
Client's contact Name: Gerald Stevers
Phone Number: (703) 417-0032
gerald.stevers@mwaq.com

Project Scope:
- New taxiway; 3000 ft. long x 320 ft. wide
- Stormwater management facilities & utility work
- Taxiway lighting
- 2 12,000 CY of excavation to off-site
- Demolition & removal of existing pavement
- 4 tunnels under taxiway; 3 at 530 ft. long each; one at 460 ft.
- Armor lighting systems and storm drainage
From: Myrah, Richard [mailto:Richard.Myrah@MWAA.com]
Sent: Wednesday, August 14, 2013 1:03 PM
To: Bernie Beauchemin
Subject: RE: MWAA 1-01-C083 - Dulles Airport Taxiway F, Phase II & Tunnel Boxes

Mr. Beauchemin,

We can confirm that Cherry Hill Construction completed contract 1-01-C083 entitled “Taxiway F Phase 2 & Taxiway F Tunnel Boxes” at Washington Dulles International Airport. The work started on 12/10/2001 and was completed on 10/1/2003. The final contract amount was $32,200,644.08.

The contracting officer and field staff for the project have left the Authority.

Richard Myrah  
Contracts Manager  
MWAA
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that Tutor Perini Corporation and Baker Concrete Construction, Inc. constituting all of the venturers of the joint venture known as Tutor Perini Fort Lauderdale-Hollywood Venture and appoints Tutor Perini Corporation, one of the venturers hereinafter called the "Management Sponsor", as their true and lawful attorney with the power, on their behalf and in the name of the joint venture, to execute the Bid, all Contracts, change orders, and requests for payment arising therefrom in regards to the Fort Lauderdale Hollywood Airport – Terminal 4 Apron Expansion – Solicitation No. Z1145017C1 at the Fort Lauderdale – Hollywood International Airport and to act for and bind the undersigned and the joint venturers in all matters in connection with the Bid and Contracts arising therefrom; and the undersigned specifically acknowledge and agree that the execution of the Bid and Contract arising therefrom by Management Sponsor shall constitute the agreement of each joint venturer to be jointly and severally liable for any and all the duties and obligations of the joint venture assumed under the Bid and under any Contract arising therefrom.

THAT Tutor Perini Fort Lauderdale-Hollywood Venture, a venture organized under the laws of the State of Florida acting through its duly authorized representatives, does hereby constitute and appoint KEVIN J. WOODS, its true and lawful attorney-in-fact, with full power and authority for and on behalf of the company and as its corporate act and deed, to execute and deliver requests, qualifications, proposals, contracts, agreements, instruments, certificates and other ancillary documents in connection with the Fort Lauderdale Hollywood Airport – Terminal 4 Apron Expansion – Solicitation No. Z1145017C1.

HEREBY GIVING AND GRANTING unto said attorney-in-fact, full power and authority as aforesaid to do and perform any act whatsoever requisite or necessary to be done in furtherance of the aforesaid authority for and on behalf of, and in the name of Tutor Perini Fort Lauderdale-Hollywood Venture, and the venture hereby ratifies and confirms all that said attorney-in-fact shall lawfully do or cause to be done by virtue of these presents.

IN WITNESS WHEREOF, the undersigned have executed this Power of Attorney this 30th day of July, 2013.

TUTOR PERINI CORPORATION

BY: /s/ Jack A. Frost
    Jack A. Frost
    Executive Vice President
    CEO – Civil Group

BAKER CONCRETE CONSTRUCTION, INC.

BY: /s/ Daniel L. Baker
    Daniel L. Baker
    Founder / CEO
AMENDMENT TO JOINT VENTURE AGREEMENT

For The

“TUTOR PERINI FORT LAUDERDALE - HOLLYWOOD VENTURE”

WITNESSETH:

WHEREAS, the parties have agreed to amend the Joint Venture Agreement as follows:

AMENDMENT #2: This Joint Venture Agreement dated April 5th, 2013 is amended to include the following project:


In WITNESS WHEREOF, the parties have caused this Joint Venture Agreement to be amended by their duly authorized officers.

ON THIS DATE: 7/31/2013

ATTEST:

TUTOR PERINI CORPORATION

By: Jack A. Frost
Executive Vice President
CEO-Civil Group

BAKER CONCRETE CONSTRUCTION, INC

By: Daniel L. Baker – President