INVITATION
FOR BID

SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT

IFB # 18PB021

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INSTRUCTIONS TO BIDDERS	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

The City of Scottsdale Airport invites sealed submittals for reconstruction of approximately 36,000 sq. yards of existing aircraft parking area known as the Delta Apron. The pavement was originally constructed in 1980 and has exceeded its life expectancy by 18 years. This project is federally funded and has a federal DBE Goal of 7.05%.

SOLICITATION CRITICAL DATES	
BID SUBMITTAL DUE:	**3:00 P.M., LOCAL TIME, MAY 1, 2018**
MANDATORY PRE-BID CONFERENCE:	**10:00 A.M., LOCAL TIME, APRIL 17, 2018**
QUESTIONS DUE:	**10:00 A.M., LOCAL TIME, APRIL 23, 2018**
APPROVED ALTERNATE SUBMITTALS DUE:	**10:00 A.M., LOCAL TIME, APRIL 23, 2018**

1. SUBMITTAL RECEIPT AND OPENING

SEALED SOLICITATION SUBMITTALS WILL BE RECEIVED until **3:00 P.M., LOCAL TIME, MAY 1, 2018** at the Purchasing Department Front Desk located on the second floor of the Scottsdale Corporation Yard Building at 9191 E. San Salvador Dr., Scottsdale, AZ 85258. ***All submittals must be date and time stamped at the Purchasing Department front desk on or before the submittal receipt time and date*. LATE SUBMITTALS WILL NOT BE ACCEPTED.** To allow staff to complete required internal administrative functions, submittals will be opened and read and the name of each Bidder recorded as a matter of public information within thirty (30) minutes after the receipt time and date have past.

No Submittal will be considered unless it is submitted on the forms contained herein. ***All submittals must be presented in a sealed envelope or box.*** The outside of the submittal must be clearly marked with the solicitation number, solicitation title and the submitting company's name. This includes envelopes delivered by Fed Ex, UPS, DHL or other carrier.

2. MANDATORY PRE-BID CONFERENCE

A Mandatory Pre-Bid Conference will be held at **10:00 A.M., LOCAL TIME, APRIL 17, 2018,** at the North Corp Yard, Procurement Conference Room (2nd Floor), located 9191 E. San Salvador Dr., Scottsdale, AZ 85258. This mandatory Pre-Bid Conference is open to all the public and all individuals in attendance will be required to sign in on the mandatory Pre-Bid Conference sign-in sheets. Companies planning to submit a bid **must** have a company employee physically present at the Pre-Bid Conference. **ONLY** bids received from companies that physically attended and signed in at the mandatory Pre-Bid Conference will be considered responsive. This will be the **ONLY** visit provided.

3. INFORMATION REQUESTS

Requests for additional information relating to this bid should be directed to:

Karie Ingles, CPPB
Bid & Contract Specialist
480-312-5744
kingles@scottsdaleaz.gov

lh
4/5/2018 1:06 PM

Revised 02/28/2018 – Doc#8296722-v65
COS Construction Template

4. SOLICITATION QUESTIONS

The Bidder shall submit all questions, requests for clarification and inquiries in regards to this Solicitation to Karie Ingles, no less than eight (8) days prior to the original Solicitation opening date. It is preferred that all questions be submitted via email to the appropriate purchasing staff, kingles@scottsdaleaz.gov, where possible. When submitting any questions the Bidder should indicate the page number, Section Number/Clause Title and if possible paragraph number that is being questioned.

Prospective Bidders shall give notice, in the form of written questions before the bid opening on any item or issue in this solicitation that you believe should not be included or contained in any amendment to this solicitation or that the City failed to include in this solicitation that should have been included, and by your notice, the City could have cured the problem if the item or issue had been timely raised or objected to.

Failure to give notice may constitute a waiver of your right to object to the inclusion or lack of inclusion of the item or issue in this solicitation in any subsequent protest filed by you.

All questions, regardless of the method they are communicated (email, regular mail or hand delivered), must be clearly marked as “Solicitation Questions” and state the Solicitation number in the subject line of the email or on the outside of the envelope. If questions are not submitted via email, the submittal envelope **MUST** be clearly marked with Solicitation number and words “SOLICITATION QUESTIONS”, or it may be mistaken as an actual bid submittal and not be opened immediately.

All Solicitation questions **MUST** be received by the Purchasing Division no later than **10:00 A.M., LOCAL TIME, APRIL 23, 2018**. Any inquiries received after the specified time will be reviewed on an individual basis by the Purchasing staff to determine if a response would be advantageous for the City.

5. APPROVED ALTERNATES

Specifications and plans, if applicable, may contain references to service requirements, equipment and/or materials (patented or unpatented) or "approved alternate(s)." Such references shall be regarded as establishing a standard of quality, finish, appearance, performance or as indicating a selection or design based upon compatibility with existing equipment, materials or details of construction (if applicable) inherent to the project design. Such references shall not be construed as limiting the selection to a specified item, source or design detail. The use of an alternate or substitute item or source as an approved alternate will be permitted, subject to the following procedure and pursuant to ARS 34-104 if the subject matter of this solicitation involves construction.

5. APPROVED ALTERNATES – CONT'D

a. The Bidder shall submit a written Request for Alternate approval to the contact person listed on page one of this solicitation at least eight (8) days prior to the original deadline for receiving Bids. Requests for alternates submitted to the City's contracted Consultant or other City Staff shall not be reviewed. The submittal envelope must be clearly marked with Solicitation Number and **"*REQUEST FOR APPROVED ALTERNATE*"**. Requests must be time stamped by the Purchasing Division by **10:00 A.M., LOCAL TIME, APRIL 23, 2018**. The approved alternate request shall include all information necessary for proof of quality and suitability for substitution including benefits, engineering design and data (calculations) and/or detailed plan modifications which may be required by the substitution. The Bidder shall submit additional information and/or samples when required.

The Contract Administrator or his representative, will evaluate the information submitted, perform tests when necessary and make comparisons in order to approve or reject the proposal. If rejected, the Contract Administrator shall give notice of rejection to the Bidder submitting the request for approved alternate.

b. Purchasing, if the request for approved alternate is accepted, shall issue a written addendum to the Solicitation specifying the approved alternates and publish the modification in the same manner as the original solicitation documents.

c. The Specifications may reference equipment or materials "or alternate". The reference to "or alternate" shall be construed to mean "or approved alternate" in every instance. Use of an alternate or substitute item shall be allowed only if approval was received as outlined in this Section.

d. For purposes of submitting a Request for Approved Alternate, the "Bidder" is defined as the person or firm entering a submittal to the City in response to this solicitation. Therefore the City will not entertain any submittal for an approved alternate from any party not meeting the definition of bidder.

6. ENVIRONMENTAL PROCUREMENT POLICY

The City has established an Environmental Procurement Policy which encourages the inclusion of environmentally responsible products and services available to meet the intended purpose. We encourage the offer of alternatives that broaden the range of environmentally responsible products or services that will meet the performance requirements of this solicitation. IF YOU WISH TO SUBMIT AN ALTERNATIVE, follow the procedures specified in the Instructions to Bidders, Approved Alternate Section of this document, unless the approved alternate clause has been deemed not applicable.

7. PURCHASING WEB SITE

The Purchasing web site provides a wide variety of information including: capability to download solicitations and plan sheets (if applicable), how to introduce your products, list of Buyers commodity lines, etc. The web site can be accessed at http://www.scottsdaleaz.gov/Purchasing. Registering and downloading a solicitation will also provide the supplier with notices of all addenda that are issued.

8. DOWNLOADING SOLICITATIONS

All solicitation documents, plan sheets/drawings, if applicable, and addenda are available for download in .pdf format. Bidders may print their own copies of these documents or provide the files to any reprographics/copy center in their area. Bidders will no longer be able to pick-up these documents at the Purchasing Department and plan shipments are no longer available. There will be one set of plan sheets/drawings (if applicable) available for onsite review only at the Purchasing office located at 9191 E. San Salvador Dr., Scottsdale, AZ 85258.

You must download the solicitation from the Purchasing web site at https://eservices.scottsdaleaz.gov/Solicitations/Solicitation in order to be automatically notified of associated addenda.

9. EMAIL NOTIFICATION

The City of Scottsdale does not maintain a Bidder list; however, on the Purchasing web site, lower right side, see "Subscribe to Solicitation Opportunities", enter your email address and click "subscribe" to receive a notification of Solicitation Opportunities twice weekly at http://www.scottsdaleaz.gov/purchasing

10. CITY OF SCOTTSDALE PROCUREMENT CODE

All procurement activities conducted by the City of Scottsdale are in conformance with the rules and regulations of the Scottsdale Procurement Code. A copy of the Code is available for review in the Office of the City Clerk located at City Hall, 3939 Drinkwater Boulevard and the Purchasing Office located at 9191 E. San Salvador Drive, Scottsdale, Arizona. A copy of the Code is also available from the Purchasing website:

http://www.scottsdaleaz.gov/purchasing

A hard copy of the Code is available for purchase, for a fee of $10.00, at the Purchasing Office.

11. PROSPECTIVE BIDDER'S CONFERENCE

A prospective bidder's conference may be held. If scheduled, the date and time of this conference is indicated on the cover page of this document. The purpose of this conference is to clarify the contents of this Solicitation in order to prevent any misunderstanding of the City's position. This conference will also give Bidders an opportunity to submit any questions and discuss any questions previously submitted.

12. BIDDER'S PRESENTATION

Bidders may be invited to make a presentation. If invited, Bidders will be notified of the date and time of the presentation by the City of Scottsdale Purchasing Department.

13. INELIGIBLE BIDDER

The preparer of the bid specifications is not eligible to submit a bid or proposal on the solicitation for which they prepared the specification, nor is the preparer eligible to supply any product to a Bidder or Offeror on the solicitation for which they prepared the specification.

14. OBLIGATIONS

The issuance of this Solicitation shall not obligate the City to pay any costs incurred in the preparation and submission of proposals.

15. NON COLLUSION AFFIDAVIT

By signing the Offer Form/Signature Page of the solicitation, or other official contract form, the Bidder certifies that:

In connection with the performance of this solicitation or any resulting Contract, the Bidder is stating and certifying that the Contractor/Company has not either directly, or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive proposing in connection with the preparation or submission of its Submittal in response to this solicitation or any potential resulting Contract.

If any company is jointly owned or associated through common officers/employees with another company(s) that is/are responding to the same solicitation, both/all of those companies must take all precautions to insure that the preparation of their bid or proposal submittal is done completely independent of the other company(s) or individual(s). Specifically, any individual working on preparation, approving or signing one submittal can have no knowledge of or interaction with any other bid or proposal submission from a different company for that same solicitation.

If the subject matter of this solicitation is construction, the Bidder shall submit a completed and notarized Non Collusion Affidavit, stating and certifying that said Bidder/Company has not either directly, or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive proposing in connection with the preparation or submission of its Submittal in response to this solicitation or any potential resulting Contract. The Bidder is to return the completed and notarized Non Collusion Affidavit <u>with</u> its submittal.

16. IMMIGRATION LAW COMPLIANCE

By signing the Offer Form/Signature Page of this solicitation, the Bidder certifies and warrants that for all solicitations for services (including construction services), it has complied with and will maintain compliance with the E-Verify Program as required by ARS §23-214(A) up to the time of the contract award. Failure to comply with the E-Verify Program may result in the automatic disqualification of the Submittal as being non-responsive or the termination of any contract awarded and the possible forfeiture of any applicable bond.

The City will include specific “Compliance with Federal and Arizona State Immigration Laws” language in any contract or subcontract it enters into with the successful Bidder. In addition, this language must be included in any subcontracts that the successful Bidder enters into with its subcontractors.

17. LAWFUL PRESENCE IN THE UNITED STATES FOR PERSONS

Arizona State law A.R.S. §1-502 (H.B. 2008) requires that all PERSONS who will be awarded a contract and apply for public benefit must demonstrate through a signed affidavit and the presentation of a copy of documentation that they are lawfully present in the United States.

17. LAWFUL PRESENCE IN THE UNITED STATES FOR PERSONS – CONT'D

A PERSON is defined as all NATURAL PERSONS/INDIVIDUALS/SOLE PROPRIETORSHIPS as indicated by your W-9 Filing. *(This law does not apply to LLP's, LLC's, PLLC's, Corporations, Limited Partnerships or General Partnerships)*

By submitting your quote, bid or proposal to the City, you are agreeing that if you are selected as the awardee and meet the criteria as a PERSON, you will abide by this law and sign and submit an AFFIDAVIT DEMONSTRATING LAWFUL PRESENCE IN THE UNITED STATES and attach the appropriate copy of your documentation in proof of that statement. Types of acceptable documentation copies are an Arizona Driver's License issued after 1996, Arizona non-operating identification license, U.S. birth certificate, U.S. Passport, I-94 Form with photograph and several others that are all listed on the Affidavit form that the City will send to you for your completion prior to issuing any contract.

If you have previously done business with the City and already have filed the above Affidavit with copies of an acceptable document, please indicate the date of submission. An acceptable Affidavit already on file with the City will be sufficient to meet this requirement.

If you fail to provide a completed Affidavit and accompanying acceptable copy of your documentation, or not advise the City of your prior filing within 10 calendar days of being requested, then you may be considered non responsive and disqualified from award consideration. You can obtain the complete Affidavit form from the Purchasing Department at (480) 312-5700 or the Purchasing web site at http://www.scottsdaleaz.gov/Purchasing on the lower right side of the page under Forms.

18. TAXES/LICENSES

Federal Excise Taxes:

The City of Scottsdale is exempt from certain federal excise taxes. The most common areas where the City is exempt are:

1. Fuel that is used by the City
2. Communication
3. Heavy trucks, trailers and tractors
4. Certain Superfund activity

If there is a specific circumstance that is in doubt, you should contact the City to resolve the status of that Federal Excise tax and its applicability.

Transaction Privilege (Sales) Taxes on the City:

The City of Scottsdale is not exempt from being charged the appropriate Arizona State, County, and City privilege (sales) taxes on the goods and services that it procures. For suppliers within the state of Arizona the City expects to be charged the appropriate privilege taxes on the invoice. For out of state suppliers that do not have the ability to collect Arizona privilege taxes, the City will self-accrue such Arizona State and City use taxes for collection and payment to the State of Arizona and City of Scottsdale.

18. TAXES/LICENSES – CONT'D

Transaction Privilege (Sales) Taxes on the Supplier / Contractor: Certain Business Services and Activities may incur a City of Scottsdale Transaction Privilege (sales) tax liability. To determine the City of Scottsdale tax treatment, please visit the following website and view the City of Scottsdale Tax Code and other Privilege and Use tax resources.

Questions pertaining to the applicability of taxes shall be directed to the City of Scottsdale Tax & License Section at 480-312-2400. The Contractor shall be responsible for payment of all applicable taxes due on contract income whether or not such taxes are specifically separated in the bid amount.

http://www.scottsdaleaz.gov/taxes/

Certain Business Services and Activities may have a State Transaction Privilege (sales) tax liability. To determine the State tax treatment, please visit the following website or contact the Arizona Department of Revenue at 602-716-6578 or 602-716-6657.

http://azleg.state.az.us/ArizonaRevisedStatutes.asp?Title=42

To obtain a State of Arizona Privilege (Sales) Tax License Application, please go to the following website:

http://www.azdor.gov/Business.aspx

The City of Scottsdale requires a license for service-oriented businesses located in Scottsdale that do not have a City of Scottsdale transaction privilege (sales) tax liability. This includes all activities or acts including, but not limited to service, professionals, trades and occupations, personal or corporate. To engage or continue in business the owner must obtain a Business, Occupational and Professional license. Service oriented businesses located outside the City limits are NOT required to obtain a Business, Occupational and Professional License from the City of Scottsdale.

Please visit the following website for the City of Scottsdale Transaction Privilege & Use Tax License and the Business, Occupational and Professional License applications:

http://www.scottsdaleaz.gov/taxes/

Bidder is solely responsible for any and all tax obligations which may result out of the Bidder's performance of this contract. The City has no obligation to pay any amounts for taxes, of any type incurred by the Bidder.

Construction Related Transaction Privilege (Sales) Taxes Responsibility of the Contractor: The Contractor shall be responsible for payment of all applicable State of Arizona and City of Scottsdale transaction privilege (sales) taxes due on construction income whether or not such taxes are specifically separated in the bid amount. The taxes are to be reported on either a progressive billing (accrual) basis or cash receipts basis, depending on the method chosen at the time application was made for the Privilege (sales) Tax License.

City Privilege (sales) tax exemptions/deductions may be applicable to certain projects. We advise you to consider this as you prepare your bid. Please review, in detail, Sections 415, 465, and 110 of the Scottsdale Revised City Code, Appendix C to determine if exemptions/deductions are applicable. For tax guidance, please reference the City Code and other tax resources at the following website: http://www.scottsdaleaz.gov/taxes/

18. TAXES/LICENSES – CONT'D

The State of Arizona has similar exemptions; please reference ARS Title 42 at the following website:

http://www.azleg.state.az.us/ArizonaRevisedStatutes.asp?Title=42

To determine tax treatment of design/build contracts, please contact the Arizona Department of Revenue at 602-255-2060 and the City of Scottsdale Tax Audit Section at 480-312-2629.

Construction bids will be evaluated and recommended for award based on the total bid cost including tax.

19. CONTRACTOR'S LICENSING REQUIREMENTS

The Contractor shall identify its Arizona State Contractor's License Number and Classification on the Bid Form Signature Page as evidence that it is licensed to contract the work indicated in the specifications at the time of bid submittal.

In accordance with Article 3, Regulation 32-1151 of the Arizona Registrar of Contractor's Statutes and Rules, it is unlawful for any person, firm, partnership, corporation, association or other organization, or a combination of any of them, to engage in the business of, submit a bid or respond to a request for qualification/quotation or a request for proposals for construction services as, act or offer to act in the capacity of or purport to have the capacity of a Contractor without having a Contractor's license in good standing in the name of the person, firm, partnership, corporation, association or other organization at the time of bid submittal, if such licensing is a requirement of the Arizona Registrar of Contractors.

20. LITIGATION

The Bidder shall disclose along with any Submittal, any issue or potential issue that may have a material bearing on the financial condition, solvency or credit worthiness of the organization. Disclosure includes any material contingent liabilities or uninsured potential losses, involuntary contract terminations in other jurisdictions and any voluntary or involuntary bankruptcy filings over the past 7 years. The Bidder shall also disclose any litigation in which the Bidder has been involved in, either as a plaintiff or defendant, within the past 3 years, and the Bidder shall agree to notify the City within 7 days of any litigation or significant potential for litigation of which the Bidder becomes aware. Further, the Bidder shall warrant that it will disclose in writing to the City all litigation involving the Bidder, the Bidder's related organization(s), owners and key personnel.

21. SUBCONTRACTOR'S LIST

If, at the time of bidding, any Bidder intends to subcontract any portion of this contract, the Bidder must complete the information required on the Subcontractor's List preceding the Bid Form and include this list with bid submittal documents.

22. SUBCONTRACTORS

During the performance of the Contract, the Contractor may engage any additional Subcontractors as may be required for the timely completion of this Contract, unless specifically prohibited by the specification. The addition of any Subcontractors must first receive the approval of the City. The awarded Contractor may relieve Subcontractors of City Tax liability by providing them with a completed Subcontractor Written Declaration form.

22. SUBCONTRACTORS – CONT'D

In the event of subcontracting, the sole responsibility for fulfillment of all terms and conditions of this Contract rests with the Contractor. The Contractor assumes responsibility for the proper performance of the work of Subcontractors and any acts or omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between the City and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

23. CONFIDENTIAL INFORMATION

Requests for nondisclosure of confidential information such as trade secrets and other proprietary data must be made known to the City within the bid submittal.

Bidders are instructed to clearly identify any proprietary information that may be submitted, and, if feasible, package such information in a separate, sealed envelope labeled "Confidential" or "Proprietary".

The City is subject to Arizona statutes and City Charter provisions that may permit the inspection of public records. The City cannot ensure confidentiality of any portion of a submittal document in the event a public inspection request is made. However, in accordance with Section R2-188.23 pertaining to Request for Proposals and Section R2-188.6 pertaining to Invitation for Bids, of the City's Procurement Code, the City shall examine the portions of your proposal noted as "Confidential" and/or "Proprietary". If a determination to disclose the information is made, you shall be so informed.

This is the only notification concerning confidential information that will be given to potential Bidders, and this provision should be taken into consideration prior to submitting a bid.

After contract award, and unless otherwise instructed by the Bidder, the City will destroy all information identified as confidential or proprietary in accordance with public records retention requirements.

24. SMALL BUSINESS

Small, minority owned businesses (MBE/WBE/DBE) are encouraged to respond to City of Scottsdale solicitations.

25. TITLE VI NOTICE

"The **City of Scottsdale,** in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252.42 U.S.C. §§ 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award."

26. INTERPRETATIONS, ADDENDA

THE CITY OF SCOTTSDALE WILL NOT BE RESPONSIBLE FOR BIDDERS ADJUSTING THEIR SUBMITTAL BASED ON ORAL INSTRUCTIONS BY ANY MEMBER OF THE CITY STAFF OR BY THE CITY'S CONTRACTED CONSULTANT OR AGENT. SUBMITTALS DEVIATING FROM THE SPECIFICATIONS CONTAINED HEREIN BY ANY MEANS OTHER THAN AN AUTHORIZED ADDENDUM ISSUED BY THE PURCHASING DIVISION ARE SUBJECT TO REJECTION.

Should a Bidder find an ambiguity, inconsistency or error in the applicable Plans or Specifications, or should it be in doubt as to their meaning, it shall at once notify the contact person listed on page one of this solicitation, who will prepare a written addendum if warranted. The City shall not be responsible for oral instructions or information.

All questions shall be submitted as per the Solicitations Questions Clause.

Any addenda issued by the City shall become a part of the Contract. By signing and submitting a bid or proposal, the Bidder is acknowledging that it will abide by all addenda issued prior to the opening of the bids and agreeing that all pricing takes into account all such addenda.

A Notice of Addenda will be emailed to those who have registered as a downloader and provided their email address; or provided by other appropriate means to each Bidder, person or firm recorded on the Plan Holder's list. The Bidder can return to the City's website under Solicitation Opportunities to verify how many addenda have been issued for a specific solicitation. If the Bidder feels it is missing any addenda, it can register again as a downloader to obtain access to all issued addenda. A viewing copy of the addenda will also be available wherever the solicitation documents are kept. The Bidder is responsible to be aware of ALL addenda before submitting its final bid. The City takes no responsibility for any addenda that a Bidder has failed to address in its submittal, and will hold the Bidder responsible that its pricing encompasses all issued addenda.

27. SUBMITTING BIDS

No Bid will be considered unless it is submitted on the bid forms contained herein.

All submittals must be presented in a ***sealed envelope or box***. The outside of the submittal must be clearly marked with the solicitation number, solicitation title and the submitting company's name. This includes envelopes delivered by Fed Ex, UPS, DHL or other carrier.

SUBMITTALS MUST BE OFFICIALLY TIME AND DATE STAMPED AT THE FRONT DESK OF THE PURCHASING OFFICE, located on the second floor of the Scottsdale Corporation Yard Building, at 9191 E. San Salvador Dr., Scottsdale, AZ 85258.

If submitted by mail, Bidder shall be responsible to ensure that the submittal is received at the Front Desk of the Purchasing Office with enough time to have it time and date stamped on or before the solicitation receipt date and time. Faxed or emailed submittals will not be accepted. ***LATE SUBMITTALS WILL NOT BE CONSIDERED.***

Bids received after the time and date specified will be returned to the Bidder unopened. A bid may be withdrawn prior to the time set for opening bids. No bid may be withdrawn for a period of one hundred and twenty days (120) after the date set for receipt of bids.

27. SUBMITTING BIDS – CONT'D

Bids submitted to the City constitute a legally binding offer. In addition, the successful Bidder will be required to sign the City of Scottsdale standard construction contract included herein.

All submittals are to be completed on City of Scottsdale (**COS**) forms without any alterations; failure to do so may result in your submittal being rejected.

28. AWARD DETERMINATION

Bids will be evaluated and recommended for award based on the total bid cost including all applicable taxes.

The total bid cost amount shall include all costs attendant to the bid such as any preparation charges and transportation and delivery charges fully prepaid by the Contractor to the destination specified in the Bid.

The contract will be awarded to the lowest responsible and responsive Bidder whose bid conforms in all material respects to the requirements and criteria set forth in the Invitation for Bids. The City reserves the right to award by individual line item, by group of line items, or as a total, whichever is deemed most advantageous to the City.

In the event of an "Add Alternate" bid, in order to keep the project within the budget, the City will use the "alternate add" bidding process. Under this procedure, the City will award the contract to the lowest responsive Bidder considering the sum of the "base bid" and those "alternate bid items" which are within the budget. The City will select the alternates in the order specified in the bid tabs. The City reserves the right not to select any item in the "alternate bid".

29. REJECTION OF BIDS

The Purchasing Director or City Council reserves the right, as the interest of the City requires, to reject any or all submittals, to waive any informality in submittals received, to award a contract by accepting or rejecting any alternate submittal(s) (additive or subtractive) and reserves the right to reject the submittal(s) of any Bidder who has previously failed to perform competently in any contract with the City.

30. PROTESTS

Pursuant to the City of Scottsdale Procurement Code Section 2-213, an aggrieved person may protest any aspect of a solicitation prior to award of a contract. As used herein, the phrase "any aspect of a solicitation" shall be limited in its interpretation to mean an alleged violation of the City's Procurement Code as it relates to the bid solicitation, its evaluation, or its award.

A protest must be filed within ten (10) calendar days after the protestor**,** exercising reasonable diligence, knew or should have known of facts and circumstances upon which the protest is based. Failure to protest any issue, fact or circumstance that the protestor knew or should have known upon the exercise of reasonable diligence within said ten (10) calendar day period shall forever preclude a hearing based upon that issue, fact or circumstance.

30. PROTESTS – CONT'D

Notice of Awards will be given either through the City Council Meeting Agendas for those contracts being awarded by City Council (i.e. ,for construction and professional services) or through a Notice of Intent to Award posting, seven (7) calendar days prior to award, on the Purchasing section of the City's Internet Web Site for all administratively awarded contracts. Awards of contracts shall be final and no protest pursuant to this section may be filed after award.

A protest must be in writing and shall:

State the name and address of the aggrieved person.
Identify the contracting activity and the number of the solicitation.

Contain a statement of all the grounds for the protest that the protestor then knows or should know based upon the exercise of reasonable diligence. Include supporting exhibits, evidence or documents to substantiate any claims unless not available within the filing time in which case the expected availability date shall be indicated.

Material submitted by a protester shall not be withheld from an interested party except to the extent that the withholding of information is permitted or required by law or as determined pursuant to code provisions for confidential material.

If the protester believes the protest contains material that should be withheld, a statement advising the Director of this fact shall accompany the protest submission.

The written protest must be filed with the Purchasing Director at the following address:

City of Scottsdale
Purchasing Services Department
9191 E San Salvador Dr.
Scottsdale, AZ 85258
Attn: Brent Stockwell, Acting Purchasing Director

The Director may dismiss a protest, upon a written determination, before scheduling a hearing if:

The protest does not state a valid basis for protest; or

The protest is untimely pursuant to Procurement Code Section 2-213.

If the Director determines that a hearing is appropriate under the circumstances, the Director shall notify the protestor of the time and place set for a hearing on the protest. The Director may also give notice of the hearing to any other persons involved in the solicitation whose interests may be affected by the ruling requested from the Director. Any person whose interest is affected shall be permitted to intervene and participate in such hearing.

Nothing contained herein shall require that the protest hearing be held prior to the award, if evidence from the solicitation, its evaluation or its award cannot be released to the public until after the award in order to protect the competitive process or in the best interests of the City.

31. CONTRACT AWARD NOTIFICATION

Intent to Award notices for contracts conducted as formal solicitations will be posted on Purchasing's website on the Intent to Award listing. Informal solicitations will be posted to the Award listing upon award. Intent to Award and award information can be found at the link provided below:

https://eservices.scottsdaleaz.gov/Solicitations/Solicitation/Status

The City Council must approve the award of contracts for construction and professional services exceeding the formal procurement limit. Any contract award going to City Council for approval is not binding on the City until after approval by the City Council, even if previously signed by the Contractor and a City representative. All other contracts exceeding the formal procurement limit may be administratively awarded by the Purchasing Director.

It is the submitter's responsibility to access this information from the City of Scottsdale Purchasing website link provided above. This is the only notification you will receive regarding the posting of Notices of Intent to Award and Award.

32. DONATIONS

If you intend to submit a bid or proposal, to avoid the appearance of impropriety, you shall not make any donation of goods or services to the City during the bid or proposal process.

33. BID BOND

a) Each bid must be accompanied by a **cashier's check** made payable to the order of City of Scottsdale in the sum of not less than 10% of the total bid, or a bond with sufficient sureties to be approved by the City in a sum equal to 10% of the total bid, and naming City of Scottsdale as obligee. Bid Security will be returned to all but the two lowest responsible and responsive Bidders after the Intent to Award has been posted, and the remaining securities returned within fourteen (14) days after the final execution of the contract.

b) Each bond shall be executed solely by a surety company or companies holding a Certificate of Authority to transact surety business in the State of Arizona issued by the Director of the State Department of Insurance pursuant to Arizona Revised Statutes Title 20, Chapter 2, Article 1. The bonds shall not be executed by an individual or personal surety or sureties. Additionally, the surety company issuing any bond shall have an A.M. Best Company Inc. Financial Strength Rating of not less than "A-VI".

1. ADDITIONAL SERVICE REQUESTED

Any service requested which is not specifically authorized by the Contract or written adjustments thereto, require the issuance of a separate purchase order by the City for authorization to perform, and separate billing by the Contractor for payment.

2. ADVERTISING

No advertising or publicity concerning the City using the Contractor's services shall be undertaken without prior written approval of such advertising or publicity by the City of Scottsdale Contract Administrator and by the City Attorney.

3. ARIZONA LAW

The Contract and all Contract Documents are considered to be made under, and will be construed in accordance with and governed by the laws of the State of Arizona without regard to the conflicts or choice of law provisions. Any action to enforce any provision of this Contract or to obtain any remedy under this Contract shall be brought in the Superior Court, Maricopa County, Arizona, and for this purpose, each party expressly and irrevocably consents to the jurisdiction and venue of this Court.

4. ASSIGNMENT

Services covered by this Contract may not be assigned or sublet in whole or in part without first obtaining the written consent of the Purchasing Director and Contract Administrator.

5. ATTORNEY'S FEES

In the event either party brings any action for any relief, declaratory or otherwise, arising out of this Contract, or on account of any breach or default hereof, the prevailing party shall be entitled to receive from the other party an award of reasonable attorneys' fees and reasonable costs and expenses, which shall be deemed to have accrued on the commencement of such action.

6. AUTHORITY

Each party hereby warrants and represents that it has full power and authority to enter into and perform this Contract, and that the person signing on behalf of each has been properly authorized and empowered to enter this Contract. Each party further acknowledges that it has read this Contract, understands it, and agrees to be bound by it.

7. CANCELLATION OF CITY CONTRACTS – CONFLICT OF INTEREST

The City may cancel any contract or agreement, without penalty or obligation, if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the City's departments or agencies is, at any time while the contract or any extension of the contract is in effect, an employee of any other party of the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract. The cancellation shall be effective when written notice from the City is received by all other parties to the contract, unless the notice specifies a later time (A.R.S. 38-511).

8. CAPTIONS/HEADINGS

The headings used in the Contract Documents are for ease of reference only and will not in any way be construed to limit or alter the meaning of any provision.

The captions used in this Contract are solely for the convenience of the parties, do not constitute a part of this Contract, and are not to be used to construe or interpret this Contract.

9. CERTIFICATE OF INSURANCE

The successful vendor(s) will be required to furnish the City of Scottsdale a certificate of insurance on a standard insurance industry ACORD™ form or its equivalent. The ACORD™ form must be issued by an insurance company authorized to transact business in the State of Arizona. A sample of a standard insurance industry ACORD™ form with the required additional insured language can be found on the Purchasing web site under forms at: http://www.scottsdaleaz.gov/Purchasing. Failure to provide a Certificate of Insurance with the appropriate verbiage will result in rejection of your certificate and/or may be cause for contract default. Additionally, Certificates of Insurance submitted without referencing the Solicitation Number may be subject to rejection and discarded.

10. CHEMICALS

Contractors shall provide Material Safety Data Sheets (MSDS) for all substances that are delivered to the City of Scottsdale, that come under the Federal requirements of 29CFR 1910 Subpart Z - Toxic and Hazardous Substances, which includes 29CFR 1910.1200 - Hazard Communication

All Contractors using chemicals on City of Scottsdale property shall use only the safest chemicals, with the least harmful ingredients. These chemicals shall be approved for use by a City of Scottsdale representative prior to bringing them on City property.

Contractors shall make every attempt to apply approved chemicals with highly volatile organic compounds, outside of working hours. Adequate ventilation shall be used at all times during the application of these approved chemicals.

10. CHEMICALS – CONT'D

In conjunction with the Occupational Safety and Health Standards, Subpart-Z Toxic and Hazardous Substances, and Section 1910.1200 Hazard Communication, Contractors are hereby informed of the presence (or possible presence) of chemicals in the area where the work requested will be performed. All selected Contractors shall contact the City of Scottsdale for specific information relative to the type of chemicals present and location of appropriate material safety data sheets.

11. COMPLIANCE WITH FEDERAL AND ARIZONA STATE IMMIGRATION LAWS

Under the provisions of A.R.S. §41-4401, the Bidder warrants to the City that the Bidder and all its subcontractors will comply with all Federal Immigration laws and regulations that relate to their employees and that the Bidder and all its subcontractors now comply with the E-Verify Program under A.R.S. §23-214(A).

A breach of this warranty by the Bidder or any of its subcontractors will be considered a material breach of this Contract and may subject the Bidder or Subcontractor to penalties up to and including termination of this Contract or any subcontract.

The City retains the legal right to inspect the papers of any employee of the Bidder or any subcontractor who works on this Contract to ensure that the Bidder or any subcontractor is complying with the warranty given above.

The City may conduct random verification of the employment records of the Bidder and any of its subcontractors to ensure compliance with this warranty. The Bidder agrees to indemnify, defend and hold the City harmless for, from and against all losses and liabilities arising from any and all violations of these statutes.

The City will not consider the Bidder or any of its subcontractors in material breach of this Contract if the Bidder and its subcontractors establish that they have complied with the employment verification provisions prescribed by 8 USCA §1324(a) and (b) of the Federal Immigration and Nationality Act and the E-Verify requirements prescribed by A.R.S. §23-214(A). The "E-Verify Program" means the employment verification pilot program as jointly administered by the United States Department of Homeland Security and the Social Security Administration or any of its successor programs.

The provisions of this Article must be included in any contract the Bidder enters into with any and all of its subcontractors who provide services under this Contract or any subcontract. "Services" are defined as furnishing labor, time or effort in the State of Arizona by a Contractor or subcontractor. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property. The Contractor will take appropriate steps to assure that all subcontractors comply with the requirements of the E-Verify Program. The Contractor's failure to assure compliance by all its' subcontractors with the E-Verify Program may be considered a material breach of this Contract by the City.

12. COMPLIANCE WITH FEDERAL AND STATE LAWS

The City has entered into this Contract with the Bidder relying on his knowledge and expertise to provide the services contracted for. As a part of that reliance, the Bidder represents that it knows and understands the relevant and applicable federal and state laws that apply to the services provided through this Contract and agrees to comply with these relevant and applicable federal and state laws.

The Bidder understands and acknowledges the applicability to it of the American with Disabilities Act, the Immigration Reform and Control Act of 1986, the Drug Free Workplace Act of 1989 and for construction contracts: A.R.S. § 34-301, "Employment of Aliens on Public Works Prohibited", and A.R.S. § 34-302, as amended, "Residence Requirements for Employees".

13. CONTRACT ADMINISTRATOR DUTIES

The Contract Administrator shall be responsible to audit the billings, approve payments, establish delivery schedules, approve addenda, and assure Certificates of Insurance are in City's possession and are current and conform to the contract requirements.

14. CONTRACTOR ON SITE SAFETY REPORTING REQUIREMENTS

For any non-construction City supplier whose service contract(s) (either singular or in aggregate) results in the Contractor working 500 or more hours on site at a City of Scottsdale location(s) in any one calendar quarter, the following documentation must be provided by the Contractor to the Contract Administrator (CA):

- the Contractor's most recent OSHA 300A (if applicable);
- all accident reports for injuries that occurred in the City under the contract during the most recent review period;
- the Contractor's current worker's compensation experience modifier;
- the above information is to be provided to the CA initially and every February thereafter as long as the contract is in force;
- the CA will provide this information to Risk Management when requested.

15. COUNTERPARTS

This contract may be executed in one or more counterparts, and each originally executed duplicate counterpart of this Contract shall be deemed to possess the full force and effect of the original.

16. ENDANGERED HARDWOODS

The Project shall not utilize any endangered species prohibited by A.R.S. §34-201(J), unless an exemption is granted by the Director of the State of Arizona, Department of Administration.

17. ENTIRE AGREEMENT

The documents comprising this Solicitation constitute the entire understanding of the Parties and supersedes all previous representations, written or oral, with respect to the services specified herein.

18. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this contract, the Bidder will follow the Federal government's guidelines to ensure that employees or applicants applying for employment will not be discriminated against because of race, color, religion, sex or national origin. The City of Scottsdale Diversity Office can be reached at 480-312-2727.

19. ESTIMATED QUANTITIES

All quantities referenced in this solicitation document are subject to adjustment dictated by City requirements. Quantities at variance with stated bid quantities may be purchased as required.

20. EXECUTION OF CONTRACT

The Contractor shall provide all the required documentation including, but not limited to, applicable bonds, insurance certificates, IRS W-9 form and other documentation required to issue the purchase order or Notice to Proceed; within ten (10) calendar days after the date of the Acceptance of Offer or Notice of Contract Award by the City. If a separate City Contract is required, the Contractor must execute it within ten (10) calendar days and return it to the City. Failure to complete these requirements within ten (10) calendar days may place the Contractor in default.

Upon request, the Contractor shall provide the required I.R.S. W-9 Form which is available from the IRS website at www.IRS.gov under their forms section.

21. FORCE MAJEURE

The City shall not be held responsible for acceptance of all or any part of the materials tendered for delivery under this Agreement due to federal, state or municipal action, statute, ordinance or regulation, strike or other labor trouble, fire, windstorm or other incidents outside of the City's control which shall make such acceptance impossible or impractical.

Neither party shall be responsible for delays or failures in performance resulting from acts beyond their control. Such acts shall include, but not be limited to, acts of God, riots, acts of war, epidemics, governmental regulations imposed after the fact, fire, communication line failures, or power failures.

22. FUNDS APPROPRIATION

If the City Council does not appropriate funds to continue this Contract and pay for required charges, the City may terminate this Contract at the end of the current fiscal period. The City agrees to give written notice to the Contractor at least 30 days before the end of its current fiscal period and will pay the Contractor for all approved charges incurred through the end of this period.

23. INDEPENDENT CONTRACTOR

The services Contractor provides under the terms of this Contract to the City are that of an Independent Contractor, not an employee, or agent of the City. The City may report the value paid for these services each year to the Internal Revenue Service (I.R.S.) using Form 1099.

23. INDEPENDENT CONTRACTOR – CONT'D

City shall not withhold income tax as a deduction from contractual payments unless required under federal or state law. As a result of this, Contractor may be subject to I.R.S. provisions for payment of estimated income tax. Contractor is responsible for consulting the local I.R.S. office for current information on estimated tax requirements.

24. LITIGATION

The Bidder will disclose any issue or potential issue that may have a material bearing on the financial condition, solvency or credit worthiness of the organization. Disclosure includes any material contingent liabilities or uninsured potential losses, involuntary contract terminations in other jurisdictions and any voluntary or involuntary bankruptcy filings over the past 7 years. The Bidder will also disclose any litigation in which the Bidder has been involved in, either as a plaintiff or defendant, within the past 3 years, and the Bidder shall agree to notify the City within 7 days of any litigation or significant potential for litigation of which the Bidder becomes aware during the course of any contract with the City. Further, the Bidder shall disclose in writing to the City, all litigation involving the Bidder, the Bidder's related organization, owners and key personnel.

25. LOCAL CONDITIONS, RULES AND REGULATIONS

The Bidder shall familiarize itself with the nature and extent of the Contract documents, work to be performed, all local conditions, and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the work.

26. MODIFICATIONS

Any adjustments, alterations, additions, deletions, or modifications in the terms and/or conditions of this Contract must be made by written Change Authorization approved by the Contract Administrator, Purchasing Director and the Contractor.

If Contractor performs any modification without such written Change Authorization, the City shall not be obligated to accept said modification.

27. NO PREFERENTIAL TREATMENT OR DISCRIMINATION

In accordance with the provisions of Article II, Section 36 of the Arizona Constitution, the City will not grant preferential treatment to or discriminate against any individual or group on the basis of race, sex, color, ethnicity or national origin. The City of Scottsdale Diversity Office can be reached at 480-312-2727.

28. NO WAIVER

The failure of either party to enforce any of the provisions of the Contract Documents or to require performance of the other party of any of the provisions of this Contract will not be construed to be a waiver of those provisions, nor will it affect the validity of the Contract Documents, or the right of either party to enforce each and every provision.

28. NO WAIVER – CONT'D

No delay or failure of either party in exercising any right hereunder, and no partial or single exercise thereof, shall be deemed to constitute a waiver of such right or any other rights hereunder. All waivers must be in writing and signed by the party to be charged. Any waiver by either party of any requirement hereunder shall be deemed to be a specific limited waiver, and shall not be deemed to be a continuing waiver nor a waiver of any other requirement hereof.

29. PATENTS / INTELLECTUAL PROPERTY

The Contractor agrees upon receipt of notification to promptly assume full responsibility for the defense of any suit or proceeding which is, has been, or may be brought against the City of Scottsdale and its agents or Bidders for alleged patent and/or copyright infringement, as well as for the alleged unfair competition resulting from similarity in design, trademark or appearance of goods by reason of the use or sale of any goods furnished under this contract and the Contractor further agrees to indemnify the City against any and all expenses, losses, royalties, profits and damages including court costs and attorney's fees resulting from the bringing of such suit or proceedings including any settlement or decree of judgment entered therein.

The City may be represented by and actively participate through its own counsel in any such suit or proceedings if it so desires.

30. PAYMENT TERMS

The City of Scottsdale's payment terms are payment within thirty (30) days except in Title 34 circumstances where payment is required within fourteen (14) days. Payment may be sooner where cash discounts are offered for early payment, however, cash discounts offered will not be considered in determining lowest Bidder. In no event will payment be made prior to receipt of an original invoice containing invoice and Purchase Order numbers and receipt of purchased item. The City is not liable for delays in payment caused by failure of the Contractor to send an invoice to the address specified below:
CITY OF SCOTTSDALE
ACCOUNTS PAYABLE
7447 E. INDIAN SCHOOL ROAD, SUITE #210
SCOTTSDALE, ARIZONA 85251-4468

31. RECORDS AND AUDIT RIGHTS

Contractor's and Subcontractor's books, records, correspondence, accounting procedures and practices, and any other supporting evidence relating to this Contract (all the foregoing hereinafter referred to as "Records") shall be open to inspection and subject to audit and/or reproduction during normal working hours by the City of Scottsdale, or its authorized representative, to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims based on Contractor's or Subcontractor's actual costs (including direct and indirect costs and overhead allocations) incurred, or units expended directly in the performance of work under this Contract. For the purpose of evaluating or verifying such actual or claimed costs or units expended, the City of Scottsdale or its authorized representative shall have access to said Records from the effective date of this Contract for the duration of the work and until three (3) years after the date of final payment by the City of Scottsdale to Contractor pursuant to this Contract.

31. RECORDS AND AUDIT RIGHTS – CONT'D

The City of Scottsdale or its authorized representative shall have access, during normal working hours, to all necessary Contractor and Subcontractor facilities, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with the provisions of this Article. The City of Scottsdale shall give Contractor or Subcontractor reasonable advance notice of intended audits.

Contractor shall require Subcontractors to comply with the provisions of this Article by insertion of the requirements hereof in any subcontract pursuant to this Contract.

If an audit in accordance with this article, discloses overcharges, of any nature, by the Contractor to the City in excess of one percent (1%) of the total contract billings, the actual cost of the City's audit shall be reimbursed to the City by the Contractor. Any adjustments and/or payments which must be made as a result of any such audit or inspection of the Contractor's invoices and/or records shall be made within a reasonable amount of time (not to exceed 90 days) from presentation of City's findings to Contractor.

32. REGISTERED/LICENSES

To be considered responsive, Contractors must be registered / licensed in the State of Arizona, if such registration/license is normally a requirement for the nature of the work contemplated by this Contract.

33. RISK OF LOSS

Contractor agrees to bear all risks of loss, injury or destruction of goods and materials ordered as a result of this Contract which occur prior to delivery to the City; and such loss, injury, or destruction shall not release Contractor from any obligation hereunder.

34. SCOTTSDALE CITY SEAL AND CITY SYMBOL

The Scottsdale City seal (as defined in S.R.C. § 2-1) and the City symbol are registered marks and are reserved solely for the City's use. Any other use or reproduction of the City's registered marks in any print, digital, or other media without the City's express, written consent is prohibited. As a breach of this prohibition may impair the City's reputation, dilute its mark(s), or otherwise cause the City irreparable harm, the City shall be entitled to an immediate injunction enjoining such use in addition to any other legal or equitable remedies.

35. SEVERABILITY

If any provision of the Contract Documents or the application of them to any person or circumstance is invalid, illegal or unenforceable to any extent, the remainder of the Contract Documents and their application will not be affected and are enforceable to the fullest extent permitted by law.

36. SUCCESSORS AND ASSIGNS

No right or interest covered by this Contract shall be assigned in whole or in part without the prior written consent of the City. Any assignment made in contravention of this section shall be considered void.

The Contractor and the City agree that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs and assigns. This Contract extends to and is binding upon the Contractor, its successors and assigns, including any individual, company, partnership or other entity with or into which the Contractor merges, consolidates or is liquidated, or any person, corporation, partnership or other entity to which the Contractor sells its assets.

37. SURVIVAL

All warranties, representations and indemnifications by the Contractor shall survive the completion or termination of this Contract.

38. TERMINATION

Termination for Convenience: City reserves the right to terminate this contract or any part hereof for its sole convenience with thirty (30) days written notice. In the event of such termination, Contractor shall immediately stop all work hereunder, and shall immediately cause any of its suppliers and subcontractors to cease such work. Contractor shall be paid a reasonable termination charge consisting of a percentage of the order price reflecting the percentage of the work performed prior to the notice of termination, plus actual direct costs resulting from termination.

Contractor shall not be paid for any work done after receipt of the notice of termination, nor for any costs incurred by Contractor's suppliers or subcontractors which Contractor could reasonably have avoided. Contractor shall not unreasonably anticipate the requirements of this contract.

Cancellation for Cause: City may also terminate this Contract or any part hereof with seven (7) days' notice for cause in the event of default. If the Contractor fails to comply with any of the terms and conditions of this Contract. Late deliveries, deliveries of products which are defective or do not conform to this Contract, unsatisfactory performance as judged by the Contract Administrator, or failure to provide City, upon request, with adequate assurances of future performance shall all be causes allowing City to terminate this Contract for cause. In the event of termination for cause, City shall not be liable to Contractor for any amount, and Contractor shall be liable to City for any and all damages sustained by reason of the default which gave rise to the termination. If it should be determined that City has improperly terminated this Contract for default, such termination shall be deemed a termination for convenience.

In the event Contractor is in violation of any Federal, State, County or City law, regulation or ordinance, the City may terminate this contract immediately upon giving notice to the Contractor.

39. TESTING OF MATERIALS

When required in the course of any service or contract, the procedures and methods used to sample and test material will be determined by the City. Unless otherwise specified, samples and test will be made in compliance with the following: The City of Scottsdale Minimum Sampling Frequency Guide**,** The City of Scottsdale Material Testing Manual and/or the standard methods of AASHTO or ASTM, DSPM and MAG supplements.

The City will provide a pre-qualified City or Independent Testing Laboratory and will pay directly for initial City Acceptance Testing. If the first and subsequent tests indicate noncompliance with the specifications, the cost associated with that noncompliance shall be paid for by the Contractor. When the first and subsequent tests indicate noncompliance with the specifications, all retesting will be performed by the same testing agency.

Rejected materials shall be immediately removed and shall not be used in any form for any other part of the work.

40. TIME IS OF THE ESSENCE

Time is of the essence with respect to the dates and times contained in the Contract Documents.

1. ACCEPTABILITY OF INSURERS

Without limiting any obligations or liabilities of the Contractor, the Contractor must purchase and maintain, at its own expense, the required minimum insurance with duly licensed or approved non-admitted insurers in the State of Arizona with an A.M. Best rating of not less than B++6 with policies and forms satisfactory to City. Failure to maintain insurance as required may result in termination of this Contract at the City's option.

2. ACCEPTANCE / AGREEMENT

If for any reason Contractor should fail to accept the Agreement in writing, any conduct by Contractor which recognizes the existence of an Agreement pertaining to the subject matter hereof shall constitute acceptance by Contractor of the Agreement and all of its terms and conditions. Any terms proposed by Contractor which add to, vary from or conflict with the terms herein are hereby rejected by the City. Any such proposed terms shall be void and the terms herein shall constitute the complete and exclusive statement of the terms and conditions of the Agreement between the parties. If any Agreement has been issued by the City in response to a bid and if any of the terms therein are additional to or different from any terms of such bid, then the issuance of the Agreement by the City shall constitute an acceptance of such bid subject to the express conditions that the Contractor assent to such additional and different terms herein and acknowledge that the Agreement constitutes the entire agreement between the City and the Contractor with respect to the subject matter and acknowledged unless Contractor notifies the City to the contrary in writing within ten (10) days of receipt of the Agreement.

3. AMENDMENTS

The Contract Documents may not be changed, altered, modified, or amended in any way except as provided in the General Terms and Conditions.

4. APPROVAL

Any modification or variation from the insurance requirements in this Contract must be approved by the Risk Management Division, whose decision is final. This action will not require a formal Contract amendment, but may be made by administrative action.

5. CHANGES IN CONTRACT PRICE

The Contract Price may be changed only by a written Change Order issued by the City in accordance with the General Terms and Conditions. The value of any work covered by a Change Order or of any claim for increase or decrease in the Contract Price shall be determined by one or more of the following methods in the order of precedence listed below:

a. Unit prices previously approved.
b. An agreed lump sum.
c. The Provision of M.A.G. 109.5.

6. CHANGES IN THE WORK

The City may at any time, order changes within the scope of the work without invalidating the Contract. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the work, an equitable adjustment shall be authorized by written Change Order.

The City shall execute a formal Change Order based on detailed written quotations from the Contractor for work related changes and/or a time of completion variance. All Change Orders are subject to approval by the City.

The City also may at any time, issue a written field order to make changes in the details of the work not affecting contract price or time. The Contractor shall proceed with the performance of any changes in the work so ordered unless the Contractor believes that such written field order entitles him to a change in Contract price or time, or both, in which event it shall give the City written notice thereof within one (1) day after the receipt of the Field Order, and the Contractor shall not execute such changes pending the receipt of an executed Change Order.

If the Contractor performs work authorized under a Field Order and subsequently requests a Change Order for that work, the City shall not be obligated to issue a Change Order.

7. CITY ASSURANCE

The Contract Administrator shall report to the Contractor in writing, via email, or other written documentation, all deficiencies in the quality of performance of the maintenance service. All communication, written or verbal, between the City of Scottsdale and the Contractor shall be in English.

All deficiencies in the performance of the Contractor's service shall be corrected promptly by the Contractor as directed by the Contract Administrator.

The Contract Administrator may monitor and review the performance of the Contractor and employees. The outcomes of this oversight may have a direct bearing on the opportunity to negotiate a renewal of the Contract, when applicable.

8. CITY'S RIGHT OF CANCELLATION

All parties to this Contract acknowledge that it is subject to cancellation by the City of Scottsdale as provided by Section 38-511, Arizona Revised Statutes.

9. CITY'S RIGHT TO PERFORM AND CANCEL FOR CAUSE

A. If the Contractor persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Subconsultants or Subcontractors, (v) prosecute the work with promptness and diligence to ensure that the work is completed by the Contract time, as these times may be adjusted, or (vi) perform material obligations under the Contract Documents, then the City, in addition to any other rights and remedies provided in the Contract Documents or by law, has the rights stated in the provisions dealing with the City's Right to Perform and Cancel for Cause.

In the event the Contractor is in violation of any Federal, State, County or City law, regulation or ordinance, the City may cancel this Contract immediately upon giving notice to the Contractor. In the event the City cancels this Contract or any part of the services, the City will notify the Contractor in writing, and immediately upon receiving notice, the Contractor must discontinue advancing the work under this Contract and proceed to close all operations.

B. If the City provides the Contractor with a written order to correct deficiencies, to provide adequate maintenance of traffic, adequate cleanup, adequate dust control, or to repair damage resulting from abnormal weather conditions, and the Contractor fails to comply within the time frame specified, the City may have work accomplished by other sources at the Contractor's expense.

C. Upon the occurrence of an event as stated in the provisions dealing with the City's Right to Perform and Cancel for Cause, the City may provide written notice to the Contractor that it intends to cancel the Contract unless the problem cited is cured, or commenced to be cured, within 7 days of the Contractor's receipt of notice.

D. If the Contractor fails to cure, or undertake reasonable efforts to cure the problem, then the City may give a second written notice to the Contractor of its intent to cancel within an additional 7 day period.

E. If the Contractor, within this second 7 day period, fails to cure, or undertake reasonable efforts to cure the problem, then the City may declare the Contract canceled for cause by providing written notice to the Contractor of this declaration.

F. Upon declaring the Contract canceled, the City may enter upon the premises and take possession of all materials and equipment, for the purposes of completing the work.

G. Upon cancellation or abandonment, the Contractor will deliver to the City all drawings, special provisions, field survey notes, reports, and estimates, entirely or partially completed, in any format, including but not limited to written or electronic media, together with all unused materials supplied by the City. Use of incomplete data will be the City's sole responsibility.

H. The Contractor will appraise the work it has completed and submit its appraisal to the City for evaluation.

9. CITY'S RIGHT TO PERFORM AND CANCEL FOR CAUSE – CONT'D

I. If through any cause, the Contractor fails to fulfill in a timely and proper manner its obligations under this Contract, or if the Contractor violates any of the covenants, agreements, or stipulations of this Contract, the City may withhold any payments to the Contractor for the purpose of setoff until such time as the exact amount of damages due the City from the Contractor is determined by a court of competent jurisdiction.

J. In the event of cancellation for cause, the Contractor shall not be entitled to receive any further payments under the Contract Documents until the work is finally completed in accordance with the Contract Documents. At that time, the Contractor will only be entitled to be paid for work performed and accepted by the City before its default subject to offset by the City for any damages suffered as a result of the cancellation for cause.

K. If the City's cost and expense of completing the work exceeds the unpaid balance of the Contract Price, then the Contractor will be obligated to pay the difference to the City. These costs and expense will include not only the cost of completing the work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by the City in connection with the reprocurement and defense of claims arising from the Contractor's default.

L. If the City improperly cancels the Contract for cause; the cancellation for cause will be converted to a termination for convenience in accordance with the provisions of Termination for Convenience provisions.

10. CITY'S SERVICES AND RESPONSIBILITIES

A. Duty to Cooperate

The City will, throughout the performance of the work, cooperate with the Contractor and perform its responsibilities, obligations and services in a timely manner to facilitate the Contractor's timely and efficient performance of the Work and so as not to delay or interfere with the Contractor's performance of its obligations under the Contract documents.

The City will furnish the Contractor a CADD file or electronic format acceptable to the City of the construction documents, at no cost to the Contractor.

B. Contract Administrator

The Contract Administrator is responsible for providing City supplied information and approvals in a timely manner to permit the Contractor to fulfill its obligations under the Contract documents.

10. CITY SERVICES AND RESPONSIBILITIES – CONT'D

B. Contract Administrator – Cont'd

The Contract Administrator will also provide the Contractor with prompt notice if the CPM Inspector observes any failure on the part of the Contractor to fulfill its contractual obligations, including any default or defect in the Project or non-conformance with the drawings and specifications.

The City may contract separately with a Design Team which may include partial construction administration services for the Project. The Design Team's Contract will be furnished to the Contractor.

The Contract Administrator is responsible for construction administration of the work. The Design Team, if authorized by the City, will review, approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples in accordance with Section 29. Communications by and with the Design Team will be through the Contract Administrator.

The Contract Administrator and the Design Professional will interpret and decide matters concerning performance under the requirements of the Contract documents. The Design Professional's response to these requests will be made to the City with reasonable promptness. The City will forward response to the Contractor within the time limits agreed upon.

C. City's Separate Contractors

Contractor will not be responsible for work performed on the project or at the site by separate Contractors under the City's control. The City will require its separate Contractors to reasonably cooperate with, and coordinate their activities, so as not to unreasonably interfere with the Contractor, in order to enable timely completion of work consistent with the Contract documents.

D. Permit Review and Inspections

Approving specific parts of the Building Permit is the responsibility of the City of Scottsdale's Capital Project Management. The City of Scottsdale Plan Review Division issues Certificates of Occupancy.

E. Furnishing of Services and Information

The City will be responsible for the payment or waiver of the following:

1. City review and permit(s) fees for building, encroachment, and demolition permits.
2. City review fees for grading and drainage, water, sewer and landscaping.
3. Utility design fees for permanent services.
4. Obtaining Nationwide 404 Permits.
5. City Development Fees.

10. CITY SERVICES AND RESPONSIBILITIES – CONT'D

E. Furnishing of Services and Information – Cont'd

Unless expressly stated to the contrary in the Contract documents, the City will provide, at its own cost and expense, for the Contractor's information the following:

1. To the extent available, surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;
2. Easements (other than temporary construction easements and staging areas), zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable the Contractor to perform the work;
3. A legal description and street or physical address of the site;
4. To the extent available, as-built record and historical drawings of any existing structures at the site;
5. To the extent available, environmental studies, reports and impact statements describing the environmental conditions, including hazardous materials, in existence at the site;
6. At Contractor's request, the City will provide copies of City's standards and guidelines, supplementary conditions and special provisions that are included in the plans and specifications for the project. These may include but are not limited to: disposal of surplus material, special security provisions, investigation of underground facilities, traffic controls and regulations, special quality control testing and termite treatment requirements;
7. The City is responsible for securing and executing all necessary Contracts with adjacent land or property owners that are reasonably necessary to enable the Contractor to perform the construction.

F. Project Management Services

The City may contract separately with one or more Technical Consultants to provide project management assistance to the project. The Technical Consultant's Contract as well as the Contracts of other firms hired by the City will be furnished to the Contractor. The Contractor will not have any right however, to limit or restrict any contract modifications that are mutually acceptable to the City and Technical Consultant.

The Technical Consultant services will augment the City staffing resources to effectively manage the objectives of the City and this Project with the goal of managing the key project communication, cost and time parameters.

The Technical Consultant may provide preprogramming and design standards.

10. CITY SERVICES AND RESPONSIBILITIES – CONT'D

F. Project Management Services – Cont'd

The City may contract with the Technical Consultant to provide some or all of the following services during the performance of the construction:

1. **Oversight of the Construction**. The Technical Consultants may:

   a. Conduct site visits at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed construction and to determine in general if the construction is being performed in accordance with the construction documents. The Technical Consultant will keep the City informed of progress of the construction and will endeavor to guard the City against defects and deficiencies in the construction. The Technical Consultant may have authority to reject construction which does not conform to the construction documents and to require additional inspection or testing of the construction in accordance with Sections 15 and 16;
   b. Review and recommend approval of the Contractor's payment requests;
   c. Interpret matters concerning performance under and requirements of the Contract documents on written request of the City. The Technical Consultant's response to these requests will be made with reasonable promptness and within any time limits agreed upon;
   d. Analyze, recommend and assist in negotiations of Change Orders;
   e. Conduct inspections to determine Substantial Completion and Final Acceptance;
   f. Receive and forward to the City for the City's review and records, written warranties and related documents required by the Contract documents and assembled by the Contractor.

11. CLAIMS AND DISPUTES

<u>Requests for Contract Adjustments and Relief</u>

A. If either the Contractor or the City believes that it is entitled to relief against the other for any event arising out of or related to the Work, that party will provide written notice to the other party of the basis for its claim for relief.

B. That notice will, if possible, be made before incurring any cost or expense and in accordance with any specific notice requirements contained in applicable Articles of the Contract.

C. In the absence of any specific notice requirement, written notice will be given within a reasonable time, not to exceed 10 days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later.

11. CLAIMS AND DISPUTES – CONT'D

Requests for Contract Adjustments and Relief – Cont'd

D. Notice must include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of the request.

12. CLEAN UP

After all work under the Contract is completed, Contractor shall remove all loose concrete, lumber, wire, reinforcing, debris and other materials not incorporated in the work from the site of the work.

13. CONSTRUCTION METHODS

If the City provides the Contractor with a written order to provide adequate maintenance of traffic, clean-up, dust control or to correct deficiencies or damage resulting from abnormal weather conditions, and the Contractor fails to comply in the time frame specified, the City may have work accomplished by other sources at the Contractor's expense.

14. CONSTRUCTION PRACTICE

All construction practices and procedures shall conform to Section 107 of the Contract Work Hours and Safety Standards Act, (US Stat. 96, 40 USC 327) the latest revisions shall prevail.

15. CONSTRUCTION STAKES

Survey stakes and marks required for the completion of the construction shown on the plans and described in the specifications shall be furnished by the Contractor.

16. CONTRACT COMPLETION TIME

Contract Time shall be one hundred and eighty-two (182) calendar days to complete the work as indicated in the Notice to Proceed (NTP).

A. Contract Time shall start with the Notice to Proceed (NTP) and end with Substantial Completion. The City will issue a NTP letter establishing the mutually agreed upon NTP date for this Contract.

   1. Failure on the part of the Contractor to adhere to the Project Schedule may be the basis for termination of this Contract by the City.

B. The Contractor agrees to commence performance of the work and achieve performance periods and the Contract time.

C. All of the times stated in this paragraph are subject to adjustment in accordance with the provisions of Delay and Differing Site Conditions in the IFB.

17. CONTRACTOR SAFETY PROGRAM

The industrial environment in which the Contractor for the City of Scottsdale operates may on occasion present a potential safety and health hazard to any who may be on the job site. All work shall be performed in compliance with all applicable federal, state and local laws, ordinances, statutes, rules and regulations including ADOSH policies and procedures. The Contractor will be required to attend a City safety briefing session at the pre-construction meeting.

The session shall be attended by the Contract Administrator, the designated Risk Management staff, and a Contractor's representative.

Contractor shall provide a current OSHA 300A report at the pre-construction meeting. Contractor shall provide a safe jobsite and work environment for the safety and health of employees and members of the general public and shall comply with all legal requirements, including but not limited to the following:

Occupational Safety and Health Act (OSHA) Electrical Safe Work Practices Standards
OSHA Personal Protective Equipment Standards
NFPA 70E Standard for Electrical Safety in the Workplace
OSHA Fall Protection Standards
OSHA Confined Space Entry
All other applicable requirements of OSHA and local codes and agencies having jurisdiction.

Contractors that violate the aforementioned rules and regulations may be subject to job shutdown and or removal from City facilities.

City Safety Rules and Expectations
Risk Management Division makes available a packet which contains the City's OSHA compliance guidelines, emergency evacuation, the City's safety and health plan, and other safety information.

Contractor Safety Tailgate Meetings
Contractor shall conduct tailgate safety meetings regularly to ensure that safety on the job is given priority.

Accident/Injury Procedure
Contractor shall notify the Contract Administrator and the Risk Management Division with 24 hours of the occurrence of an accident or injury arising out of the Contractor's work under this contract.

Unsafe Acts
Contractor employees are encouraged to abate or remedy any unsafe act or condition which may arise in the course of Contractor's work under this contract.

Safety Audits
The City reserves the right to conduct safety audits at the job site and stop unsafe acts at any time. In addition, the City shall be notified should any OSHA inspection occur at a City job site.

18. CONTRACTOR'S DAILY LOG

On a daily basis, the Contractor shall prepare a Contractor's Daily Report. The City Public Works Inspector will provide a sample report format for the Contractor. The report shall detail the activities that took place during the course of the day, all equipment utilized and the number of hours operated and all personnel on the site inclusive of subcontractors.

The Daily Reports shall be submitted on a daily basis, unless otherwise arranged, to the City Public Works Inspector. The Daily Reports shall also be made available to the Contract Administrator upon request.

Failure to provide Daily Reports as arranged or requested above will result in the retention of monthly progress payments until the Reports are brought up to date.

19. CONTRACTOR'S EMPLOYEES' IDENTIFICATION AND WORK APPAREL

All Contractor employees performing work under the scope of this contract shall wear conservative style uniform shirts that will have sewn on or embossed identification labels of the Contractors company name, and/or, logo, and will appear on the front area of the shirt near chest height of the shirt. Shirts may also have company name or logo appear on the backside of the shirt. Contract Administrator will approve proper identification on uniforms during the life of the contract.

Contractor shall provide employees with identification nametags to include name and picture of the employee and Contractor's company name and applicable logo. Employee will wear the nametag in plain view on his person at all times while performing the work under the scope of the contract. All employees shall have the supervisor's business cards available. In addition the 'lead person' of each crew shall wear a badge clearly identifying the position of crew leader.

Contractor's employees shall wear uniform style slacks, "Levi" type slacks, or Bermuda type shorts. If shorts are worn they shall be of Bermuda style length (cut just above the knee). Cut-offs and short-shorts are not acceptable wearing apparel.

Outlandish styles, patterns, hats, colors of wearing apparel, verbiage imprinted on apparel, etc., worn by a Contractor Employee that may promote negativity in the work place, or advertise any product other than the Contractor's company name and/or logo will not be allowed.

Sandals, flip-flops, open-toed shoes are not acceptable footwear.

The Contract Administrator shall be the sole determinant of the appropriateness of all work apparel.

Contractor's shall insure that all employees performing any work at any location under the scope of this contract are furnished and use the proper Personal Protective Equipment (PPE) based on the type of work the employee is doing and the type of hazard the employee may encounter or be exposed to.

Walkman type radios or any apparatus, which may impede hearing or sight, will not be allowed. Earplugs and/or safety glasses are exempt.

19. CONTRACTOR'S EMPLOYEES' IDENTIFICATION AND WORK APPAREL – CONT'D

The Contractor may instruct all employees, in advance, as to procedures in the event of a medical emergency.

If an injury to an employee is of sufficient nature to warrant immediate professional medical attention, the employee shall seek out proper medical attention immediately.

The employee shall notify the on-duty lead person (or supervisor) of any personal injury, including minor cuts, scrapes or burns. The on-duty lead person shall immediately notify the Contract Administrator of such injuries.

20. CONTROL OF MATERIALS

No material source has been designated by the City for use on this project.

MAG Specification, Section 106 shall apply as will ADOT Standard Specifications 1982, Section 106.01, .03, & .11 which outline controls and Section 1001-1, -2, & -4 concerning approval of Contractor furnished source and supplemental agreements in regards to environmental analysis and the liability for materials testing costs.

Contractor furnished material sources situated in the 100-year flood plain of any stream or watercourse, and located within 1.0 mile upstream and 2.0 miles downstream of any highway structure or surfaced roadway crossing, shall not be allowed.

A Contractor furnished source shall be defined as a material source which is neither an A.D.O.T. furnished source nor a commercial source, as herein defined.

A commercial source shall be defined as a material source in which the owner or producer has been for at least one year regularly engaged during regular business hours on a regular basis in the processing and selling of sand, rock, ready mixed Portland cement concrete, asphaltic concrete and other similar products normally produced and sold to all parties. The company shall have an Arizona retail sales tax license.

The location of any new material source or existing non-commercial material source proposed for use on this project shall be reviewed by the appropriate agency having flood plain management jurisdiction over the area of proposed source location. Contractor shall obtain a letter from the agency addressed to the Contract Administrator certifying that the proposed source location conforms to the conditions herein and such applicable Standard Specifications as referenced.

21. CONTROL OF THE WORK SITE

A. Throughout all phases of construction, including suspension of the work, the Contractor must keep the site reasonably free from debris, trash and construction wastes to permit the Contractor to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the work, the Contractor shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the work to permit the City to occupy the Project or a portion of the Project for its intended use.

B. **Dust Control**. The Contractor shall take whatever steps, procedures or means required to prevent abnormal dust conditions due to its construction operations in connection with this Contract. The dust control measures shall be maintained at all times during construction of the Project to the satisfaction of the City, in accordance with the requirements of the Maricopa County Health Department Air Pollution Control Regulations and City of Scottsdale Supplement to M.A.G. Standard Specifications together with applicable provisions of Federal and State Law.

C. **Dust Control Coordinator**. At any City construction site with greater than 1 acre of disturbed surface area, subject to a permit issued by a Control Officer requiring control of PM-10 emissions from dust generating operations, the Contractor must have at all times at the Site, at least one Dust Control Coordinator trained in accordance with the requirements of A.R.S. §49-474.05 during primary dust generating operations that is related to the purposes for which the Dust Control Permit was issued. The Dust Control Coordinator must have full authority to ensure that dust control measures are implemented at the Site, including authority to conduct inspections, deploy dust suppression resources, and modify or shutdown activities as needed to control dust. The Dust Control Coordinator must be responsible for managing dust prevention and dust control on the Site, including the use of leaf blowers and street sweeping equipment. The Dust Control Coordinator must have a valid Dust Training Certification Identification Card readily accessible on the Site while acting as the Dust Control Coordinator.

D. The requirements described in the above paragraph do not apply if Contractor can establish to the satisfaction of the Contract Manager that one of the exemptions under A.R.S. §49-474.05 applies.

E. A Subcontractor who is engaged in dust generating operations at a Site that is subject to a Dust Control Permit issued by a County Control Officer and that requires the control of PM-10 emissions from dust generating operations must register with the County Control Officer. The Subcontractor must have its registration number readily accessible on the Site while conducting any dust generating operations.

F. If applicable, the Contractor will maintain ADA and ANSI accessibility requirements during construction activities in an occupied building or facility. ADA and ANSI accessibility requirements must include, but not be limited to, parking, building access, entrances, exits, restrooms, areas of refuge, and emergency exit paths of travel. The Contractor is responsible for the coordination of all work to minimize disruption to building occupants and facilities.

21. CONTROL OF THE WORK SITE – CONT'D

G. Only materials and equipment used directly in the work will be brought to and stored on the site by the Contractor. When equipment is no longer required for the work, it will be removed promptly from the site. Protection of construction materials and equipment stored at the site from weather, theft, damage and all other adversity is solely the responsibility of the Contractor.

H. The Contractor shall supervise and direct the work. The Contractor is solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor shall employ and maintain on the work a qualified supervisor or superintendent who has been designated in writing by the Contractor as the Contractor's representative at the site. The representative must have full authority to act on behalf of the Contractor and all communications given to the representative shall be as binding as if given to the Contractor. The representative must be present on the Site at all times as required to perform adequate supervision and coordination of the work. Where appropriate, all Provisions of M.A.G., Section 105.5, will be applicable.

I. In the event of abnormal weather conditions, such as windstorms, rainstorms, etc., the Contractor shall immediately inspect the work site and take all necessary actions to insure that public access and safety are maintained.

J. **Damage to Property at the Site**. The Contractor is responsible for any damage or loss to property at the Site, except to the extent caused by the acts or omissions of the City or its representatives, employees or agents and not covered by insurance.

K. **Damage to Property of Others**. The Contractor shall avoid damage, as a result of the Contractor's operations, to existing sidewalks, curbs, streets, alleys, pavements, utilities, adjacent property, the work of Separate Contractors and the property of the City. The Contractor shall repair any damage caused by the operations of the Contractor.

L**. Failure of Contractor to Repair Damage**. If the Contractor fails to commence the repair of damage to property as required in paragraphs (I.) and (J.) above, and diligently pursue the repair, then the City, after 10 days written notice to the Contractor (provided the Contractor has not commenced the repair during the 10 day period), may elect to repair the damages with its own forces and to deduct from payments due or to become due to the Contractor amounts paid or incurred by the City in correcting the damage.

22. COOPERATION AND FURTHER DOCUMENTATION

The Contractor agrees to provide the documents, as the City will reasonably request to implement the intent of the Contract documents.

23. COVENANTS AGAINST CONTINGENT FEES

The Contractor warrants that no person other than a bona fide employee working solely for the Contractor has been employed or retained to solicit or secure this Contract or any Contract or understanding for a commission, percentage, brokerage, or contingent fee. For breach or violation of this covenant, the City will have the right to annul this Contract without liability or at its discretion to deduct from the Contract Price or consideration, or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee, together with costs and attorney's fees.

24. DAMAGED WATER, SEWER, AND OTHER UTILITIES

Any utilities damaged during construction shall be replaced at the Contractor's expense as per the requirements of the M.A.G. Standard Specifications.

25. DEFINITIONS

Definitions shall be as stated in Section 101.2 of the MAG STANDARD SPECIFICATIONS with the following additions:

CITY: City of Scottsdale

CONTRACT ADMINISTRATOR: Chris Read

DESIGNER: Mead and Hunt

OWNER: City of Scottsdale

26. DELAY AND DIFFERING SITE CONDITIONS

"Delay" means an unanticipated event or interference with the progress of a critical path work activity being performed at the time that causes the completion date of the project to be extended. Delays may be caused by the City, the Contractor, third parties or Force Majeure events. Delays may be excusable, compensable, non-compensable or concurrent.

"Delay, Compensable" means delay that results from the City's actions or inactions that entitle the Contractor to both a time extension and delay damages.

"Delay, Concurrent" means two (2) or more delays, within the same timeframe, both of which would independently impact the project's critical path. If one delay is caused by the City and the other by the Contractor, the Contractor will generally be entitled to an excusable, non-compensable time extension, to the degree the delays may "overlap."

26. DELAY AND DIFFERING SITE CONDITIONS – CONT'D

"Delay, Excusable" means an unforeseeable delay caused by an event beyond the control and without the fault or negligence of the Contractor (including its suppliers and subcontractors). Excusable delays may be compensable or non-compensable, depending upon whether the terms of the contract or the law allows recovery of delay costs. Unless otherwise shown, these delays are presumed to be non-compensable.

"Delay, Non-Excusable" means a delay within the control of the Contractor, its suppliers and subcontractors, or a delay resulting from a risk taken by the Contractor under the terms of the Contract. The Contractor shall not be due any time extension or delay damages, and may be responsible for paying to the City, actual or liquidated damages for the delay.

"Differing Site Conditions" means concealed or latent physical conditions or subsurface conditions at the Site that, (i) materially differ from the conditions indicated in the Contract documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work.

27. DISPUTE AVOIDANCE AND RESOLUTION

A. The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, the Contractor and the City each commit to resolving any disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the work.

B. The Contractor and the City will first attempt to resolve disputes or disagreements at the field level through discussions between the Contractor's Representative and the Contract Administrator.

C. The City has the option of requiring that the Contractor provide the disputed work by means of time and materials. The disputed work will be paid for according to daily submittals from the Contractor that has been accepted by the City. Wage and materials rates are to be established for involved trades and equipment before the start of the work.

28. DUMPING AND DISPOSAL OF WASTE

The waste product referred to herein shall become the property of the Contractor.

At its expense, the Contractor shall provide for the disposal at a legal off-site location for all waste products, debris, etc., and shall make necessary arrangements for such disposal. Any disposal/dumping of waste products or unused materials shall conform to applicable Federal, State and Local Regulations.

It is preferred that the City of Scottsdale's Solid Waste Division be considered as first choice for dumpster services. Contact Solid Waste Division at 480-312-5600 for pricing, availability and agreements.

29. EXISTING TRAFFIC AND STREET SIGNS AND TRAFFIC SIGNAL EQUIPMENT

The Contractor shall use due care when excavating at or near intersections where traffic signal underground conduit is located. The Contractor shall notify the Transportation Maintenance Traffic Signal Division (480-312-5620), forty-eight (48) hours in advance of any work at such intersections.

The Contractor shall be responsible for the installation and maintenance of temporary overhead traffic signal cable as specified by the Traffic Engineering Director when underground conduit is to be severed by excavations at the intersection. The Transportation Maintenance Manager will have all underground traffic conduit located and shall provide the necessary City Technicians to assist the Contractor in identifying wiring phases and direction of conduit runs upon 24 hours' notice from the Contractor and at least one day prior to the Contractor's scheduled wiring and installation of temporary cables. The Contractor shall be responsible for the wiring and connection of all temporary cable within pull boxes and terminal compartments. The Transportation Maintenance Manager will provide a City technician to assist the Contractor with connecting field wiring within the traffic signal control cabinet.

The Contractor shall provide, at its expense, an off duty uniformed Police Officer to direct traffic while any traffic signal is non-operational. The Contractor shall be responsible as specified by the Traffic Engineering Manager for the repair and restoration of all traffic signal overhead and underground items that have been damaged or modified.

The Contractor shall be responsible for the maintenance and repair of any temporary field wiring of signal equipment. The Contractor shall ensure that signal faces are re-aligned to provide proper visibility when traffic lanes are re-routed.

The City does not permit the splicing of Magnetic Detector Loops.

30. EXISTING UTILITIES TO BE RELOCATED

If any utility is relocated or rebuilt to accommodate the Contractor's construction methods and available equipment, the expense shall be borne by the Contractor.

31. FINAL ACCEPTANCE

Upon receipt of written notice that the work or identified portions of the work are ready for final inspection and acceptance, the City and the Contractor will jointly inspect to verify that the remaining items of work have been completed as described above. Upon verification that the items have been satisfactorily completed, the City will issue a Final Acceptance Letter.

32. GOVERNMENT APPROVALS AND PERMITS

The Contractor is responsible for securing any applicable permits and payment of any applicable taxes and fees associated with the Contract. Fees for City Building Permits and City Encroachment Permits will be waived by the City. All other fees and licenses are Contractor's responsibility.

a) Scottsdale Revised Code, Chapter 31, Section 4, Division 3 prescribes the requirements for Building Permits. Permits must be obtained from the Development Services Office.

b) Scottsdale Revised Code, Chapter 47, Section 3, Division 2 prescribes the requirements for Encroachment Permits. Permits must be obtained from the Development Services Office.

c) Capital Project Management (CPM) Inspection must be notified before the beginning of work, and CPM Inspection will represent the City for the purpose of inspecting the work for conformance to Plans, Specifications and details as well as public safety requirements as authorized by City Code.

d) Development Fees applicable to the Contract will be pre-paid by the City and need not be included in Contractor's bid.

Unless otherwise provided, the Contractor shall apply for and obtain or assist the City and the Design Team in obtaining all necessary permits, approvals and licenses required for the prosecution of the work from any government or quasi-government entity having jurisdiction over the project. The Contractor is specifically required to obtain the necessary environmental permits or file the necessary environmental notices. Any environmental permits and licenses will be paid by the City in accordance with the provisions of Construction Special Terms and Conditions Clause 10(E).

Copies of all necessary permits and notices must be provided to the Contract Administrator before starting the permitted activity. This provision is not an assumption by the City of an obligation of any kind for violation of the permit or notice requirements.

The Contractor shall apply for and obtain permit(s) for building and demolition, but the fees will be paid by the City in accordance with Construction Special Terms and Conditions Clause 10(E). The Contractor shall also obtain any reviews for all-necessary permitting, but the fees for the permitting may be paid by the City in accordance with Construction Special Terms and Conditions Clause 10(E).

The Contractor is responsible for all other review and permit fees not specifically listed in Construction Special Terms and Conditions Clause 10(E).

The Contractor is responsible for the cost of construction-related water meter(s), water and sewer taps, fire lines and taps, and all water bills on the Project meters until Substantial Completion of the Project. Arrangement for construction water is the Contractor's responsibility. Construction water does not include "test water" required to complete new water line pressure tests.

33. GUARANTEE - WARRANTY

The provisions of M.A.G., Section 108.8 shall apply with the following additional requirements:

A. Should the Contractor fail to begin repairs or corrective work within fourteen (14) calendar days after receipt of written notice from the City, the City may perform the necessary work and the Contractor hereby agrees to reimburse the City for the actual cost.

B. The warranty period on any part of the work so repaired or replaced shall be extended for a period of twelve (12) months from the date of such repair or replacement.

C. This guarantee will not apply to damage caused by normal wear and tear or by acts beyond the Contractor's control.

34. HINDRANCES AND DELAYS

In the event that the Contractor sustains damages as a result of expenses incurred by a delay for which the City is responsible, the Contractor and the City shall negotiate to determine the amount of such damages. This provision is made pursuant to Arizona Revised Statutes Section 34-221 and is effective only if the delay caused by the City is unreasonable under the circumstances and was not within the contemplation of the parties. This provision shall not be construed to void any provision of this contract pertaining to notice of delays, arbitration or other settlement provisions applicable to disputes, or provisions relating to liquidated damages.

35. HOURS OF WORK

Non-Building Construction:

All non-building construction and associated work will not commence until one-half hour before sunrise nor continue after sundown. The record of the National Weather Service will be used to determine the official time of these occurrences. Construction activity will include any work requiring the use of manually operated or power assisted tools or equipment and vehicles used to excavate, erect or deliver materials associated with construction. The Building Official or Building Inspection Manager may upon written request grant a variance from these times if just cause can be shown that work must be done outside the prescribed time period.

Building Construction:

A. All building construction and associated work will be restricted to the applicable summer or winter hours. Construction activity will include any work requiring the use of manually operated or power assisted tools or equipment and vehicles used to excavate, erect or deliver materials associated with construction. Summer hours begin April 1 and end on October 31. No work may begin before 6:00 a.m. or continue after 7:00 p.m., Monday through Friday. No work will begin on Saturday or Sunday before 7:00 a.m. or continue after 7:00 p.m. Sunday work may be conducted only if the Contractor demonstrates, in writing to the Building Official, justifiable cause for the Sunday work.

35. HOURS OF WORK – CONT'D

Building Construction – Cont'd

B. Winter hours begin November 1 and end on March 31. No work will begin before 7:00 a.m. or continue after 5:00 p.m., Monday through Friday. No work may begin on Saturday or Sunday before 8:00 a.m. or continue after 5:00 p.m. Sunday work may be conducted only if the Contractor demonstrates, in writing to the Building Official, justifiable cause for the Sunday work.

C. The City may establish other times of work as necessary based on the geographical location of the jobsite in relation to surrounding occupancies, buildings and structures.

D. The Contractor must submit a written request to the Building Official for a variance from the required work hours at least 7 days before the date for which the variance is desired. Variances will not be granted for more than 30 days at a time. A new application must be made for each additional variance. The Contractor must notify adjacent property owners of the intended work and the duration of the requested variance. Proof of notification must be presented to the Building Official before the variance can be granted.

   1. The application for the variance must demonstrate justifiable cause why the work must be done outside the prescribed time period (e.g. pouring concrete during "summer hours"). A variance will not be granted based solely on convenience or for work that can be completed during daytime construction hours.

   2. The application for a variance must state the construction permit number, the address of the work, type of work, time period of the work, and the duration of the variance.

      The variance will state the permit number, address, type of Work, time period of the Work and the duration of the variance. The party requesting the variance will be responsible for notifying the adjacent property owners of the intended Work and the duration of time. Nothing contained in this Contract will limit construction activity or construction related noises between sunrise and sundown.

36. INDEMNIFICATION

Contractor's General Indemnification

To the fullest extent permitted by law, Contractor, its successors, assigns and guarantors, must defend, indemnify and hold harmless City of Scottsdale, its agents, representatives, officers, directors, officials and employees from and against all allegations, demands, proceedings, suits, actions, claims, damages, losses, expenses, including but not limited to, attorney fees, court costs, and the cost of appellate proceedings, and all claim adjusting and handling expense, related to, arising from or out of, or resulting from any act or omission, negligence, recklessness, or intentional wrongful conduct by Contractor in the performance of this Contract, including but not limited to, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable and any injury or damages claimed by any of Contractor's and Subcontractor's employees.

36. INDEMNIFICATION – CONT'D

Contractor's General Indemnification – Cont'd

Insurance provisions in this Contract are separate and independent from the indemnity provisions of this section and shall not be construed in any way to limit the scope and magnitude of the indemnity provisions. The indemnity provisions of this section shall not be construed in any way to limit the scope and magnitude and applicability of the insurance provisions.

37. INDEPENDENT CONTRACTOR

The Contractor is and will be an independent contractor and not an employee or agent of the City.

38. INSPECTION

A. Inspectors may be stationed on the Work to report to the Contract Administrator or his Designee as to the progress of the Work, the manner in which it is being performed, and also to report whenever it appears that material furnished or work performed by the Contractor fails to fulfill the requirements of the specifications and contract. The Inspector may direct the attention of the Contractor to such failure or infringement but such inspection shall not relieve the Contractor from any obligation to furnish acceptable materials or to provide completed construction that is satisfactory in every particular.

B. In case of any dispute arising between the Inspector and the Contractor as to material furnished or the manner of performing the work, the Inspector shall have the authority to reject materials or suspend the work until the question and issue can be referred to and decided by the City. Inspectors are not authorized to revoke, alter, enlarge, relax, or release any requirements of the specifications. Inspectors shall in no case act as foremen or perform other duties for the Contractor or interfere with the management of the work by the Contractor.

C. Inspection or oversight by the Contract Administrator or Designee shall not be considered as direct control of the individual workman and his work. The direct control shall be solely the responsibility of the Contractor.

39. INSURANCE REQUIREMENTS

A. At the same time as execution of this Contract, the Contractor will furnish the City of Scottsdale a certificate of insurance on a standard insurance industry ACORD form. The ACORD form must be issued by an insurance company authorized to transact business in the State of Arizona.

39. INSURANCE REQUIREMENTS – CONT'D

B. The Contractor, Subcontractors and Subconsultants must procure and maintain, until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, insurance against claims for injury to persons or damage to property, which may arise from or in connection with the performance of the Work by the Contractor, his agents, representatives, employees, or Subcontractors. If any work under this agreement is subcontracted in any way, Contractor must execute a written agreement with its subcontractor containing the same Indemnification Clause and Insurance Requirements stated in this Contract protecting City of Scottsdale and Contractor. Contractor will be responsible for executing the agreement with Subcontractor and obtaining Certificates of Insurance verifying the insurance requirements

C. The insurance requirements are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

D. The City in no way warrants that the minimum limits contained in this Contract are sufficient to protect the Contractor from liabilities that might arise out of the performance of the Contract services under this Contract by the Contractor, his agents, representatives, employees, Subcontractors or Subconsultants and the Contractor is free to purchase any additional insurance as may be determined necessary.

Minimum Scope and Limits of Insurance

The Contractor will provide coverage and with limits of liability not less than those stated below.

A. Commercial General Liability - Occurrence Form

Commercial General Liability: Contractor must maintain "occurrence" form Commercial General Liability insurance with a limit of not less than $5,000,000 for each occurrence, $5,000,000 Products and Completed Operations Annual Aggregate, and a $5,000,000 General Aggregate limit. The General Liability/General Aggregate Limit must be a Per Location General Aggregate. The policy must cover liability arising from premises, operations, independent contractors, and personal injury and advertising injury. If any Excess insurance is utilized to fulfill the requirements of this paragraph, the Excess insurance must be "follow form" equal or broader in coverage scope than underlying insurance.

B. Automobile Liability - Any Auto or Owned, Hired and Non-Owned Vehicles

Vehicle Liability: If any vehicle is used in the performance of the Scope of Work that is the subject of this Contract, the Contractor must maintain Business/Automobile Liability insurance with a limit of $5,000,000 each occurrence on Contractor owned, hired, and non-owned vehicles assigned to or used in the performance of the Contractor's work or services under this Contract. If any Excess insurance is utilized to fulfill the requirements of this paragraph, the Excess insurance must be "follow form" equal or broader in coverage scope than underlying insurance.

39. INSURANCE REQUIREMENTS – CONT'D

Minimum Scope and Limits of Insurance – Cont'd

C. Workers' Compensation and Employers Liability

Insurance: Contractor must maintain Workers' Compensation insurance to cover obligations imposed by federal and state statutes applicable to Contractor's employees engaged in the performance of work or services under this Contract and must also maintain Employers' Liability Insurance of not less than $100,000 for each accident, $100,000 disease for each employee and $500,000 disease policy limit. If the Contractor is a sole proprietor or a single member limited liability company with no employees, and has elected not to purchase workers' compensation insurance; a completed and signed Workers' Compensation Waiver form will substitute for the insurance requirement.

D. Professional Liability

Professional Liability: If the Contract is the subject of any professional services or work performed by the Contractor, or if the Contractor engages in any professional services or work adjunct or residual to performing the work under this Contract, the Contractor must maintain Professional Liability insurance covering errors and omissions arising out of the work or services performed by the Contractor, or anyone employed by the Contractor, or anyone whose acts, mistakes, errors and omissions the Contractor is legally liable, with a liability limit of $1,000,000 each claim and $2,000,000 all claims. In the event the Professional Liability insurance policy is written on a "claims made" basis, coverage will extend for 3 years past completion and acceptance of the work or services, and the Contractor, or its selected Design Professional shall submit Certificates of Insurance as evidence the required coverage is in force and contains the required provisions for a 3 year period.

If there is no Professional Liability work or service as a part of this Contract, the City will waive the Professional Liability insurance requirement in writing.

Required Provisions and Endorsements

The policies are to contain, or be endorsed to contain, the following provisions:

A. Commercial General Liability and Automobile Liability Coverage

1. The Commercial General Liability and Automobile Liability policies are to contain, or be endorsed to contain, the following provisions: The City, its officers, officials, agents, and employees are additional insureds with respect to liability arising out of activities performed by, or on behalf of, the Contractor including the City's general supervision of the Contractor; Products and Completed operations of the Contractor; and automobiles owned, leased, hired, or borrowed by the Contractor.

2. The Contractor's insurance must contain broad form contractual liability coverage and must not exclude liability arising out of explosion, collapse, or underground property damage hazards ("XCU") coverage.

39. INSURANCE REQUIREMENTS – CONT'D

Required Provisions and Endorsements – Cont'd

A. Commercial General Liability and Automobile Liability Coverage – Cont'd

3. The City, its officers, officials, agents, and employees must be additional insureds to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Contract.

4. The Contractor's insurance coverage must be primary insurance with respect to the City, its officers, officials, agents, and employees. Any insurance or self-insurance maintained by the City, its officers, officials, agents, and employees must be in excess of the coverage provided by the Contractor and must not contribute to it.

5. The Contractor's insurance must apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

6. Coverage provided by the Contractor must not be limited to the liability assumed under the indemnification provisions of this Contract.

7. The policies must contain a waiver of subrogation against the City, its officers, officials, agents, and employees, for losses arising from Work performed by the Contractor for the City.

8. The Contractor, its successors and or assigns, are required to maintain Commercial General Liability insurance as specified in this Contract for a minimum period of 3 years following completion and acceptance of the Work. The Contractor must submit a Certificate of Insurance evidencing Commercial General Liability insurance during this 3 year period containing all the Contract insurance requirements, including naming the City of Scottsdale, its agents, representatives, officers, directors, officials and employees as Additional Insured as required.

   Claims Made: In the event any insurance policies required by this Contract are written on a "claims made" basis, coverage shall continue uninterrupted throughout the term of this Contract by keeping coverage in force using the effective date of this Contract as the retroactive date on all "claims made" policies. The retroactive date for exclusion of claims must be on or before the effective date of this Contract, and can never be after the effective date of this Contract. Upon completion or termination of this Contract, the "claims made" coverage shall be extended for an additional three (3) years using the original retroactive date, either through purchasing an extended reporting option; or by continued renewal of the original insurance policies. Submission of annual Certificates of Insurance, citing the applicable coverages and provisions specified herein, shall continue for three (3) years past the completion or termination of this Contract.

39. INSURANCE REQUIREMENTS – CONT'D

Required Provisions and Endorsements – Cont'd

A. Commercial General Liability and Automobile Liability Coverage – Cont'd

9. Any self-insured retentions and deductibles must be declared and approved by the City. If not approved, the City may require that the insurer reduce or eliminate any self-insured retentions with respect to the City, its officers, officials, agents, employees, and volunteers.

10. Workers' Compensation and Employers Liability Coverage: The insurer must agree to waive all rights of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from Work performed by the Contractor for the City.

Builders' Risk Insurance (Course of Construction)

Builders' Risk: The Contractor bears all responsibility for loss to all Work being performed and to buildings under construction. Unless waived in writing by the City of Scottsdale, the Contractor will purchase and maintain in force Builders' Risk-Installation insurance on the entire Work until completed and accepted by the City.

1. Builders' Risk Insurance must be maintained until whichever of the following first occurs: (i) final payment has been made; or, (ii) until no person or entity, other than the City, has an insurable interest in the property required to be covered. The policy must be endorsed so that the insurance will not be canceled or lapse because of any partial use or occupancy by the City.

2. This insurance will be Special Causes of Loss policy form, (minimally including perils of fire, lightning, explosion, windstorm and hail, smoke, aircraft and vehicles, riot and civil commotion, theft, vandalism, malicious mischief, and collapse), completed value, replacement cost policy form equal to the Contract amount and all subsequent modifications. The Contractor's Builders' Risk-Installation insurance must be primary and not contributory.

3. Builders' Risk-Installation insurance must contain a provision that this insurance will not be canceled or materially altered without at least 30 days advance notice to the City. The City must also be named as a Loss Payee under Builders' Risk-Installation coverage.

4. Builders' Risk-Installation insurance must cover the entire work including reasonable compensation for architects and engineers' services and expenses and other "soft costs" made necessary by an insured loss. Builders' Risk-Installation insurance must provide coverage from the time any covered property comes under the Contractor's control and or responsibility, and continue without interruption during course of construction, renovation and or installation, including any time during which any project property or equipment is in transit, off site, or while on site for future use or installation. Insured property must include, but not be limited to, scaffolding, false work, and temporary buildings at the site. This insurance must also cover the cost of removing debris, including demolition as may be legally required by operation of any law, ordinance, regulation or code.

39. INSURANCE REQUIREMENTS – CONT'D

Builder's Risk Insurance (Course of Construction) – Cont'd

5. This insurance must include as named insureds, the City, the Contractor, Subcontractors, Subconsultants and others with an insurable interest in the Work unless they are able to provide some level of coverage with the City named as loss payee. Certificates must contain a provision that the insurance will not be canceled or materially altered without at least 30 days advance notice to the City.

6. The Contractor must also purchase and maintain Boiler and Machinery insurance with the same requirements as Builders' Risk-Installation insurance cited above if the Work to be performed involves any exposures or insurable property normally covered under a Boiler and Machinery insurance policy or made necessary as required by law or testing requirements in the performance of this Contract.

7. The Contractor will provide the City with its latest copy of its OSHA 300A.

8. The Contractor will be responsible for any and all deductibles under the Builders Risk and Boiler and Machinery policies and the Contractor waives all rights of recovery and subrogation against the City.

40. ISRAEL BOYCOTT PROHIBITION

By submitting a quote/proposal/bid and/or entering into a contract with the City, the vendor/company certifies that they are not currently engaged in and agrees for the duration of the contract to not engage in a boycott of Israel as defined in A.R.S. § 35-393.

41. LEGAL REQUIREMENTS

The Contractor will perform all work in accordance with all Legal Requirements and will provide all notices applicable to the work as required by the Legal Requirements.

42. LIQUIDATED DAMAGES

The Contractor understands that if Substantial Completion is not attained within the Contract Time as adjusted, the City will suffer damages which are difficult to determine and accurately specify.

In such event, the Contractor shall pay as liquidated damages the amounts specified in Section 108.9 of the M.A.G. Standard Specifications, incorporated in this Contract by reference. To view and obtain copies of the M.A.G. Standard Specifications and the City of Scottsdale's supplements, please view the following City website: http://www.scottsdaleaz.gov/design/mag-supplements

43. MARSHALLING YARD

Contractor shall contact the City of Scottsdale Development Services to determine the requirements for obtaining a permit for marshalling areas it proposes to use.

Marshalling areas shall be fenced with opaque slats. The Contractor shall also obtain written approval from the property owner for marshalling area use. This approval shall contain any requirements which are a condition of this approval. Marshalling yard requirements according to M.A.G. Subsection 107.6.1 and City of Scottsdale Supplemental Specifications shall apply.

44. MUTUAL OBLIGATIONS

The City and the Contractor commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.

45. NATIVE PLANTS

The Contractor shall take whatever steps, procedures or means necessary to remove, move, displace and save all native plants within the contract work area in accordance with the City of Scottsdale's Ordinance No. 1438, Native Plants, and all applicable state and county statutes, ordinances, codes and other policy requirements and recognized methods, procedures, techniques and equipment for protection, salvage, and handling of all plants to be moved from the construction area. Provided, however, this is not a pay item unless specified upon the Schedule of Bid Items.

46. NOTICE

All notices or demands required to be given, in accordance with the terms of this Contract, shall be given to the other party in writing, delivered by hand or registered or certified mail, at the addresses stated below, or to any other address the parties may substitute by written notice given in the manner prescribed in this paragraph. Notice given by facsimile or electronic mail will not be considered adequate notice.

To City:	City of Scottsdale Scottsdale Airport Chris Read 15000 N. Airport Drive Scottsdale, Arizona 85260
To CONTRACTOR:	Company Name Owner Name/Project Manager Address City, State, Zip

47. NOTICE OF CANCELLATION

Each insurance policy required by the insurance provisions of this Contract must provide the required coverage and must not be suspended, voided, canceled by either party, reduced in coverage or in limits except until after 30 days written notice or 10 days' notice of cancellation for non-payment of premiums has first been given, by certified mail, return receipt requested to:

City of Scottsdale
Risk Management Office
7447 East Indian School Road, Suite #225
Scottsdale, Arizona 85251

48. PAYMENT AND PERFORMANCE BONDS

Bonds in the following amounts will be required at the time of executing the formal contract and shall be made payable to the City of Scottsdale.

(1) Performance Bond - One Hundred (100%) percent of the Contract price.

(2) Payment Bond - One Hundred (100%) percent of the Contract price.

At the time of approval of any additional work by Change Order, the Contractor may be required to provide an additional amount for Performance Bond and/or Payment Bond as deemed appropriate by the Contract Administrator or designee.

Performance and Payment Bonds must be submitted on Statutory Forms provided herein.

Each bond shall be executed solely by a surety company or companies holding a Certificate of Authority to transact surety business in the State of Arizona issued by the Director of the State Department of Insurance pursuant to Arizona Revised Statutes Title 20, Chapter 2, Article 1. The bonds shall not be executed by an individual or personal surety or sureties. Additionally the surety company issuing any bond shall have an A.M. Best Company Inc. Financial Strength Rating of not less than "A-VI".

49. PROCEDURE FOR PAYMENT

For and in consideration of the faithful performance of the work required to be done by the Contract Documents, and in accordance with the directions of the City and to its satisfaction, the City agrees to pay the Contractor the amount stated in its bid for the work. Payment for the specific work under this Contract will be made in accordance with payment provisions of this paragraph. Upon making satisfactory progress as described above, the City will make progress payments to the Contractor every 30 days.

49. PROCEDURE FOR PAYMENT – CONT'D

Partial Payment Request

A. At least 5 working days before the date established for a progress payment, the Contractor shall meet with the Construction Coordinator or CPM Inspector to review the progress of the work, as it will be reflected on the Contractor Payment Request.

The Contractor Payment Request will constitute the Contractor's representation that the work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Contractor Payment Request, and that title to all the work will pass to the City free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the work into the project.

B. The Contractor's Payment Request may request payment for equipment and materials already purchased but not yet incorporated into the project if construction progress is in reasonable conformance with the approved schedule.

C. For equipment and materials properly stored at the site, the equipment and materials shall be protected by suitable insurance and the City shall receive the equipment and materials free and clear of all liens and encumbrances.

1. For materials and equipment stored off the site, the City must approve the storage. The material and equipment must be stored within Maricopa County and be accessible for the City's inspection. Title to the materials and equipment shall protect the City's interest and shall include applicable insurance, bonding, storage and transportation to the site.

2. All bonds and insurance required for stored materials shall be in the City's name.

D. The Contractor shall submit a Payment Request in a format acceptable to the City on a date established by the City and the Contractor. This submittal shall include, at a minimum, a narrative description of the tasks accomplished during the billing period, a listing of any deliverables submitted, and the Subcontractors' actual request for payment plus similar narrative and listing of their work.

Payments for those services negotiated as a fixed unit price will be made in accordance with actual measured quantities completed during the preceding month as itemized by the Contractor. Payment for services paid as a lump sum will be made in accordance with the percentage of the services completed during the preceding month as itemized. Those services to be paid as a not-to-exceed reimbursable sum will be paid in accordance with the actual costs of the service expended during the preceding month.

The City will review payment requests and make recommendations for approval or denial within seven (7) calendar days after the City's receipt of each properly submitted and accurate Construction Payment Request, but in each case less the total of payments previously made, and less amounts properly withheld as Required Retention.

49. PROCEDURE FOR PAYMENT – CONT'D

Payment

A. The City will issue payment in accordance with A.R.S. §34-221. Payment will be made no later than 14 days after the Contractor Payment Request is certified and approved by the City's Contract Administrator, less amounts properly retained as Required Retention.

B. The City will pay the Contractor all amounts properly due. If the City determines that the Contractor is not entitled to all or part of a Contractor Payment Request, it will notify the Contractor in writing within 7 days after the date the Contractor Payment Request is received by the City. The notice will indicate the specific amounts the City intends to withhold, the reasons and contractual basis for the withholding, and the specific measures the Contractor must take to rectify the City's concerns. The Contractor and the City will attempt to resolve the City's concerns. If the parties cannot resolve these concerns, the Contractor may pursue its rights under the Contract Documents, including those under the provisions for Claims and Disputes.

Required Retention

A. The City will retain 10% of each Contractor Payment Request amount, but when 50% of the Work has been completed by the Contractor, one-half of the amount retained, including any substituted securities, may be paid to the Contractor if the Contractor is making satisfactory progress on the Contract, and there is no specific cause or claim requiring a greater amount to be retained. If, however, the City determines that satisfactory progress is not being made on the Contract, the City may reinstate the 10% retention for all remaining progress payments.

B. In lieu of retention, the Contractor may provide as a substitute, an assignment of time certificates of deposit (CDs) from a bank licensed by the State of Arizona, securities guaranteed by the United States, securities of the United States, the State of Arizona, Arizona counties, Arizona municipalities, Arizona school districts, or shares of savings and loan institutions authorized to transact business in Arizona.

1. Securities deposited in lieu of retention must be deposited into a separate account with a bank having a branch located in the City of Scottsdale.

2. CDs and Securities will be assigned exclusively for the benefit of the City of Scottsdale in accordance with the City's form of Retainage Escrow Contract.

Upon Substantial Completion of the entire work or, if applicable, any portion of the work, the City may release to the Contractor all retained amounts relating, as applicable, to the entire work or completed portion of the work, not to exceed two and one half times (2.5) the reasonable value of all remaining or incomplete items of work as noted in the Certificate of Substantial Completion.

49. PROCEDURE FOR PAYMENT – CONT'D

Final Payment

A. After receipt of a final Contractor Payment Request, the City will make final payment 60 days after receipt by the City, provided that the Contractor has completed all of the Work in conformance with the Contract Documents and the City has issued a Final Acceptance Letter.

B. At the time of submission of its final Contractor Payment Request, the Contractor shall provide the following information:

1. An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect the City's interests;
2. An affidavit regarding settlement of claims executed by the Contractor waiving, upon receipt of final payment by the Contractor, all claims, except those claims previously made in writing to the City and remaining unsettled at the time of final payment; and
3. Consent of the Contractor's surety, if any, to final payment.

Payments to Subcontractors or Supplier

A. The Contractor will pay its Subcontractors or suppliers within 7 calendar days of receipt of each progress payment from the City. The Contractor shall pay for the amount of the Work performed or materials supplied by each Subcontractor or supplier as accepted and approved by the City with each progress payment. In addition, any reduction of retention by the City to the Contractor may result in a corresponding reduction to Subcontractors or suppliers who have performed satisfactory work. The Contractor shall pay Subcontractors or suppliers the reduced retention within 14 calendar days of the payment of the reduction of the retention to the Contractor. No Contract between the Contractor and its Subcontractors and suppliers may materially alter the rights of any Subcontractor or supplier to receive prompt payment and retention reduction as provided in this Contract.

B. If the Contractor fails to make payments in accordance with these provisions, the City may take any of one or more of the following actions:

1. To hold the Contractor in default under this Contract;
2. Withhold future payments including retention until proper payment has been made to Subcontractors or suppliers in accordance with these provisions;
3. Reject all future offers to perform work for the City from the Contractor for a period not to exceed one year from Substantial Completion date of this project; and/or
4. Terminate this Contract.

49. PROCEDURE FOR PAYMENT – CONT'D

Payments to Subcontractors or Supplier - Cont'd

C. If the Contractor's payment to a Subcontractor or supplier is in dispute, the Contractor and Subcontractor or supplier agree to submit the dispute to any one of the following dispute resolution processes within 14 calendar days from the date any party gives notice to the other: (a) binding arbitration; (b) a form of alternative dispute resolution (ADR) agreeable to all parties, or (c) a City of Scottsdale facilitated mediation. When a disputed claim is resolved through ADR or otherwise, the Contractor and Subcontractor or supplier agrees to implement the resolution within 7 calendar days after the resolution date.

D. Should the City fail or delay in exercising or enforcing any right, power, privilege, or remedy under this paragraph, this failure or delay will not be considered a waiver, release or modification of the requirements of this paragraph or of any of the terms or provisions of this Contract.

E. The Contractor shall include these prompt payment provisions in every subcontract, including procurement of materials and leases of equipment for this Contract.

50. PROTECTION OF FINISHED OR PARTIALLY FINISHED WORK

The Contractor shall properly guard and protect all finished or partially finished work, and shall be responsible for the same until the entire contract is completed and accepted by the City.

Any payment for completed portions of the work shall not release the Contractor from such responsibility, however; Contractor shall turn over the entire work in full accordance with these specifications before final settlement shall be made.

In case of suspension of the work for any cause whatever, the Contractor shall be responsible for the Project and shall take such precautions as may be necessary to prevent damage to the Project and shall erect any necessary temporary structures, signs, or other facilities at no cost to the City.

51. PUNCH LIST PREPARATION

A minimum of 30 days prior to Substantial Completion, the Contractor, in conjunction with the City and the Designer of Record, will prepare a comprehensive list of Punch List items, which the City may edit and supplement. The Contractor shall proceed promptly to complete and correct the Punch List items.

Failure to include an item on the Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Warranties required by the Contract Documents shall not commence until the date of Final Acceptance unless otherwise provided in the Contract Documents. Seven (7) days before the City issues its Final Acceptance Letter, the Contractor shall deliver to the City all Operation and Maintenance Manuals necessary for the City to assume responsibility for the operation and maintenance of that portion of the Work.

52. REPRESENTATIVES OF THE PARTIES

A. Contract Administrators

The City designates the individual listed below as its Senior Representative ("City's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes:

City of Scottsdale
Capital Project Management
Daniel J. Worth, Public Works Director
7447 E. Indian School Road, Suite 205
Scottsdale, Arizona 85251

The City designates the individual listed below as its Contract Administrator:

City of Scottsdale
Scottsdale Airport
Chris Read, Contract Administrator
15000 N. Airport Drive
Scottsdale, AZ 85260

B. Contractor's Representative

The Contractor will provide to the City at or before the Preconstruction meeting, the names of its Senior Representative ("Contractor's Senior Representative") and Project Manager, who have the authority and responsibility for avoiding and resolving disputes.

, Contractor Representative

53. RIGHTS-OF-WAY

The M.A.G. Standard Specification 107.12 shall be modified to read as follows: The Contractor, at its own expense, is responsible for the acquisition of any necessary temporary easements for construction purposes, storage and maintenance purposes, which are required in addition to existing easements and/or rights of way secured by the City as indicated upon the plans.

54. SCOPE

The Work covered by these Specifications consists of furnishing all labor, equipment and materials for construction of approximately 36,000 sq. yards of existing aircraft parking area known as the Delta Apron. The pavement was originally constructed in 1980 and has exceeded its life expectancy by 18 years. This project is federally funded and has a federal DBE Goal of 7.05%. in accordance with "THE INSTRUCTIONS TO BIDDERS", "GENERAL TERMS AND CONDITIONS", "SPECIAL PROVISIONS", and the "PLANS" prepared by Mead and Hunt consisting of (thirty-six (36) sheets and approved on March 19, 2018.

55. STANDARD SPECIFICATIONS AND DETAILS

Except as otherwise noted, construction of this project and all work done under this Contract shall be in accordance with these specifications and all applicable UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION sponsored and distributed by Maricopa Association of Governments (MAG) and MAG STANDARD DETAILS including the latest approved revisions and City of Scottsdale supplements thereto in force at the time of bid advertisement, which shall be referred to hereinafter as the "STANDARD SPECIFICATIONS". In all cases where accepted standards (AWWA, ANSI, AASHTO, ADOT, ASTM, etc.) are referred to in the "STANDARD SPECIFICATIONS", the latest revisions as of bid advertisement shall prevail. To view and obtain copies of the M.A.G. Standard Specifications and the City of Scottsdale's supplements, please view the following City website:

http://www.scottsdaleaz.gov/design/mag-supplements

City of Scottsdale Supplements as revised and the "GENERAL TERMS AND CONDITIONS" AND "SPECIAL PROVISIONS" of these specifications provide for the supplementation, modification and/or amendments to the STANDARD SPECIFICATIONS.

City of Scottsdale Supplements as revised and the "FAA GENERAL PROVISIONS", "SPECIAL PROVISIONS" AND "TECHNICAL PROVISIONS" referenced herein shall provide for the supplementation, modification and/or amendments to the STANDARD SPECIFICATIONS.

ORDER OF PRECEDENCE

In the event of a conflict in the provisions of this solicitation or resulting Contract, as accepted by the City and as the Solicitation or resulting Contract may be amended, the following shall be the order of precedence:

1. Signed and Fully Executed Separate Contract
2. Special Terms and Conditions of the Solicitation
3. General Terms and Conditions of the Solicitation
4. Special Provisions from City of Scottsdale Capital Project Management (by the designer that describes bid items and project specific considerations, e.g., quality control, sequence of activities, submittals and shop drawings).
5. Statement of Scope of Work (SOW)/Specifications/Technical Provisions/Technical Specifications - (Designer's specifications of materials and general conditions of work-means and methods. Street, w/s projects use term Technical Specifications. Building Projects use Construction Specification Institute format).
6. Plans/Drawings (consisting of the designer's/engineer's drawings/sheets.)

55. STANDARD SPECIFICATIONS AND DETAILS – CONT'D

ORDER OF PRECEDENCE – CONT'D

7. Attachments
8. Exhibits
9. Instructions to Bidders
10. Other documents referenced or included in the solicitation or contract.
    Such As:
    a. Technical or code requirements or documents that govern construction materials and design-ICC, etc.
    b. City Supplements to MAG Uniform Standard Specifications for Public Construction.
    c. MAG Standard Specifications for Public Works Construction (unless a Federal Aid project).
    d. MAG Standard Details.
    e. Federal Requirements - ADOT/FHWA/FTA/FAA, etc., requirements. (Where Federal funds are provided for the project, Federal procurement and contract provisions may take precedence of the above Order of Precedence. If Federal procurement and contract provisions take precedence, the City's Order of Precedence will only control when not in conflict with the Federal procurement and contract provisions. Where there is a conflict, the Federal procurement and contract provisions will control).

56. SUBCONSULTANTS AND SUBCONTRACTOR'S INSURANCE

Unless the Contractor's Subconsultants and Subcontractors can provide the same level of coverage as detailed in the Minimum Scope and Limits of Insurance provisions, and name the City and the Contractor as Additional Insureds, the Contractor's certificates must include all Subcontractors and Subconsultants as insureds under its policies or the Contractor must maintain separate certificates and endorsements for each Subcontractor and Subconsultant. All coverage for Subcontractors and Subconsultants must be in the amounts as required in the Minimum Scope and Limits of Insurance provisions. Certificates must contain a provision that the insurance will not be canceled or materially altered without at least 30 days advance notice to the City.

57. SUBLETTING OF CONTRACT

The City of Scottsdale is hereby requiring the following level of self-performance of this Contract as indicated by the one checked block that applies:

☐ Pursuant to ADOT/FHWA Special Terms and Conditions for Federally Funded Projects, Form 12-73, Section VII Paragraph 1, the City of Scottsdale on this Contract is requiring that the Contractor shall perform with its own organization, work amounting to not less than **30%** of the total original contract price, excluding any specialty items.

57. SUBLETTING OF CONTRACT – CONT'D

☐ Pursuant to MAG 108.2(E), the City of Scottsdale, on this Contract for pipeline construction, roadway construction or roadway maintenance, is requiring that the Contractor shall perform with its own organization, work amounting to not less than **50%** of the total original contract price, excluding any specialty items.

☒ Pursuant to MAG 108.2, the City of Scottsdale, on this Contract, is requiring that the Contractor shall perform with its own organization, work amounting to not less than **25%** of the total original contract price, excluding any specialty items.

Specialty items shall be construed to be limited to work that requires highly specialized knowledge, abilities or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the Contract as a whole and in general are limited to minor components of the overall Contract.

All subletting shall be subject to the approval of the City and will not relieve the Contractor of any liability or responsibility of the Contract.

58. SUBSTANTIAL COMPLETION

Substantial Completion shall be for the entire Project unless a partial Substantial Completion is identified and stated in the Notice to Proceed letter. Substantial Completion means when the Work, or when an agreed upon portion of the Work is sufficiently complete so that the City can occupy and use the Project or a portion of it for its intended purposes. This may include, but is not limited to: (a) approval by the City Fire Marshall and local authorities (Certificate of Occupancy); (b) issuance of elevator permit; (c) demonstration to the City that all systems are in place, functional, and displayed to the City or its representative; (d) installation of all materials and equipment; (e) City review and acceptance of all systems; (f) City review and acceptance of draft O&M manuals and record documents; (g) City operation and maintenance training completed; (h) HVAC test and balance completed (provide minimum 30 days before projected substantial completion); (i) completed landscaping and site work; and (j) final cleaning, and (j) any other criteria in the Notice to Proceed.

A. Before requesting a Certificate of Substantial Completion, the Contractor must prepare a punch list as set forth in section 51.

B. The Contractor will notify the City when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is substantially complete.

C. Within 5 days of the City's receipt of the Contractor's notice, the City and the Contractor will jointly inspect the Work to verify that it is substantially complete in accordance with the requirements of the Contract Documents.

58. SUBSTANTIAL COMPLETION – CONT'D

D. If the Work is substantially complete, the City will prepare and issue a Certificate of Substantial Completion that will establish (i) the date of Substantial Completion of the Work or portion of the work, (ii) the remaining items of work that have to be completed within 30 calendar days before Final Acceptance, (iii) provisions (to the extent not already provided in the Contract Documents) establishing the City's and the Contractor's responsibility for the Project's security, maintenance, utilities and insurance pending Final Acceptance and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

1. The City, at its option, may use a portion of the work which has been determined to be substantially complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of work, (ii) the Contractor and the City have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project, and (iii) the City and the Contractor agree that the City's use or occupancy will not interfere with the Contractor's completion of the remaining work.

59. SUPERVISION BY CONTRACTOR

The Contractor will supervise and direct the work. It will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site.

The representative shall have full authority to act on behalf of the Contractor and all communications given to the representative shall be as binding as if given to the Contractor. The representative shall be present on the site at all times as required to perform adequate supervision and coordination of the work. Where appropriate all Provisions of M.A.G., Section 105.5, will be applicable.

60. SUSPENSION AND TERMINATION

<u>City's Right to Stop Work</u>

The City may, at its discretion and without cause, order the Contractor in writing to stop and suspend the work. Immediately after receiving this notice, the Contractor must discontinue advancing the work specified in this Contract. The suspension may not exceed 180 consecutive days. If the City suspends the work for 181 consecutive Days or more, the suspension may be treated as a Contract termination for convenience.

The Contractor may seek an adjustment of the contract price or contract time, or both, if its cost or time to perform the work has been adversely impacted by any suspension or stoppage of the work by the City.

60. SUSPENSION AND TERMINATION – CONT'D

Termination for Convenience

A. Upon written notice to the Contractor, the City has the right to terminate this Contract or abandon any portion of the Project for which services have not been performed by the Contractor.

1. The Contractor will estimate the value of the work it has completed and submit its appraisal to the City for evaluation. The City will have the right to inspect the work to appraise the work completed.

   The Contractor will receive compensation for services performed to the date of termination as provided in the provisions for Delay and Differing Site Conditions. The fee will be paid in accordance with the Payment provisions of this Contract, and will be an amount mutually agreed upon by the Contractor and the City. If there is no mutual agreement, the final determination will be made in accordance with the Claims and Dispute provisions.

2. The Contractor will not be entitled to anticipated profit or anticipated overhead, but is entitled to recover apportioned profit and overhead proportional to the amount of the Work completed. In no event will the fee exceed that stated this Contract or as may be subsequently amended.

3. The City will make the final payment within 60 days after the Contractor has delivered the last of the partially completed items and the final fee has been agreed upon.

   If the City terminates this Contract in accordance with the provisions of this paragraph and proceeds to construct the Project through its employees, agents or third parties, the City's rights to use the work product will be as provided in the provisions providing for the City's Right to Perform and Cancel for Cause.

B. Upon any termination during construction services, the Contractor shall proceed with the following obligations:
   1. Stop Work as specified in the notice.
   2. Place no further subcontracts or orders.
   3. Terminate all subcontracts to the extent they relate to the work terminated.
   4. Assign to the City all right, title and interest of the Contractor under the subcontracts terminated, in which case the City will have the right to settle or to pay any termination settlement proposal arising out of those terminations.
   5. Take any action that may be necessary for the protection and preservation of the property related to the Contract that is in the possession of the Contractor and to which the City has or may acquire an interest.
   6. Comply with the Final Payment provisions of Paragraph 48(B).

60. SUSPENSION AND TERMINATION – CONT'D

Termination for Convenience – Cont'd

7. An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the work which will in any way affect the City's interests; and

8. A general release executed by the Contractor waiving, upon receipt of final payment by the Contractor, all claims, except those claims previously made in writing to the City and remaining unsettled at the time of final payment.

C. The Contractor will submit complete termination inventory schedules no later than 60 days from the date of the notice of termination.

D. The City will pay Contractor the following:
   1. The direct value of its completed work and materials supplied as of the date of termination;
   2. The reasonable costs and expenses attributable to any termination; and
   3. The Contractor will be entitled to profit and overhead on completed work only, but will not be entitled to anticipated profit or anticipated overhead. If it appears the Contractor would have sustained a loss on the entire work had the Project been completed, the Contractor will not be allowed profit and the City will reduce the settlement to reflect the indicated rate of loss.

E. The Contractor will maintain all records and documents for three (3) years after final settlement. These records will be maintained and subject to the auditing provisions.

Termination for Cause:

City may also terminate this Contract or any part hereof with seven (7) days' notice for cause in the event of default. Late deliveries, deliveries of products which are defective or do not conform to this contract, unsatisfactory performance as judged by the Contract Administrator, or failure to provide City, upon request, with adequate assurances of future performance shall all be causes allowing City to terminate this contract for cause. In the event of termination for cause, City shall not be liable to Contractor for any amount, and Contractor shall be liable to City for any and all damages sustained by reason of the default which gave rise to the termination. If it should be determined that City has improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

In the event Contractor is in violation of any Federal, State, County or City law, regulation or ordinance, the City may terminate this contract immediately upon giving notice to the Contractor

61. THIRD PARTY BENEFICIARY

The Contract Documents will not be construed to give any rights or benefits to anyone other than the City and the Contractor, and all duties and responsibilities undertaken in accordance with the Contract Documents will be for the sole and exclusive benefit of the City and the Contractor and not for the benefit of any other party.

62. TRAFFIC CONTROL

A. Complete street closures will not be permitted unless specified in the Special Provisions Section of this bid document.

B. Adequate barricades and lighted warning signs shall be installed and maintained by the Contractor throughout the duration of the project. All traffic control shall be in accordance with the City of Phoenix Traffic Control Manual unless otherwise specified in the Special Provisions section of this bid document.

C. The City Traffic Engineering Manager shall stipulate the traffic restrictions and/or minimum requirements throughout the construction period.

D. The Contractor shall submit a construction schedule and traffic supplement for "Street Barricading and Channelization" to the City Traffic Engineering Manager for approval and/or modification before construction is initiated.

63. VERIFICATION OF COVERAGE

A. The Contractor must furnish the City Certificates of Insurance (ACORD form or equivalent approved by the City) and with original endorsements effecting coverage as required by this Contract. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

B. All certificates and endorsements are to be received and approved by the City before Work commences except for Builders' Risk Insurance, which must be received and approved as provided above. Each insurance policy required by this Contract must be in effect at or before the earlier of commencement of Work under the Contract Documents or the signing of this Contract except for Builders' Risk Insurance which must be in effect before commencement of Work and remain in effect for the duration of the Project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of Contract.

C. All certificates of insurance required by this Contract must be sent directly to the City of Scottsdale, Capital Project Management. ***The solicitation number and Project description must be included on the Certificates of Insurance.*** The City reserves the right to require complete certified copies of all insurance policies required by this Contract, at any time.

64. WORKMANSHIP

Where not more specifically described, workmanship shall conform to all of the methods and operations of best standards and accepted practices of the trade or trades involved and shall include all items of fabrication, construction or installation regularly furnished or required for completion.

All work shall be executed by tradesmen skilled in their respective lines of work.

When completed, all work shall have been durably and substantially built and shall present a neat, workmanlike appearance.

SUBMITTAL CHECKLIST	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

NOTICE: Bidders are not required to return a copy of the solicitation and/or any addenda issued by the City of Scottsdale, with their Submittal. Please review the submittal requirements below for the list of information to be included with your submittal.

The following documents are required with your bid in order to be considered responsive.

Check each box for each completed item included within your submittal.

- ☐ **Bid Form(s) (COS Form)** – Fully completed Solicitation Bid Form(s).
- ☐ **Bidder Form Signature Page (COS Form)** – Fully completed Bid Form Signature Page, signed in ink.
- ☐ **Schedule of Bid Items (COS Form)**
- ☐ **Bid Bond (COS Form)**
- ☐ **Non-Collusion Bidding Certification (Federal Form)**
- ☐ **Bidder's Statement on Previous Contracts – Subject to EEO Clause (Federal Form)**
- ☐ **Certification of Non-Segregated Facilities (Federal Form)**
- ☐ **Disadvantaged Business Enterprise Utilization Statement (Federal Form)**
- ☐ **Certification on Non-Lobbying Activities (Federal Form)**
- ☐ **Certification: Intentions Concerning Subcontracting (Federal Form)**
- ☐ **Suspension and Debarment Certification (Federal Form)**
- ☐ **Certification of Buy America Compliance for Manufactured Products (Federal Form)**
- ☐ **Trade Restriction Clauses (Federal Form)**
- ☐ **Buy America Certification (Federal Form)**

NOTE:
"Please ***do not*** return a copy of the solicitation/addenda(s) with your proposal/submittal. Return only the required documents as referenced on the Submittal Checklist."

All submittals are to be completed on the City of Scottsdale (**COS**) forms without any alterations; failure to do so may result in your submittal being rejected.

BID FORM	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

In compliance with the Advertisement for Bids, by the City of Scottsdale Purchasing Division, the undersigned Bidder:

Having examined the Contract documents, work site, and being familiar with the conditions to be met, hereby submits the following bid for all labor, materials, and equipment, for the completion of the work listed and agrees to execute the Contract documents and furnish the required bonds and certificates of insurance for the completion of said work, at the locations and for the prices set forth hereinafter.

Understands that construction of this project shall be in accordance with all applicable M.A.G. Standard Specifications, Details, Uniform Codes, Ordinances, and Regulations as otherwise required by the Project Plans and Special Provisions.

Understands that the Bid shall be submitted with a bid guarantee of cashier's check or surety bond for an amount not less than (10%) ten percent of the amount bid.

Understands that a notarized Non Collusion Affidavit shall be submitted with the Bid for it to be considered complete.

The Bidder also certifies it is in compliance with the Immigration Compliance and Federal and Arizona State Immigration Laws requirements of the solicitation.

Agrees that upon receipt of Notice of Award, from the City of Scottsdale, to execute the Contract documents.

Work shall be completed within one hundred and eighty-two (182) calendar days, as specified in the Notice to Proceed. The time allowed for completion of the work includes lead time for obtaining the necessary material and/or equipment.

The Bidder hereby acknowledges that its bid pricing is based on all of the addenda that were issued by the City prior to opening of this bid.

The undersigned agrees to complete this project at the price shown below totaling

_____ Dollars

($_____). This amount constitutes the **Base Bid**. Such base bid includes State, County and City privilege (sales) taxes.

Amounts shall be shown in <u>both words and figures</u>.

Contractor's License Number and Classification: _____

In the event unit price extension errors are discovered on the Schedule of Bid Items submitted, the errors may be corrected by the City and the corrected total bid cost shall govern.

NAME OF FIRM: _____

BID FORM SIGNATURE PAGE	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

The City Council reserves the right, as the interest of the City requires, to reject any or all bids, to waive any informality in bids received, to award a contract by accepting or rejecting any alternate bid(s) (additive or subtractive) and reserves the right to reject the bid(s) of any Bidder who has previously failed to perform competently in any contract with the City.

Contractor's License Number and Classification: _____

THIS BID IS SUBMITTED BY _____, a corporation organized under the laws of the State of _____, a partnership consisting of _____ or individual trading as _____, of the City of _____. By submitting this bid (I), (WE) hereby agree to enter into the Contract included in the bid documents and (I), (WE) further agree that this bid incorporates by reference to the same extent as if set forth herein in full all of the terms and conditions contained in said bid documents identified as BID NO. 18PB021, including all addenda issued by the City prior to bid opening. Plans, Standard Specifications and Details, Project Manuals, Special Provisions, Performance Bond, Payment Bond and Certificate of Insurance.

Respectfully Submitted:

COMPANY NAME: _____

AUTHORIZED REPRESENTATIVE: _____ _____
(printed name) (signature)

ADDRESS: _____

CITY/STATE/ZIP CODE: _____

TELEPHONE NUMBER: _____ DATE: _____

E-MAIL ADDRESS: _____

_____ BY: _____
WITNESS: NAME AND TITLE (SEAL)
IF BIDDER IS AN INDIVIDUAL

SCHEDULE OF BID ITEMS
SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT
CITY OF SCOTTSDALE SOLICITATION NO. 18PB021
PROJECT No. AC02A

ITEM NO.	SPEC NO.	ITEM DESCRIPTION	UNIT	EST QUANTITY	UNIT COST	TOTAL COST
1	A-001-2.1	AIRFIELD SAFETY AND TRAFFIC CONTROL	LS	1	$	$
2	A-002-3.1	MOBILIZATION	LS	1	$	$
3	A-004-3.1	CONTRACTOR QUALITY CONTROL PROGRAM	LS	1	$	$
4	A-004-3.2	CONSTRUCTION STAKING AND LAYOUT	LS	1	$	$
5	A-005-4.1	PAVEMENT REMOVAL, COLD MILLING, FULL DEPTH	SY	35,840	$	$
6	A-005-4.2	MISCELLANEOUS CONCRETE & STRUCTURES REMOVAL	LS	1	$	$
7	A-005-4.3	PAVEMENT JOIN	LF	1,950	$	$
8	A-005-4.4	PARTIAL PULLBOX REMOVAL	EA	1	$	$
9	A-005-4.5	CONCRETE TIE DOWN ANCHOR REMOVAL	EA	215	$	$
10	A-005-4.6	FIRE HYDRANT VAULT REMOVALS & WATER LINE MODIFICATIONS	LS	1	$	$
11	A-005-4.7	REMOVE & REPLACE SLURRY/CONCRETE CAP	LF	850	$	$
12	A-005-4.8	PAVEMENT MARKING REMOVAL, 100%	SF	450	$	$
13	A-005-4.9	HAUL ROUTE PAVEMENT REPAIR	LS	1	$	$
14	A-006-5.1	CONCRETE TIE DOWN ANCHOR	EA	132	$	$
15	P-152-4.1	UNCLASSIFIED EXCAVATION	SY	35,910	$	$
16	P-156-5.1	TEMPORARY EROSION AND POLLUTION CONTROL	LS	1	$	$
17	P-209-5.1	CRUSHED AGGREGATE BASE COURSE, P-209	CY	5,990	$	$
18	P-301-6.1	SOIL-CEMENT BASE COURSE, 12-INCH DEPTH	SY	35,690	$	$
19	P-301-6.2	PORTLAND CEMENT	CWT	19,280	$	$
20	P-401-8.1.1	HOT MIX ASPHALT SURFACE COURSE, P-401	TON	8,680	$	$
21	P-620-5.1	PAVEMENT MARKING, YELLOW WITH REFLECTIVE MEDIA	SF	6,000	$	$
22	P-620-5.2	PAVEMENT MARKING, WHITE WITH REFLECTIVE MEDIA	SF	90	$	$
23	P-620-5.3	PAVEMENT MARKING, BLACK	SF	210	$	$
24	L-115-5.1	INSTALL PULLBOX FRAME, COVER & PARTIAL BASE, 100,000 LB DUAL WHEEL AIRCRAFT RATED, SPRING ASSIST COVER	EA	1	$	$
					TOTAL CONSTRUCTION COST	**$**

NAME OF FIRM: _____

BID BOND	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

BID NUMBER: 18PB021 **PROJECT NUMBER: AC02A**

KNOW ALL MEN BY THESE PRESENTS: That we _____, as Principal, and _____, as Surety, are held and firmly bound unto the City of Scottsdale in the penal sum of Ten Percent (10%) of Bid Amount, Dollars ($_____) lawful money of the United States of America, to be paid to the order of the City of Scottsdale, for which payment, well and truly to be made, we bind ourselves, our successors and assigns, signed with our seals and dated _____, 201__. The conditions of the above obligation are such that whereas the City Council of the City of Scottsdale, did order the following works to be done, to wit: Bid No. 18PB021.

WHEREAS, _____, the Principal herein in answer to the Notice Inviting Bids issued by the City of Scottsdale, put in its bid for the making of said improvements.

NOW THEREFORE, if the Obligee accepts the proposal of the Principal and the Principal enters into a contract with the Obligee in accordance with the terms of the bid and gives the Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient surety for the faithful performance of the contract and for the prompt payment of labor and materials furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give the Bonds and Certificates of Insurance, if the Principal pays to the Obligee the difference not to exceed the penalty of the Bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal then this obligation is void. Otherwise it remains in full force and effect provided, however, that this Bond is executed pursuant to the provisions of Section 34-201, Arizona Revised Statutes, and all liabilities on this Bond shall be determined in accordance with the provisions of the section to the extent as if it were copied at length herein.

ATTEST:

_____
PRINCIPAL (SEAL)

_____
ATTORNEY IN FACT

BY:_____

_____
SURETY (SEAL)

_____
AGENCY OF RECORD

_____
AGENCY ADDRESS

NON-COLLUSION BIDDING CERTIFICATION	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

COS BID NO. **18PB021** **NAME OF PRIME FIRM:** _____

PROJECT NUMBER **AC02A**

PROJECT NAME **SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT**

(STATE OF)
ss
(COUNTY OF)

I, _____of the City of_____in the County of _____and the State of_____of full age, being duly sworn according to the law of my oath depose and say that:

I am a_____ a, _____
(Name) (Title, Position, etc.)

of the firm of _____, the Bidder making the Bid for City of Scottsdale, SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT, City Project No. AC02A and that I executed the said Bid with full authority so to do; that said Bidder has not, directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named Project; and that all statements contained in said Bid and in this affidavit are true and correct, and made with full knowledge that the City of Scottsdale relies upon the truth of the statements contained in said Bid and in the statements contained in this affidavit in awarding the Contract for the said Project.

The bidder certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federally appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract grant, loan, or cooperative agreement.

(2) If any funds other than Federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. Copies of Form-LLL, "Disclosure Form to Report Lobbying", are available at ADOT Contracts and Specifications Services, 1651 W. Jackson, Room 121F, Phoenix, AZ 85007.

NON-COLLUSION BIDDING CERTIFICATION – CONT'D	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The bidder also agrees, by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all subcontracts and lower tier subcontracts which exceed $100,000 and that all such subcontractors and lower tier subcontractors shall certify and disclose accordingly.

The City of Scottsdale will keep the prime contractors' certifications on file as part of their original bid proposals. Each prime contractor shall keep individual certifications from all subcontractors and lower tier subcontractors on file.

Certifications shall be retained for three years following completion and acceptance of any given project.

Disclosure forms for the prime contractor shall be submitted to the Engineer at the pre-construction conference. Disclosure forms for subcontractors and lower tier subcontractors shall be submitted to the Engineer by the prime contractor along with the submittal of each subcontract or lower tier subcontract when said subcontracts exceed $100,000.00. During the performance of the contract the prime contractor and any affected subcontractors shall file revised disclosure forms at the end of each calendar year quarter in which events occur that materially affect the accuracy of any previously filed disclosure form. Disclosure forms will be submitted by the Engineer to the Federal Highway Administration for further processing.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such Contract I upon an agreement of understanding, for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by:

_____
(Signature of Bidder)

_____
(Printed or Typed Name of Bidder)

Sworn to before me this _____day of _____20 _____ in the County of
_____, State of _____

_____
(Notary Public)

BIDDER'S STATEMENT ON PREVIOUS CONTRACTS SUBJECT TO EEO CLAUSE	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

The Bidder (Proposer) shall complete the following statement by checking the appropriate boxes.

The Bidder (Proposer) has ____ has not____ participated in previous contract subject to the Equal Employment Opportunity Clause prescribed by Executive Order 11246.

The Bidder (Proposer) has ____ has not____ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that representations indicating submission of required compliance reports signed by the proposed subcontractors will be obtained prior to award of subcontracts.

If the Bidder (Proposer) has participated in previous contract subject to the Equal Opportunity Clause and has not submitted compliance reports due under applicable filing requirements, the Bidder (Proposer) shall submit a compliance report on Standard Form 100, "Employee Information Report EEO-1" prior to the award of contract.

NOTE: Failure to complete the blanks may be grounds for rejecting the bid.

_____
Contractor / Company Name

_____
Printed Name and Title of Authorized Representative

_____
Signature of Authorized Representative

_____
Date

(Name of Bidder)

Business Address: _____

_____

_____

CERTIFICATION OF NON-SEGREGATED FACILITIES	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

The federally-assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that 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 further that he will not maintain or provide, for his employees, any segregated facilities at any of his establishments, and that 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, time clocks, 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 he has obtained identical certification from proposed subcontractors for specific time periods) 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 he will retain such certifications in his files.

Certification - The information above is true and complete to the best of my knowledge and belief.

_____

Contractor / Company Name

_____

Printed Name and Title of Authorized Representative

_____

Signature of Authorized Representative

(Name of Bidder)

Business Address: _____

_____

_____

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION STATEMENT 49 CFR Part 26	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

Bidder/Offer Name:_____

Address:_____

City:_____State:_____Zip:_____

DBE Firm: DBE Firm:_____

Address:_____

City:_____State:_____Zip:_____

DBE Contact Person: Name:_____Phone: (____)_____

DBE Certification Agency:_____Expiration Date:_____

Each DBE Firm shall submit evidence (such as a photocopy of their certification status.

Classification:	Prime Contractor ☐	Subcontractor ☐	Joint Venture ☐
	Manufacturer ☐	Supplier ☐	

Work items to be performed by DBE	Description	Quantity	Total

The bidder/offeror is committed to utilizing the above-named DBE firm for the work described above. The estimated participation is as follows:

DBE contract amount: $_____ Percent of total contract: _____%

Affirmation
The above named DBE Firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By: _____ _____
(Signature) *(Title)*

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.

CERTIFICATION ON NON LOBBYING ACTIVITIES	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

CERTIFICATION FOR CONTRACTS, GRANTS, AND LOANS

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

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 this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

_____

Contractor / Company Name

_____

Printed Name and Title of Authorized Representative

_____

Signature of Authorized Representative

Approved by OMB

0348-0046

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure)

1. Type of Federal Action: a. contract _____ b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	**2.** Status of Federal Action: a. bid/offer/application _____ b. initial award c. post-award	**3.** Report Type: a. initial filing _____ b. material change **For material change only:** Year_____quarter _____ Date of last report_____
4. Name and Address of Reporting Entity: _____Prime _____Subawardee Tier_____, if Known: **Congressional District, if known:**	**5. If Reporting Entity in No. 4 is Subawardee,** Enter Name and Address of Prime: **Congressional District, if known:**	
6. Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, *if applicable*: _____	
8. Federal Action Number, *if known:*	**9. Award Amount**, *if known:* **$**	
10. a. Name and Address of Lobbying Registrant *(if individual, last name, first name, MI):*	**b. Individuals Performing Services** *(including address if different from No. 10a)* *(last name, first name, MI):*	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	**Signature:** _____ **Print Name:**_____ **Title:**_____ **Telephone No.:**_____**Date:**_____	
Federal Use Only	**Authorized for Local Reproduction** **Standard Form - LLL (Rev. 7-97)**	

CERTIFICATION: INTENTIONS CONCERNING SUBCONTRACTING	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

At the time of submission of Bids on the project titled above, my intention concerning subcontracting a portion of the work is as indicated below.

In indicating that it is my intention to subcontract a portion of the work, this will certify that affirmative actions were taken in the preparation of the Bid to solicit the interest, capability and prices of minority business enterprises (MBEs) and that documentation, such as copies of letters, requests for quotations, quotations, etc., substantiating the actions taken and the responses to such actions, is on file and available for review.

It **IS NOT** my intention to Subcontract a portion of the Work

By:_____

_____

Title

_____

Name of Firm

DATE:_____

It **IS** my intention to Subcontract a portion of the Work.

By:_____

_____

Title

_____

Name of Firm

DATE: _____

In compliance with the Standard Specifications as modified by these Contract Documents, the Contractor hereby submits for approval the following names of Subcontractors and/or Major Material Suppliers.

	DESCRIPTION OF WORK OR PRODUCT	SUBCONTRACTOR OR MANUFACTURER	CONTRACTOR'S LICENSE NO.
___1.	_____	_____	_____
___2.	_____	_____	_____
___3.	_____	_____	_____
___4.	_____	_____	_____
___5.	_____	_____	_____
___6.	_____	_____	_____
___7.	_____	_____	_____
___8.	_____	_____	_____

SUSPENSION AND DEBARMENT CERTIFICATION	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

The Bidder/Offeror certifies by submission of this bid/proposal or acceptance of this contract, that neither it nor its principals are 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 bid/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.

_____

Contractor / Company Name

_____

Printed Name and Title of Authorized Representative

_____

Signature of Authorized Representative

_____

Date

(Name of Bidder)

Business Address: _____

_____

_____

http://www.faa.gov/airports/aip/buy_american/

CERTIFICATION OF BUY AMERICAN COMPLIANCE FOR MANUFACTURED PRODUCTS	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:

a) Only installing steel and manufactured products produced in the United States, or;
b) Installing manufactured products for which the FAA has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing, or;
c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

1. To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
2. To faithfully comply with providing US domestic product
3. To furnish US domestic product for any waiver request that the FAA rejects
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

☐ The bidder or offeror hereby certifies it cannot comply with the 100% Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

1. To the submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that support the type of waiver being requested.
2. That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination may result in rejection of the proposal.
3. To faithfully comply with providing US domestic products at or above the approved US domestic content percentage as approved by the FAA.
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

CERTIFICATION OF BUY AMERICAN COMPLIANCE FOR MANUFACTURED PRODUCTS – CONT'D	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

Required Documentation

Type 3 Waiver - The cost of the item components and subcomponents produced in the United States is more that 60% of the cost of all components and subcomponents of the "item". The required documentation for a type 3 waiver is:

a) Listing of all product components and subcomponents that are not comprised of 100% US domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety)

b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.

c) Percentage of non-domestic component and subcomponent cost as compared to total "item" component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

Type 4 Waiver – Total cost of project using US domestic source product exceeds the total project cost using non-domestic product by 25%. The required documentation for a type 4 of waiver is:

a) Detailed cost information for total project using US domestic product
b) Detailed cost information for total project using non-domestic product

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date	Signature
Company Name	Title

TRADE RESTRICTION CERTIFICATION	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

The Contractor or Subcontractor, by submission of an offer and/or execution of Contract, certifies that it:

a. is not owned or controlled by one or more citizens or nationals 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 included on the list of countries that discriminate against U.S. firms as published by the USTR; and

c. has not entered into any subcontract for any product to be used on the Federal on the project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

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.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

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 an Offeror or subcontractor:

(1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR or
(2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list or
(3) who incorporates in the public works project any product of a foreign country on such USTR list;

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.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

TRADE RESTRICTION CLAUSES – CONT'D	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

_____

Contractor / Company Name

_____

Printed Name and Title of Authorized Representative

_____

Signature of Authorized Representative

_____

Date

Business Address:

_____

_____

_____

BUY AMERICA CERTIFICATION	
	SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT **IFB # 18PB021**

COS BID NO. **18PB021** **NAME OF PRIME FIRM:** _____

PROJECT NUMBER **AC02A**

PROJECT NAME **SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT**

The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 CFR Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in federal-funded projects are produced in the United States, unless a waiver has been granted by the Federal Highway Administration (FHWA) or the product is subject to a general waiver.

A bidder or offeror must submit to the City of Scottsdale the appropriate Buy America Certification (below) with all bids on federally-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as non-responsive. This requirement does not apply to lower tier subcontractors.

Certification requirement for procurement of steel, iron, or manufactured products.

Certificate of Compliance with 49 U.S.C. 5323(j)(1)
The bidder or offeror hereby certifies that it will meet the requirements of 49 U.S.C. 5323(j)(1) and the applicable regulations in 49 CFR Part 661.

Date _____
Signature_____
Company Name_____
Title _____

OR:

Certificate of Non-Compliance with 49 U.S.C. 5323(j)(1)
The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j)(1), but it may qualify for an exception pursuant to 49 U.S.C. 5323(j)(2)(B) or (j)(2)(D) and the regulations in 49 CFR 661.7.

Date _____
Signature_____
Company Name_____
Title _____

Company Name _____

INVITATION FOR BID 18PB021

SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT

SAMPLE CONTRACTUAL DOCUMENTS - REQUIRED FOR FINAL EXECUTION OF CONTRACT

*The following documents do **not** need to be included with your submittal.*

NOTICE OF AWARD

BID NUMBER: (bid number) **PROJECT NUMBER: (project number)**

PROJECT NAME: (title)

TO (Company Name Only)
(Address)
(City, State, Zip)

You are hereby notified that you were awarded the Contract by the Scottsdale City Council or the Purchasing Director, on (Date) in the amount of $_____.

You are required by the Terms and Conditions of this bid to execute the Construction Contract and furnish the following checked items within ten (10) days from the date of this Notice:

☐ **Contractor's Payment Bond** ☐ **Contractor's Performance Bond** ☐ **Insurance Certificate(s)**

☐ **I.R.S. Form W-9/Request for Taxpayer ID No. & Certification** ☐ **New Vendor Setup Form**

If you fail to execute the Construction Contract, furnish the items identified above within ten (10) days from the date of this Notice, the City will consider this as a forfeiture of your Bid Bond. All required documents shall to be sent to the Bid & Contract Specialist listed below. The City will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the City of Scottsdale.

BY: _____
(type staff name)
(type staff title)

ACCEPTANCE OF NOTICE:

Receipt of the above NOTICE OF AWARD is hereby acknowledged.

BY: _____ _____
Signature of Authorized Representative Printed Name/Title

Subscribed and sworn to before me this _____ day of _____ 201__.

_____ _____
NOTARY PUBLIC My Commission Expires

SAMPLE

CITY OF SCOTTSDALE
CONSTRUCTION CONTRACT

BID NUMBER: (bid number) **PROJECT NUMBER: (project number)**

PROJECT NAME: (title)

THIS CONTRACT, entered into this _____ day of _____, 201__, between _____, herein after designated "Contractor" and the City of Scottsdale, County of Maricopa, and State of Arizona, a municipal corporation, organized and existing under and by virtue of the laws of the State of Arizona, the “City”.

WITNESSETH:

The Contractor, in consideration of the sum to be paid Contractor by the City, in the manner and at the time provided, and of the other covenants and agreements contained in this Contract and under the penalties expressed in the bonds provided, agrees, for itself, its heirs, executors, administrators, successors, and assigns as follows:

SECTION 1 - SCOPE OF WORK: The Contractor will furnish any and all labor, materials, equipment, transportation, utilities, services and facilities required to perform all work for Bid No. 18PB021, Project No. (project number) and to completely and totally construct the project and install the material in the project for the City, in a good workmanlike and substantial manner to the satisfaction of the City and under the oversight of the City, or other properly authorized agents and strictly in accordance with the Plans and Specifications prepared for the City, and with any modifications of the Plans and Specifications and other documents that may be made by the City or other properly authorized agents, as provided in this Contract.

The Contractor agrees that this Contract, as awarded, is for Bid No. (bi number), Project No. (project number), (title), (project address), in the amount of $_____, and understands that payment for the total work will be made on the basis of the indicated amount(s), as bid in the Bid Form.

SECTION 2 - CONTRACT DOCUMENTS: The Contract Documents consist of the Invitation for Bid, Bid No. (bid number), Plans, Standard Specifications and Details, Project Manuals, General and Special Provisions, Addenda, if any, and Contractor's Bid, as accepted by the Mayor and Council. Performance Bond, Payment Bond, Certificates of Insurance, and Change Orders, if any, are by this reference made a part of this Contract.

SAMPLE

NOTE: USE THIS SIGNATURE PAGE IF AWARDED BY COUNCIL – USE NEXT PAGE IF ADMINISTRATIVE AWARD

BID NUMBER: (bid number) **PROJECT NUMBER: (project number)**

PROJECT NAME: (title)

SECTION 3 - TIME OF COMPLETION: The Contractor further covenants and agrees at its own proper cost and expense, to do all work as required for the construction of the improvements and to completely construct the project and install the materials, as called for by the Contract Documents free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified within the time, or times, stated in the bid documents.

SECTION 4 - PAYMENTS: In consideration of the faithful performance of the work as stated in the Contract Documents, which have been made a part of this Contract by reference, and in accordance with the directions of the City, through its Contract Administrator or other properly authorized agent and to City's satisfaction, the City agrees to pay the Contractor the amount earned, computed from actual quantities of work performed and accepted or materials furnished at the unit bid and/or lump sum price on the Bid Form. Any progress payments made must be in accordance with the General Terms and Conditions as stated in the Contract Documents and final payment will be made within 60 days after final inspection and acceptance of the work.

SECTION 5 - CONTRACT ADMINISTRATOR IS: (type contract administrator) or designee.

IN WITNESS WHEREOF, 2 identical counterparts of this contract, each of which are for all purposes considered an original, have been duly executed by the parties on the date and year first above written.

CITY OF SCOTTSDALE

By: _____
W.J. "Jim" Lane, Mayor

ATTEST:

BY: _____
Carolyn Jagger, City Clerk

CONTRACTOR:

_____
(company name)

_____
(address)

_____
(city, state, zip)

_____
(printed name/title)

By: _____
(signature of authorized representative)

REVIEWED:

_____
Katherine Callaway
Risk Management Director

_____
Brent Stockwell
Acting Purchasing Director

_____
(type name)
Contract Administrator

APPROVED AS TO FORM:

_____
Bruce Washburn, City Attorney
By: (type name of attorney)
(type title of attorney)

SAMPLE

NOTE: USE THIS SIGNATURE PAGE IF ADMINISTRATIVE AWARD
BID NUMBER: (bid number) **PROJECT NUMBER: (project number)**

PROJECT NAME: (title)

SECTION 3 - TIME OF COMPLETION: The Contractor further covenants and agrees at its own proper cost and expense, to do all work as required for the construction of the improvements and to completely construct the project and install the materials, as called for by the Contract Documents free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified within the time, or times, stated in the bid documents.

SECTION 4 - PAYMENTS: In consideration of the faithful performance of the work as stated in the Contract Documents, which have been made a part of this Contract by reference, and in accordance with the directions of the City, through its Contract Administrator or other properly authorized agent and to City's satisfaction, the City agrees to pay the Contractor the amount earned, computed from actual quantities of work performed and accepted or materials furnished at the unit bid and/or lump sum price on the Bid Form. Any progress payments made must be in accordance with the General Terms and Conditions as stated in the Contract Documents and final payment will be made within 60 days after final inspection and acceptance of the work.

SECTION 5 - CONTRACT ADMINISTRATOR IS: (type contract administrator) or designee.

IN WITNESS WHEREOF, 2 identical counterparts of this contract each of which are for all purposes considered an original, have been duly executed by the parties on the date and year first above written

CITY OF SCOTTSDALE

W.J. "Jim" Lane, Mayor

CONTRACTOR:

_____
(company name)

_____
(address)

_____
(city, state, zip)

_____
(printed name/title)

By: _____
(signature of authorized representative)

REVIEWED BY:

_____
Brent Stockwell
Acting Purchasing Director

_____
Katherine Callaway
Risk Management Director

_____
(type name)
Division Director

OR

_____
(type name)
Contract Administrator

SAMPLE

STATUTORY PERFORMANCE BOND
PURSUANT TO TITLE 34, CHAPTER 2, ARTICLE 2,
OF THE ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract Amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____ (hereinafter called the Principal) as Principal, and _____, a corporation organized and existing under the laws of the State of _____ with its principal office in the City of _____, (hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Scottsdale, County of Maricopa, State of Arizona in the amount of _____Dollars ($_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the City of Scottsdale, dated the _____ day of _____, 201__ for Bid No. (bid number), Project No. (project number), (title), which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW THEREFORE, the condition of this obligation is such, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of the contract during the original term of the contract and any extension of the contract, with or without notice to the surety, and during the life of any guaranty required under the contract, and also performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED HOWEVER, that this Bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this Bond shall be determined in accordance with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the extent as if it were copied at length in this agreement.
The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a Judge of the Court.

WITNESS our hands the _____ day of _____, 201__

_____
PRINCIPAL

_____
BY:

_____
SURETY (SEAL)

_____
AGENCY OF RECORD

_____
AGENCY ADDRESS

STATUTORY PAYMENT BOND
PURSUANT TO TITLE 34, CHAPTER 2, ARTICLE 2,
OF THE ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract Amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____ (hereinafter called the Principal), as Principal, and _____ a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Scottsdale, County of Maricopa, State of Arizona, in the amount of _____ Dollars ($_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the City of Scottsdale dated the _____ day of _____, 201__ for Bid No. (bid number), Project No. (project number), (title), which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of this obligation is such, that if the Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's subcontractors in the prosecution of the work provided for in the contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, of the Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if they were copied at length in this agreement.
The prevailing party in a suit on this bond shall be recover as a part of the judgment reasonable attorney fees that may be fixed by a Judge of the Court.

WITNESS our hands the _____ day of _____, 201__

_____
PRINCIPAL

_____
BY:

_____
SURETY (SEAL)

_____
AGENCY OF RECORD

_____
AGENCY ADDRESS

NOTICE TO PROCEED

PROJECT NAME: (title)

BID NUMBER: (bid number) **COS PROJECT NUMBER: (cos project number)**

FEDERAL PROJECT#: (federal number)

Date

TO:

In accordance with the Contract dated _____, 201__, you are hereby notified to commence work on _____, 201__ and you are to complete the WORK within one hundred and eighty-two (182) consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 201__. Official time extensions thereto shall be considered and authorized in strict conformance with General Conditions or M.A.G. Standard Specifications.

CITY OF SCOTTSDALE

ISSUED BY: _____
(staff name)
(staff title)

REVIEWED BY: _____
(contract administrator name)
Project Manager

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged.

BY: _____ _____
Signature of Authorized Representative Printed Name/Title

Subscribed and sworn to before me this _____ day of _____ 201__

_____ _____
NOTARY PUBLIC My Commission Expires

SAMPLE

AFFIDAVIT REGARDING SETTLEMENT OF CLAIMS

PROJECT NAME: (project name)

BID NUMBER: (bid number) **COS PROJECT NUMBER: (cos project number)**

FEDERAL PROJECT#: (federal number)

To the City of Scottsdale, Arizona

This is to certify that all lawful claims for materials, rental of equipment and labor used in connection with the construction of the above project, whether by subcontractor or claimant in person, have been duly discharged.

The undersigned, for the total consideration of $_____, including the final pay estimate of $_____, as full and complete payment under the terms of the contract, hereby waives and relinquishes any and all further claims or right of lien under, in connection with, or as a result of the above described project. The undersigned further agrees to defend, indemnify and hold harmless the City of Scottsdale against any and all liens, claims of liens, suits, action, damages, charges and expenses whatsoever, which said City may suffer arising out of the failure of the undersigned to pay for all labor performances and materials furnished for the performance of said project construction items and/or services.

Signed and dated this _____ day of _____ 201__.

_____
CONTRACTOR

_____
BY:

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

The foregoing instrument was subscribed and sworn to before me this ___ day of _____, 201__.

_____ _____
NOTARY PUBLIC My Commission Expires

SAMPLE

CONTRACTOR'S NOTICE OF
FINAL PAY ESTIMATE

PROJECT NAME: (project name)

BID NUMBER: (bid number) **COS PROJECT NUMBER: (cos project number)**

FEDERAL PROJECT#: (federal number)

To the City of Scottsdale

This notice confirms acceptance by Contractor of final contract payment in the amount of $_____ which represents the balance due for subject project. This amount includes payment for all retentions held and adjusted final quantities.

TOTAL CONTRACT AMOUNT, including final pay estimate: $_____.

Signed and dated this _____ day of _____ 201__.

BY: _____

Title: _____

For: _____

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

The foregoing instrument was subscribed and sworn to before me this ____ day of _____, 201__.

_____ _____
NOTARY PUBLIC My Commission Expires

SAMPLE

CONTRACTOR'S NOTICE OF
FINAL ACCEPTANCE

PROJECT NAME: (project name)

BID NUMBER: (bid number) **COS PROJECT NUMBER: (cos project number)**

FEDERAL PROJECT#: (federal number)

CONTRACTOR NAME:

FINAL CONTRACT AMOUNT:

Construction on the above project was completed on _____ and on _____ a final inspection was made of the subject improvements by this office. The work substantially conforms to the approved plans and specifications. We, therefore, accept those portions within the public right-of-way into our system for maintenance.

Approved By:

_____
Contract Administrator

_____
Construction Coordinator

cc: City Clerk
Accounting Director
Risk Management Director
Tax Audit Manager
Purchasing Director
Other:

SAMPLE

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT NAME: (project name)

BID NUMBER **(bid #)** **COS PROJECT NUMBER** **(project #)**

Federal Project No. **(federal #)**

Owner:
City of Scottsdale
XX, Contract Administrator
7447 E. Indian School Road, Suite 205
Scottsdale, Arizona 85251

Contractor:
Contractor Name
Contact
Address
Address line 2

Dear :

The City of Scottsdale hereby recognizes substantial completion of the above referenced project as of [**completion date**]. The punch list, dated , with the remaining items to be completed, is attached**[punch list date**] is attached. Per contract, Final Completion must be obtained no later than 30 calendar days after the date of Substantial Completion. Failure to timely obtain Final Completion will be a material breach of contract.

The warranties and guarantees required by the contract documents begin as of this substantial completion date. This recognition of substantial completion is issued with the understanding that the City is indemnified and held harmless against any and all claims, liens, suits, etc. arising from disputes concerning payment for the above project.

Approved By:

Name Title Date
Contract Administrator

Name Title Date
Construction Contractor

Name Title Date
Project Architect/Engineer

SAMPLE

RETAINAGE ESCROW AGREEMENT
AND ASSIGNMENT FOR CONSTRUCTION CONTRACTS

This Escrow Agreement and Assignment is made and entered into on _____, 201__, by and among the City of Scottsdale (hereinafter referred to as "City"), _____ (hereinafter referred to as "Contractor") and Wells Fargo Bank Arizona, National Association (hereinafter referred to as "Bank" or "Escrow Agent").

Whereas, City and Bank, having entered into Banking Services Agreement No. 13RP016; and

Whereas, City and Contractor have entered into a contract for construction as follows: _____ _____ (hereinafter referred to as "Contract"); and

Whereas, said Contract provides that City shall reserve as retainage an amount not to exceed ten percent (10%) of progress payments due on the Contract pursuant to the provisions of Arizona Revised Statutes, Section 34-221; and

Whereas, A.R.S. § 34-221(C) (5) provides that a contractor may assign to City certain certificates of deposit or securities (collectively "securities") in lieu of the ten percent retainage; and

Whereas, Contractor desires to avail itself to said assignment provisions; and

Whereas, City, Contractor, and Bank mutually desire to enter into this Escrow Agreement and Assignment (hereinafter referred to as "Agreement") in order to implement the statutory provisions;

Now, Therefore, in consideration of the foregoing and the mutual covenants and promises contained herein, the parties agree as follows:

Appointment and Acceptance of Escrow Agent. The City designates the Bank as its Escrow Agent and custodian to care for and service any securities or funds assigned by Contractor to City pursuant to A.R.S. § 34-221(C) (5). The Bank agrees to accept appointment as Escrow Agent.

Fees. Bank is entitled to compensation in accordance with "Schedule A" attached hereto and incorporated herein by reference and which shall be payable by Contractor.

SAMPLE

Receipt of Escrow Funds. Whenever Contractor elects to substitute acceptable securities for the entire amount to be retained by City as a guarantee for complete performance of the Contract, Contractor shall provide written notification to City of such election. Upon such notification, Contractor agrees to transfer funds in that amount to the Bank, at which time the Bank agrees to immediately purchase one or more of the type of securities set forth in paragraph 4 of this Agreement in the name of City in accordance with investment directions received from Contractor. All such funds transferred by Contractor to the Bank upon election of Contractor shall, from the moment of such transfer, be subject to all terms and conditions contained in this Agreement.

Contractor shall have the right to direct the Bank to change the investment of funds from a particular security to another security as long as all securities comply with the requirements of paragraph 4 of this Agreement and so long as Contractor pays all handling and/or transfer fees related to investment changes. All such securities shall be purchased in the name of City, shall be held by Bank in accordance with this Agreement, and shall be deemed to be in the possession of City for its benefit in lieu of retainages held by City under the Contract.

In no event shall City accept a time certificate of deposit of a bank or shares of a savings and loan institution in lieu of the retainage unless accompanied by a signed and acknowledged waiver of the bank or savings and loan institution of any right or power to set off against either the City or Contractor in relationship to the certificates or shares assigned. Investments in Money Market Funds that invest only in securities set forth in paragraph 4 of this Agreement shall be considered an acceptable substitute for the actual securities. Such Money Market Funds may be Money Market Funds for which the Trustee or its Affiliates provide management advisory services.

Investment of Escrow Funds. For purposes of this Agreement only, the term “security” shall be of a character described in A.R.S. § 34-221(C) (5) and approved by the state treasurer, including:

Time certificates of deposit of banks licensed by the State of Arizona;

Securities of or guaranteed by the United States of America;

(c) Securities of the State of Arizona or of counties, municipalities and school districts within Arizona;

(d) Shares of savings and loan institutions authorized to transact business in Arizona.

Interest. All interest and income paid on any bonds or securities assigned and deposited pursuant to this Agreement shall be collected on a regular basis by the Bank and said amounts shall be the property of and be paid, when and as accrued and collected, to Contractor, less reasonable custodial care or service costs charged for such service.

Duty of the Escrow Agent. The duties of Bank include its obligations to:

Receive the Escrow Funds and invest the same pursuant to Section 4, pending written authorization from the City to deliver all interest and income of said securities to Contractor; Provide immediate notification to the City of each Contractor deposit of funds into the escrow account and each purchase of securities by Bank;

SAMPLE

Duty of the Escrow Agent – Cont'd

Deliver to City all or any portion of said securities, upon written request of City, provided that, upon City's written instruction, Bank shall first reconvert said securities into money and deliver such money together with any other moneys held pursuant to this Agreement to the City by depositing same to the City's depository account with Bank;

Deliver to Contractor all sums remaining in the escrow account upon City's written notification to Bank that Contractor has satisfactorily completed work pursuant to the construction Contract.

Rights. The City and Contractor agree that this Agreement shall in no way infringe on or restrict the rights of City or Contractor under the construction Contract.

Assignment. Contractor hereby assigns to City any and all rights, title and interest, without reservation whatsoever, which Contractor has or might have in the securities which are now or may hereinafter be deposited with the Bank pursuant to this Agreement.

Reporting. The Bank shall report at least monthly to Contractor and City on the market value of the securities deposited with the Bank pursuant to this Agreement. If at any time the market value of the securities falls below the amount of retained funds substituted by bonds and securities, Contractor shall, in the name of the City, deposit with the Bank money or securities complying with paragraph 4 of this Agreement in an amount sufficient to re-establish a total deposit of securities equal in value to the initial amount substituted. The Bank shall not be responsible for monitoring the market value of the securities except on a month-end basis.

Indemnification. Contractor shall indemnify and hold harmless the Escrow Agent from and against, any and all loss, liability, cost, damage and expense, including, without limitation, reasonable counsel fees, which the Escrow Agent may suffer or incur by reason of any action, claim or proceeding brought against the Escrow Agent arising out of or relating in any way to this Agreement or any transaction to which this Agreement relates unless such action, claim or proceeding is the result of negligence, gross negligence, or the willful misconduct of the Escrow Agent. The Escrow Agent may conclusively rely upon and shall be protected in acting upon any statement, certificate, notice, request, consent, order or other document believed by it to be genuine and to have been signed or presented by a duly authorized party or parties. The Escrow Agent shall have no duty or liability to verify any such statement, certificate, notice, request, consent, order or other document.

Notices. All notices, requests, demands, and other communications under this Agreement shall be in writing and shall be deemed to have been duly given (a) on the date of service if served personally on the party to whom notice is to be given, (b) on the day of transmission if sent by facsimile transmission to the facsimile number given below, and telephonic confirmation of receipt is obtained promptly after completion of transmission, (c) on the day after delivery to Federal Express or similar overnight courier or the Express Mail service maintained by the United States Postal Service, or (d) on the fifth day after mailing, if mailed to the party to whom notice is to be given, by first class mail, registered or certified, postage prepaid, and properly addressed, return receipt requested, to the party as follows:

SAMPLE

Notices – Cont'd

If to City:

_____
_____
_____

If to Contractor:

_____
_____
_____

If to Escrow Agent:

Wells Fargo Bank Arizona, N.A.
Attn: Jeff Kassels
100 West Washington, MAC: S4101-22E
Phoenix, AZ 85003
Phone # 602-378-2305
Fax #602-378-2333

Any party may change its address for purposes of this paragraph by giving the other parties written notice of the new address in the manner set forth above.

Successors and Assigns. Except as otherwise provided in this Agreement, no party hereto shall assign this Agreement or any rights or obligations hereunder, including use of funds or securities as collateral, without the prior written consent of the other parties hereto, and any such attempted assignment without such prior written consent shall be void and of no force and effect. This Agreement shall inure to the benefit of and shall be binding upon the successors and permitted assigns of the parties hereto.

Governing Law: Jurisdiction. This Agreement shall be construed, performed, and enforced in accordance with, and governed by, the internal laws of the State of Arizona, without giving effect to the principles of conflict of laws thereof.

Severability. In the event that any part of this Agreement is declared by any court or other judicial or administrative body to be null, void, or unenforceable, all remaining provisions of this Agreement shall remain in full force and effect.

Amendments: Waivers. This Agreement may be amended or modified, and any of the terms, covenants, representations, warranties, or conditions hereof may be waived, only by a written instrument executed by the parties hereto, or in the case of a waiver, by the party waiving compliance. Any waiver by any party of any condition, or of the breach of any provision, term, covenant, representation, or warranty contained in this Agreement, in any one or more instances, shall neither be deemed nor construed as a further or continuing waiver of such condition or the breach of any other provision, term, covenant, representation, or warranty of this Agreement.

Entire Agreement. This Agreement contains the entire understanding among the parties hereto with respect to the escrow contemplated hereby and supersedes and replaces all prior and contemporaneous agreements and understandings, oral or written, with regard to such escrow.

SAMPLE

Section Headings. The section headings in this Agreement are for reference purposes only and shall not affect the meaning or interpretation of this Agreement.

Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which shall constitute the same instrument.

Time of Essence. Time is of the essence of this Agreement.

Resignation. Escrow Agent may resign upon thirty (30) days advance written notice to the City and Contractor. If a successor Escrow Agent is not appointed within the thirty day period following such notice, Escrow Agent may petition any court of competent jurisdiction to name a successor Escrow Agent.

Other Contract Provisions. All other provisions of the Banking Services Agreement No. 13RP016 between the City and Bank and all executed Amendments thereto, not otherwise modified by this Agreement, shall remain in full force and effect as stated therein.

SAMPLE

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed the day and year first set forth above.

City of Scottsdale
W. J. "Jim" Lane, Mayor

By: _____
Contract Administrator

Reviewed By:

_____
(type staff name)
Bid & Contract Specialist

Approved as To Form:

Bruce Washburn, City Attorney

_____
By: Eric C. Anderson, Asst. City Atty.

WELLS FARGO BANK ARIZONA, NATIONAL ASSOCIATION

By: _____
Its: _____

CONTRACTOR: _____

By: _____
Its: _____

SAMPLE

Schedule A

Retention Escrow Fees:

Acceptance Fee	$ 750.00
Annual Fee	$1,000.00

SAMPLE

INVITATION FOR BID 18PB021

SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT

FEDERAL CONTRACT PROVISIONS

Required Federal Contract Provisions for FAA Airport Improvement Program Projects

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GUIDANCE & REQUIREMENTS

This project is funded by the Federal Aviation Administration. Federal laws and regulations require that projects funded by federal assistance must include specific contract provisions. Contractor(s) including subcontractors are required to:

- include certain provisions in their subcontracts and sub-tier agreements.
- incorporate the applicable requirements of these contract provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services.

The prime contractor shall be responsible for compliance with these contract provisions by any subcontractor, lower-tier subcontractor or service provider.

Failure to Comply with Provisions

Contractor failure to comply with the terms of these contract provisions may be sufficient grounds to:

1) Withhold progress payments or final payment;

2) Terminate the contract for cause;

3) Seek suspension/debarment; or

4) Take other actions determined to be appropriate by the Sponsor or the FAA.

A1 ACCESS TO RECORDS AND REPORTS

(2 CFR § 200.333, 2 CFR § 200.336, FAA Order 5100.38)

ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, 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.

A2 AFFIRMATIVE ACTION REQUIREMENT

(41 CFR part 60-4, Executive Order 11246)

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION to ENSURE EQUAL EMPLOYMENT OPPORTUNITY

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:

Timetables

Goals for minority participation for each trade: **15.8%**

(Department of Labor online document, Participation Goals for Minorities and Females)

Goals for female participation in each trade: 6.9%

These goals are applicable to all of 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 must 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 of the Office of Federal Contract Compliance Programs (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 the 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 **City of Scottsdale, Maricopa County, Arizona.**

A3 BREACH OF CONTRACT TERMS

(2 CFR § 200 Appendix II(A)

Applies to all Contracts over $150,000

BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the *Contractor* or its 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.

Owner will provide *Contractor* written notice that describes the nature of the breach and corrective actions the *Contractor* must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the *Contractor* must correct the breach. Owner may proceed with termination of the contract if the *Contractor* fails to correct the breach by the deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A4 BUY AMERICAN PREFERENCE

(Title 49 USC § 50101)

The Buy America requirements flow down from the sponsor to first tier contractors, who are responsible for ensuring that lower tier contractors and subcontractors are also in compliance.

Note: the Buy American Preference does not apply to equipment a contractor uses as a tool of their trade **and does not remain** as part of the project.

There are two types of Buy American certifications.

1. Projects for a facility (Buildings such as Terminal, SRE, ARFF, etc.) – Insert the Certificate of Compliance Based on Total Facility
2. Projects for non-facility development (non-building construction projects such as runway or roadway construction; or equipment acquisition projects)

Bidder must sign and submit with bid the Certification contained in the Proposal Forms.

BUY AMERICAN PREFERENCE

The Contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must complete and submit the Buy America certification included herein with their bid or offer. The Owner will reject as nonresponsive any bid or offer that does not include a completed Certificate of Buy American Compliance.

Certificate of Buy American Compliance for Manufactured Products

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:

a) Only installing steel and manufactured products produced in the United States;
b) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

1. To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
2. To faithfully comply with providing U.S. domestic product.
3. To furnish U.S. domestic product for any waiver request that the FAA rejects
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

1. To the submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that supports the type of waiver being requested.
2. That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination may result in rejection of the proposal.
3. To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.

4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 3 Waiver – The cost of the item components and subcomponents produced in the United States is more that 60 percent of the cost of all components and subcomponents of the "item". The required documentation for a Type 3 waiver is:

a) Listing of all product components and subcomponents that are not comprised of 100 percent U.S. domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
c) Percentage of non-domestic component and subcomponent cost as compared to total "item" component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

Type 4 Waiver – Total cost of project using U.S. domestic source product exceeds the total project cost using non-domestic product by 25 percent. The required documentation for a Type 4 of waiver is:

a) Detailed cost information for total project using U.S. domestic product
b) Detailed cost information for total project using non-domestic product

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

*********Sign Buy American Certifications that are included in the bid forms package.*********

A5 CIVIL RIGHTS - GENERAL
(49 USC § 47123)

GENERAL CIVIL RIGHTS PROVISIONS

The Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

A6 CIVIL RIGHTS – TITLE VI ASSURANCE

(49 USC § 47123, FAA Order 1400.11)

A6.1 Title VI Solicitation Notice:

The City of Scottsdale, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

A6.2 Compliance with Nondiscrimination 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. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will 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 will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
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 will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will 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 to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions: <u>The Contractor will include the provisions of paragraphs one through six in every subcontract</u>**, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

Insert this list in every contract or agreement

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq*., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq*.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq*.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 USC §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination

because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC 1681 et seq).

A7 CLEAN AIR AND WATER POLLUTION CONTROL

(2 CFR § 200, Appendix II(G))

Contract Types – This provision is required for all contracts and lower tier contracts that exceed $150,000.

CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC § 740-7671q) and the Federal Water Pollution Control Act as amended (33 USC § 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceeds $150,000.

A8 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

(2 CFR § 200, Appendix II€)

This provision applies to all contracts and lower tier contracts that exceed $100,000, and employ laborers, mechanics, watchmen, and guards.

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

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) of this clause, 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) of this clause, 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) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner 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 moneys 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) of this clause.

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 clause.

A9 COPELAND "ANTI-KICKBACK" ACT

(2 CFR § 200, Appendix II(D), 29 CFR Parts 3 and 5)

This provision applies to all construction contracts and subcontracts financed under the AIP that exceed $2,000.

COPELAND "ANTI-KICKBACK" ACT

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A10 DAVIS-BACON REQUIREMENTS

(2 CFR § 200, Appendix II(D), 29 CFR Part 5)

***Construction* – Incorporate into all construction contracts and subcontracts that exceed $2,000 and include funding from the AIP.**

DAVIS-BACON REQUIREMENTS

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 conformed 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;

(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, DC 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 that 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 that 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)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration 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 Federal Aviation Administration. 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 *www.dol.gov/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 Federal Aviation Administration 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 Federal Aviation Administration, 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) The payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;

(2) 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) 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 journeymen 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, fringes 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 that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that 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.

6. Subcontracts.

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.

7. Contract Termination: Debarment.

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.

9. Disputes Concerning Labor Standards.

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).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

A11 DEBARMENT AND SUSPENSION

(2 CFR part 180 (Subpart C). 2 CFR part 1200, DOT Order 4200.5)

This provision is required to be included in any AIP-funded contract, regardless of tier, that is awarded by a contractor, subcontractor, supplier, consultant if the amount of the contract is equal to or exceeds $25,000.

CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov.
2. Collecting a certification statement similar to the Certification of Offerer /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A12 DISADVANTAGED BUSINESS ENTERPRISE
(49 CFR part 26)

A12.1 REQUIRED PROVISIONS

A12.1.1 Solicitation Language

Information Submitted as a matter of bidder responsiveness:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

As a condition of bid responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1)
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal; and
5) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26.

Information submitted as a matter of bidder responsibility:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

The successful Bidder or Offeror must provide written confirmation of participation from each of the DBE firms the Bidder or Offeror lists in its commitment **within five days after bid opening.**

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1)
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal; and
5) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26.

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 Department of Transportation-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 Owner deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;
2) Assessing sanctions;
3) Liquidated damages; and/or
4) Disqualifying the Contractor from future bidding as non-responsible.

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 30 days from the receipt of each payment the prime contractor receives from the City of Scottsdale. 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 the City of Scottsdale. This clause applies to both DBE and non-DBE subcontractors.

A13 DISTRACTED DRIVING

(Executive Order 13513, DOT Order 3902.10)

The Contractor must include the substance of this clause in all sub-tier contracts exceeding $3,500 that involve driving a motor vehicle in performance of work activities associated with the project.

TEXTING WHEN DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $3,500 that involve driving a motor vehicle in performance of work activities associated with the project.

A14 ENERGY CONSERVATION REQUIREMENTS

(2 CFR § 200, Appendix II(H))

Include this provision in all AIP funded contracts and lower-tier contracts.

ENERGY CONSERVATION REQUIREMENTS

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to energy efficiency as contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 USC 6201*et seq*).

A15 DRUG FREE WORKPLACE REQUIREMENTS

(49 CFR part 32)

Drug-Free Workplace Act of 1988 (41 U.S.C. 701 *et seq.*, as amended)

The Drug-Free Workplace Act of 1988 requires some Federal contractors and *all* Federal grantees to agree that they will provide drug-free workplaces as a condition of receiving a contract or grant from a Federal agency. The Act does ***not*** apply to contractors, subcontractors, or subgrantees, although the Federal grantees workplace may be where the contractors, subcontractors, or subgrantees are working.

Contract Types – This provision applies to all AIP funded projects, but not to the contracts between the grantee (the sponsor) and a contractor, subcontractors, suppliers, or subgrantees.

Use of Provision – No mandatory or recommended text provided because the requirements do not extend beyond the sponsor level.

A16 EQUAL EMPLOYEMENT OPPORTUNITY

(2 CFR 200, Appendix II©, 41 CFR § 60-1.4, 41 CFR § 60-4.3, Executive Order 11246)

The EEO Opportunity "Contract Clause" must be included (without modification) in any contract or subcontract when the amount exceeds $10,000.

EQUAL OPPORTUNITY CONTRACT CLAUSE

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, sexual orientation, gender identify, 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.

(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 it 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, 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 procedures 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 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 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.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

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

(4) 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 part 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 7a through 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 expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to 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 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 (7a through 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 7a through 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 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 part 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).

A17 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

(29 USC § 201, et seq)

All consultants, sub-consultants, contractors, and subcontractors employed under this federally assisted project must comply with the FLSA.

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The *Contractor* has full responsibility to monitor compliance to the referenced statute or regulation. The *Contractor* must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

A18 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

(31 USC § 1352 – Byrd Anti-Lobbying Amendment, 2 CFR part 200, Appendix II(J), 49 CFR part 20, Appendix A)

Contractor must include Lobbying Certification and this language (not modified) in subcontracts exceeding $100,000.

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(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 this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that **the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements)** and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

(Certification is included in the bid forms package)

A19 PROHIBITION of SEGREGATED FACILITIES
(41 CFR § 60)

This clause must be included in all contracts that include the Equal Opportunity clause, regardless of the amount of the contract. This obligation flows down to subcontract and sub-tier purchase orders containing the Equal Employment Opportunity clause.

PROHIBITION OF SEGREGATED FACILITIES

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

A20 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970
(29 CFR part 1910)

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A21 PROCUREMENT OF RECOVERED MATERIALS

(2 CFR § 200.322, 40 CFR part 247, Solid Waste Disposal Act)

Include this provision in all construction and equipment projects.

PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

1) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or
2) The contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;
b) Fails to meet reasonable contract performance requirements; or
c) Is only available at an unreasonable price.

A22 RIGHT TO INVENTIONS

38 (2 CFR § 200, Appendix II(F), FR §401)

Not Applicable.

A23 SEISMIC SAFETY

(49 CFR part 41)

SEISMIC SAFETY

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

A24 TAX DELINQUENCY AND FELONY CONVICTIONS

(DOT Order 4200.6 - Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions)

Bidder: if awarded a contract resulting from this solicitation, this provision must be incorporated in all lower tier subcontracts.

CERTIFICATION OF OFFERER/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

1) The applicant represents that it is ( ) is not ( ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
2) The applicant represents that it is ( ) is not ( ) is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

> **Felony conviction:** Felony conviction means a conviction within the preceding twenty-four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.
>
> **Tax Delinquency**: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

A25 TERMINATION OF CONTRACT

(2 CFR § 200 Appendix II(B), FAA Advisory Circular 150/5370-10, Section 80-09)

TERMINATION FOR CONVENIENCE (CONSTRUCTION CONTRACTS)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.

2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;

2) documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;

3) reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and

4) reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

TERMINATION FOR DEFAULT (CONSTRUCTION)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes conditions, rights, and remedies associated with Owner termination of this contract due to default of the Contractor.

A26 TRADE RESTRICTION CERTIFICATION

(49 USC § 50104, 49 CFR part 30)

Bidder: If awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts.

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1) 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 as published by the Office of the United States Trade Representative (USTR);

2) 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 included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

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 USC Section 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

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 an Offeror or subcontractor:**

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list or
3) who incorporates in the public works project any product of a foreign country on such USTR list.

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.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

A27 VETERAN'S PREFERENCE

(49 USC § 47112©)

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), **the Contractor and all sub-tier contractors** must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 USC 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

INVITATION FOR BID 18PB021

SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION PROJECT

GENERAL PROVISIONS/SPECIAL PROVISIONS/TECHNICAL SPECIFICATIONS

SCOTTSDALE AIRPORT

SCOTTSDALE AIRPORT
SDL

Project Specifications
for
DELTA APRON RECONSTRUCTION PROJECT

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Prepared For:
City of Scottsdale

CITY OF SCOTTSDALE ARIZONA

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Part 2
FAA General Provisions

Section 10 Definition of Terms

Whenever the following terms are used in these specifications, in the contract, or 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 Airport Improvement Program (AIP). A grant-in-aid program, administered by the Federal Aviation Administration (FAA).

10-05 Air operations area (AOA). For the purpose of these specifications, the term air operations area (AOA) 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; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; and airport buildings and facilities located in any of these areas, and includes a heliport.

10-07 ASTM International (ASTM). Formerly known as the American Society for Testing and Materials (ASTM).

10-08 Award. The Owner's notice to the successful bidder of the acceptance of the submitted bid.

10-09 Bidder. Any individual, partnership, firm, 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. Every day shown on the calendar.

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, must 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: Advertisement, Contract Form, Proposal, Performance Bond, Payment Bond, any required insurance certificates, Specifications, 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, 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 Contractor's laboratory. The Contractor's quality control organization in accordance with the Contractor Quality Control Program.

10-18 Construction Safety and Phasing Plan (CSPP). The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.

10-19 Drainage system. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

10-20 Engineer. The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection and observation of the contract work and acting directly or through an authorized representative.

10-21 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.

10-22 Extra work. An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Engineer to be necessary to complete the work within the intended scope of the contract as previously modified.

10-23 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 or her duly authorized representative.

10-24 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.

10-25 Force account. Force account work is planning, engineering, or construction work done by the Sponsor's employees.

10-26 Inspector. An authorized representative of the Engineer assigned to make all necessary inspections, observations and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-27 Intention of terms. Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of 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.

10-28 Laboratory. The official testing laboratories of the Owner or such other laboratories as may be designated by the Engineer. Also referred to as "Engineer's Laboratory" or "quality assurance laboratory."

10-29 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.

10-30 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% of the total amount of the award contract. All other items shall be considered minor contract items.

10-31 Materials. Any substance specified for use in the construction of the contract work.

10-32 Notice to Proceed (NTP). 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.

10-33 Owner. The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only.

10-34 Passenger Facility Charge (PFC). Per 14 CFR Part 158 and 49 USC § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls."

10-35 Pavement. The combined surface course, base course, and subbase course, if any, considered as a single unit.

10-36 Payment bond. The approved form of security furnished by the Contractor and his or her surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.

10-37 Performance bond. The approved form of security furnished by the Contractor and his or her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

10-38 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.

10-39 Project. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

10-40 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.

10-41 Proposal guaranty. The security furnished with a proposal to guarantee that the bidder will enter into a contract if his or her proposal is accepted by the Owner.

10-42 Runway. The area on the airport prepared for the landing and takeoff of aircraft.

10-43 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.

10-44 Sponsor. A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.

10-45 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.

10-46 Subgrade. The soil that forms the pavement foundation.

10-47 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.

10-48 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%, 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.

10-49 Surety. The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.

10-50 Taxiway. For the purpose of this document, the term taxiway 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, aircraft parking areas, and terminal areas.

10-51 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.

10-52 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 six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.

END OF SECTION 10

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). The "Advertisement for Bids" included in the front of these SPECIFICATIONS will be (or has been) published at such places and at such times as required by local law or ordinances and is made a part of the "Contract Documents".

20-02 Qualification of bidders. Each bidder shall furnish the Owner satisfactory evidence of his or 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 or 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 bidder'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 or 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 the 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 or she 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 specified above.

Each bidder shall submit "evidence of competency" and "evidence of financial responsibility" to the Owner 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.

c. Documented record of Contractor default under previous contracts with the Owner.

d. Documented record of unsatisfactory work on previous contracts with the Owner.

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 40-02 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. Bidders shall satisfy themselves 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 the bidder may make or obtain from his or 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 or 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 they propose to do for 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 the proposal correctly and in ink. If the proposal is made by an individual, his or 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 the laws of which the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of his or her authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Sponsor's invitation for bid. It is the Sponsor's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 49 CFR § 18.36(b)(8). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following 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 that 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.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

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.

20-10 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.

20-11 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 or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-12 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 fax, or email 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.

20-13 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.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following 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 the subsection 20-04 titled ISSUANCE OF PROPOSAL FORMS of this section.

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 20-09 titled IRREGULAR PROPOSALS of Section 20.

b. If the bidder is disqualified for any of the reasons specified in the subsection 20-14 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 120 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein. 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 30-07 titled APPROVAL OF CONTRACT of this section.

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the subsection 30-01 titled CONSIDERATION OF PROPOSALS of this section. Proposal guaranties of the two 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 contract bonds as specified in the subsection 30-05 titled REQUIREMENTS OF CONTRACT BONDS of this section.

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that 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 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 the signed contract to the Owner, along with the fully executed surety bond or bonds specified in the subsection 30-05 titled REQUIREMENTS OF CONTRACT BONDS of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

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 calendar day period specified in the subsection 30-06 titled EXECUTION OF CONTRACT 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 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% (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations that do not exceed the 25% 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 that are for work within the general scope of the contract shall be covered by "Change Orders" issued by the Engineer. Change orders for altered work shall include extensions of contract time where, in the Engineer's opinion, such extensions are commensurate with the amount and difficulty of added work.

Should the aggregate amount of altered work exceed the 25% 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.

Supplemental agreements shall be approved by the FAA and shall include all applicable Federal contract provisions for procurement and contracting required under AIP. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds.

40-03 Omitted items. The Engineer may, in the Owner's best interest, omit from the work any contract item, 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 non-performed, 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 90-04 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, 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. Change orders for such Extra Work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the Engineer's opinion, is necessary for completion of such Extra Work.

When determined by the Engineer to be in the Owner's best interest, the Engineer may order the Contractor to proceed with Extra Work as provided in the subsection 90-05 titled PAYMENT FOR EXTRA 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 as defined in the subsection 10-48 titled SUPPLEMENTAL AGREEMENT of Section 10.

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.

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to his or her own operations and the operations of all subcontractors as specified in the subsection 80-04 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 70-15 titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Section 70.

b. With respect to his or her own operations and the operations of all 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.

c. 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 be responsible for the repair of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. 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.

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 shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer in accordance with the provisions of the contract.

Except as provided in the subsection 40-07 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 used in the

work as otherwise provided for in the contract and shall remain the property of the Owner when so used 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, the Contractor may at his or 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; or

c. Use such material for the Contractor's 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., the Contractor shall request the Engineer's 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 or 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 use of such material 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 or her exercise of option a., b., or c.

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.

40-08 Final cleanup. 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. The Contractor 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 that 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 the under contract.

The Engineer 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 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 or her opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the Engineer will advise the Owner of his or her determination that the affected work be accepted and remain in place. In this event, the Engineer will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. The Engineer's determination and recommended contract price adjustments will be based on sound engineering judgment and such tests or retests of the affected work as are, in the Engineer's opinion, needed. Changes in the contract price shall be covered by contract change order or supplemental agreement 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.

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 responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution 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, after consultation with the FAA, to use sound engineering judgment in his or 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.

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, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.
From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the Engineer for an interpretation and decision, and such decision shall be final.

LIST OF SPECIAL PROVISIONS
ORDER OF PRECEDENCE

1. **Permits issued by jurisdictional regulatory agencies**
2. **Change Orders**
3. **Contract/Agreement**
4. **Addenda**
5. **City of Scottsdale Instructions to Bidders**
6. **Technical Specifications**
7. **Project Plans**
8. **FAA General Provisions**
9. **Cited FAA Advisory Circulars**
10. **City of Scottsdale General Terms & Conditions**
11. **City of Scottsdale Construction Special Terms & Conditions**
12. **Maricopa Association of Government (MAG) Standard Specifications and Details for Public Works Construction**
13. **City of Scottsdale Supplement to MAG Standard Specifications and Details for Public Works Construction**

50-04 Cooperation of Contractor. The Contractor will be supplied with five copies each of the plans and specifications. The Contractor 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 shall cooperate with the Engineer and his or her 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 or 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 or his or 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 the 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 or 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 because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his or 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. The Contractor shall join his or her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

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 their own or the Contractor's guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or their 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 will be required to furnish all lines, grades and measurements from the control points necessary for the proper execution and control of the work contracted for under these specifications.

The Contractor must give copies of survey notes to the Engineer for each area of construction and for each placement of material as specified to allow the Engineer to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. All surveys must be provided to the Engineer prior to commencing work items that will cover or disturb the survey staking as set by the Contractor's surveyor. Survey(s) and notes shall be provided in the following format(s): AutoCAD Civil 3D Drawings, PNEZD text files, and stamped surveyed drawings. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost 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:

a. Clearing and Grubbing perimeter staking

b. Rough Grade slope stakes at 100-foot stations

c. 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 (maximum) for the following section locations:

a. Runway – minimum five (5) per station

b. Taxiways – minimum three (3) per station

c. Holding apron areas – minimum three (3) per station

d. Roadways – minimum three (3) per station

Base Course blue tops at 25-foot stations and 25-foot offset distance (maximum) for the following section locations:

a. Runway – minimum five (5) per station

b. Taxiways – minimum three (3) per station

c. Holding apron areas – minimum three (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:

(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.

e. Fence lines at 100-foot stations minimum.

f. Electrical and Communications System locations, lines and grades including but not limited to duct runs, connections, fixtures, signs, lights, Visual Approach Slope Indicators (VASIs), Precision Approach Path Indicators (PAPIs), Runway End Identifier Lighting (REIL), Wind Cones, Distance Markers (signs), pull boxes and manholes.

g. Drain lines, cut stakes and alignment on 25-foot stations, inlet and manholes.

h. Painting and Striping layout (pinned with 1.5 inch PK nails) marked for paint Contractor. (All nails shall be removed after painting).

i. 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 (that is, paving lane).

The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor.

Controls and stakes disturbed or suspect of having been disturbed shall be checked and/or reset as directed by the Engineer without additional cost to the Owner.

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 48 hours following the breakdown or malfunction, provided this method of operations will produce results which conform to all other requirements of the contract.

50-08 Authority and duties of inspectors. Inspectors 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 are authorized to notify the Contractor or his or 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 a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The Engineer 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 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.

50-10 Removal of unacceptable and unauthorized work. All work that 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 50-02 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 70-14 titled CONTRACTOR'S RESPONSIBILITY FOR WORK of Section 70.

No removal work made under provision of this subsection shall be done without lines and grades having been established by the Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as established by the Engineer, 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 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 replaced 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 that 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 or her hauling equipment and shall correct such damage at his or her own expense.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. 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 50-12 titled MAINTENANCE DURING CONSTRUCTION of this section, the Engineer 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 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 execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the Engineer may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

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. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The Engineer shall notify the Contractor in writing of 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 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 final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the Engineer in writing of his or her intention to claim such additional compensation before the Contractor begins the work on which the

Contractor bases the claim. If such notification is not given or the Engineer 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 for such additional compensation. Such notice by the Contractor and the fact that the Engineer has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the Engineer who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

50-17 Cost reduction incentive. Not used.

END OF SECTION 50

Section 60 Control of Materials

60-01 Source of supply and quality requirements. The materials used in 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 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 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 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.

60-02 Samples, tests, and cited specifications. Unless otherwise designated, all materials used in the work shall be inspected, tested, and approved by the Engineer 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, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (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 Engineer.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel, including the Contractor's representative at his or her request. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the Engineer. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the Engineer.

The Contractor shall employ a testing organization to perform all Contractor required Quality Control tests. The Contractor shall submit to the Engineer resumes on all testing organizations and individual persons who will be performing the tests. The Engineer will determine if such persons are qualified. All the test data shall be reported to the Engineer after the results are known. A legible, handwritten copy of all test data shall be given to the Engineer daily, electronically, 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 showing all test data reports, plus an analysis of all results showing

ranges, averages, and corrective action taken on all failing tests. All test data from the Contractor shall be furnished in electronic format.

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.

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, the Contractor 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 his or 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 acceptance of the material or assembly.

Should the Engineer conduct plant inspections, the following conditions shall exist:

a. The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Engineer has contracted for materials.

b. The Engineer 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, 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 that 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 field office. An Engineer's field office is not required.

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 to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the Engineer. 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. 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 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 or 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 assembly, 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, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

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 that 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

70-01 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. The Contractor 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 or 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 the Contractor or the Contractor's 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 execution 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, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, 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 execution 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 and as shown on the Plans and Specifications:

- City of Scottsdale Facilities Department – Underground Fiber Optic Cable
- City of Scottsdale Water Department – Water Pipes and Valves
- City of Scottsdale Airport – Underground Electrical Cable

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.

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 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 Airport Improvement Program (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 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 FAA Administrator, 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, 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 or 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 or her health or safety.

70-07 Public convenience and safety. The Contractor shall control his or her operations and those of his or 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 or her own operations and those of his or her subcontractors and all suppliers in accordance with the subsection 40-05 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 80-04 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 (AOAs) shall be a maximum of 18 inches high. Unless otherwise specified, barricades shall be spaced not more than 4 feet apart. Barricades, warning signs, and markings shall be paid for under subsection 40-05.

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 on Uniform Traffic Control Devices.

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 advisory circular (AC) 150/5340-1, Standards for Airport Markings.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and the Contractor's 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 150/5370-2, Operational Safety on Airports During Construction.

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to AC 150/5370-2.

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 removal is directed by the Engineer.

Open-flame type lights shall not be permitted.

70-09 Use of explosives. Not used.

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 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 execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has 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 non-execution thereof by the Contractor, the Contractor shall restore, at his or 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 the Contractor 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 or her contract 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 or her surety may be held until such suits, actions, or claims for injuries or damages 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 or she is adequately protected by public liability and property damage insurance.

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 for 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 or her own estimate of the difficulties involved in arranging the work to permit such beneficial occupancy by the Owner as described in the attached Construction Safety and Phasing Plan.

Upon completion of any portion of the work listed above, such portion shall be accepted by the Owner in accordance with the subsection 50-14 titled PARTIAL ACCEPTANCE of Section 50.

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 or her expense.

The Contractor shall make his or 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 AC 150/5370-2 (see Special Provisions).

Contractor shall refer to the approved Construction Safety Phasing Plan (CSPP) 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 final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with the subsection 50-14 titled PARTIAL ACCEPTANCE of Section 50, 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 non-execution 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 or 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, seeding, and sodding furnished under the 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 70-04 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 their 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 and the Owners are indicated as follows:

- City of Scottsdale Facilities Department – Underground Fiber Optic Cable
- City of Scottsdale Water Department – Water Pipes and Valves
- City of Scottsdale Airport – Underground Electrical Cable

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 the 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 or her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided in this subsection and subsection 70-04 titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section. A copy of each notification shall be given to the Engineer.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their 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 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.

The Contractor's failure to give the two days' notice 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 hand excavation methods within 3 feet (1 m) 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, the Contractor shall immediately notify the proper authority and the Engineer and 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 their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his or her surety.

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 by this contract, there shall be no liability upon the Engineer, his or 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 or her surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his or 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. The Contractor 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 or her operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the Engineer. The Engineer will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume 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 change order or supplemental agreement as provided in the subsection 40-04 titled EXTRA WORK of Section 40 and the subsection 90-05 titled PAYMENT FOR EXTRA WORK of Section 90. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with the subsection 80-07 titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Section 80.

END OF SECTION 70

Section 80 Execution and Progress

80-01 Subletting of contract. The Owner 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.

The Contractor shall provide copies of all subcontracts to the Engineer. The Contractor shall perform, with his organization, an amount of work equal to at least **25 percent** of the total contract cost.

Should the Contractor elect to assign his or 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.

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 Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their progress schedule for the Engineer's approval within 10 days after the effective date of the notice to proceed. The Contractor's progress schedule, when approved by the Engineer, 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 request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Owner.

80-04 Limitation of operations. The Contractor shall control his or her operations and the operations of his or her subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct his or her operations within an AOA of the airport, the work shall be coordinated with airport operations (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in the subsection 70-08 titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 70.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey

instructions shall be cause for suspension of the Contractor's operations in the AOA until the satisfactory conditions are provided. The following 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 detailed in the attached Construction Safety and Phasing Plan.

Contractor shall be required to conform to safety standards contained in AC 150/5370-2, 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 Construction Safety and Phasing Plan (CSPP) and the provisions set forth within the current version of AC 150/5370-2. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a Safety Plan Compliance Document that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks 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 CSPP and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP unless approved in writing by the Owner or Engineer.

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 or operational safety requirements and, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, 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.

Should the Contractor fail to remove such persons or person, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the Engineer may suspend the work by written notice until compliance with such orders.

All equipment that 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. If the Contractor desires to use a method or type of

equipment other than specified in the contract, the Contractor 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 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 the Owner may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the execution 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 Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Engineer within the time period stated in the Engineer's order to resume work. The Contractor shall submit with his or her claim information substantiating the amount shown on the claim. The Engineer will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Owner, or for any other delay provided for in the contract, plans, or specifications.

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. The Contractor 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 or 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 shall base his or 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 six (6) hours with the normal work force employed on such principal item. 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 will not make charges against the contract time prior to the effective date of the notice to proceed.

(3) The Engineer will begin charges against the contract time on the first working day after the effective date of the notice to proceed.

(4) The Engineer will not make charges against the contract time after the date of final acceptance as defined in the subsection 50-15 titled FINAL ACCEPTANCE of Section 50.

(5) The Contractor will be allowed one (1) week in which to file a written protest setting forth his or her objections to the Engineer'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 20-05 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 notice to proceed and including all Saturdays, Sundays, holidays, and non-work 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.

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 the contract time shall not consider either 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 complete.

If the Contractor finds it impossible for reasons beyond his or her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, the

Contractor may, at any time prior to the expiration of the contract time as extended, make a written request to the Owner for an extension of time setting forth the reasons which the Contractor believes will justify the granting of his or her request. Requests for extension of time on calendar day projects, caused by inclement weather, shall be supported with National Weather Bureau data showing the actual amount of inclement weather exceeded what could normally be expected during the contract period. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the supporting documentation justify 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 by a change order that adjusts the contract time or completion date. 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 80-07 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 or her surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

The maximum construction time allowed for the Base Bid Schedule will be the sum of the time allowed for individual phase schedules. 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 wavier on the part of the Owner of any of its rights under the contract. *See Item A-001, Special Provisions for Airport Construction, Section 1.9 Phasing and Time Limitations and Section 1.10 Liquidated Damages for specific requirements.*

80-09 Default and termination of contract. The Contractor shall be considered in default of his or 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:

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 and/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 execution 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 the Contractor 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 Engineer consider the Contractor in default of the contract for any reason above, the Engineer 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 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 execution 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 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 execution 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.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his or her responsibilities for the completed work nor shall it relieve his or 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 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 or her work in such a manner as to ensure safety and a minimum of hindrance to flight operations. All Contractor equipment and material stockpiles shall be stored a minimum 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 200 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, or his or 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 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.

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 inch.

The term “ton” will mean the short ton consisting of 2,000 lb avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designed by the Engineer. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is 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 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 for the materials hauled, 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 in writing, material specified to be measured by the cubic yard may be weighed, and such weights will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer 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 or ton. When measured by volume, such volumes will be measured at 60°F or will be corrected to the volume at 60°F using ASTM D1250 for asphalts or ASTM D633 for tars.

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 or hundredweight.

Timber will be measured by the thousand feet board measure 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 in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in the subsection 90-05 titled PAYMENT FOR EXTRA 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 gauge, 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 1/2% 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% of the nominal rated capacity of the scale, but not less than 1 pound. 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 standard 50-pound 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%.

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. 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 execution thereof, subject to the provisions of the subsection 70-18 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 40-02 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 or 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 40-03 titled OMITTED ITEMS of Section 40, the Engineer 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 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 order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the Engineer'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 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 the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with the subsection 40-04 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 authorizing the extra work.

90-06 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, of the value of the work performed and materials complete and 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 90-07 titled PAYMENT FOR MATERIALS ON HAND of this section. No partial payment will be made when the amount due to 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. 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. 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.

From the total of the amount determined to be payable on a partial payment, ten (10) percent 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 90-08 titled PAYMENT OF WITHHELD FUNDS of this section. The balance of the amount payable, less all previous payments, shall be certified for payment. Should the Contractor exercise his or her option, as provided in the subsection 90-08 titled PAYMENT OF WITHHELD FUNDS of this section, no such percent retainage shall be deducted.

When at least 95% 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, 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 90-09 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 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 at or on an approved site.

b. The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the Engineer 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 any time 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 or 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 subsection 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 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 50-15 titled FINAL ACCEPTANCE of Section 50, the Engineer will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's final estimate or advise the Engineer of the Contractor's 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. The Contractor and the Engineer shall

resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer'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 50-16 titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, and after the Engineer's receipt of the project closeout documentation required in subsection 90-11 Project Closeout, 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.

If the Contractor has filed a claim for additional compensation under the provisions of the subsection 50-16 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. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of:

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed,

in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Project closeout. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the Engineer approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with subsection 40-08, FINAL CLEANUP.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual.

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

END OF SECTION 90

Section 100 Contractor Quality Control Program

100-01 General. When the specification requires 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 here 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 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, their 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 and accepted by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed.

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.

Paving projects over $500,000 shall have a Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Contractor, subcontractors, testing laboratories, and Owner's representative at start of construction. The workshop shall address QC and QA requirements of the project specifications. The Contractor shall coordinate with the Airport and the Engineer on time and location of the QC/QA workshop.

100-02 Description of program.

a. General description. The Contractor shall establish a Quality Control Program to perform quality control 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 that shall be reviewed and approved by the Engineer prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer for review and approval during the Mobilization Phase. The Contractor's Quality Control Plan and Quality Control testing laboratory must be approved in writing by the Engineer prior to the Notice to Proceed (NTP).

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

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 is deemed necessary to adequately control all production and/or construction processes required by this contract.

100-03 Quality control organization. The Contractor 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 used 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, as a minimum, consist of the following 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 five (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 one of the following requirements:

(1) Professional Engineer with one (1) year of airport paving experience.

(2) Engineer-in-training with two (2) years of airport paving experience.

(3) An individual with three (3) years of highway and/or airport paving experience, 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 five (5) years of highway and/or airport paving experience.

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 two (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 craftsman 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 two (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 subsection 100-06.

(2) Performance of all quality control tests as required by the technical specifications and subsection 100-07.

(3) Performance of density tests for the Engineer when required by the technical specifications.

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 Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified in the contract. As a minimum, it shall provide information on the sequence of work activities, milestone dates, and activity duration.

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 (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

a. Specification item number

b. Item description

c. Description of submittal

d. Specification paragraph requiring submittal

e. 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 subsection 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:

a. During plant operation for material production, quality control test results and periodic inspections shall be used 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 used 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 used.

b. During field operations, quality control test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used 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 used.

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:

a. Specification item number (for example, P-401)

b. Item description (for example, Plant Mix Bituminous Pavements)

c. Test type (for example, gradation, grade, asphalt content)

d. Test standard (for example, ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (for example, as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (for example, plant technician)

g. Control requirements (for example, target, permissible deviations)

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The Engineer 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 subsection 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 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. 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
(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 Program Administrator. The Engineer 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 that 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
(9) Retests

Test results from each day's work period shall be submitted to the Engineer 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 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 use 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. All items of material and equipment shall be subject to surveillance by the Engineer 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 here 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 at the site for the same purpose.

Surveillance by the Engineer 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 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 or his or her authorized representative to the Contractor or his or 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 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, the Engineer 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 are taken.

END OF SECTION 100

Section 105 Mobilization

105-1 Description. *See Technical Specification Item A-002 for Project Specific Mobilization Requirements.*

END OF SECTION 105

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 sublots 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, 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 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:

$$\mathbf{X = (x_1 + x_2 + x_3 + \ldots x_n) / n}$$

Where: X = Sample average of all sublot values within a lot

x_1, x_2 = Individual sublot values

n = Number of sublots

e. Find the sample standard deviation (S_n) by use of the following formula:

$$\mathbf{S_n = [(d_1^2 + d_2^2 + d_3^2 + \ldots d_n^2)/(n-1)]^{1/2}}$$

Where: S_n = Sample standard deviation of the number of sublot values in the set

d_1, d_2 = Deviations of the individual sublot values x_1, x_2, … from the average value X

that is: $d_1 = (x_1 - X)$, $d_2 = (x_2 - X)$ … $d_n = (x_n - X)$

n = Number of sublots

f. For single sided specification limits (that is, L only), compute the Lower Quality Index Q_L by use of the following formula:

$$\mathbf{Q_L = (X - L) / S_n}$$

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 (that is, L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$\mathbf{Q_L = (X - L) / S_n}$$

and

$$\mathbf{Q_U = (U - X) / S_n}$$

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:

$$\mathbf{PWL = (P_U + P_L) - 100}$$

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.

$X = (x_1 + x_2 + x_3 + . . . x_n) / n$

$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$

X = 97.95% density

3. Calculate the standard deviation for the lot.

$S_n = [((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)) / (4 - 1)]^{1/2}$

$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$

$S_n = 1.15$

4. Calculate the Lower Quality Index Q_L for the lot. (L=96.3)

$Q_L = (X - L) / S_n$

$Q_L = (97.95 - 96.30) / 1.15$

$Q_L = 1.4348$

5. Determine PWL by entering Table 1 with Q_L= 1.44 and n= 4.

PWL = 98

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

A-1 = 5.00

A-2 = 3.74

A-3 = 2.30

A-4 = 3.25

2. Calculate the average air voids for the lot.

$X = (x_1 + x_2 + x_3 . . . n) / n$

$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$

$X = 3.57\%$

3. Calculate the standard deviation S_n for the lot.

$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$

$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$

$S_n = 1.12$

4. Calculate the Lower Quality Index Q_L for the lot. (L= 2.0)

$Q_L = (X - L) / S_n$

$Q_L = (3.57 - 2.00) / 1.12$

$Q_L = 1.3992$

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)

$Q_U = (U - X) / S_n$

$Q_U = (5.00 - 3.57) / 1.12$

$Q_U = 1.2702$

7. Determine P_U by entering Table 1 with $Q_U = 1.29$ 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 E178)

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% significance level of 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 (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier

For A-3, check if (99.30 - 97.95) / 1.15 is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

b. For measurements less than the average:

If (average - measurement)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-1, check if (97.95 - 96.60) / 1.15 is greater than 1.463.

Since 1.435 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 were:

Greater than $(97.95 + 1.463 \times 1.15) = 99.63\%$

OR

less than $(97.95 - 1.463 \times 1.15) = 96.27\%$.

Table 1. Table for Estimating Percent of Lot Within Limits (PWL)

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

END OF SECTION 110

Part 3
Technical Specifications

SCOTTSDALE AIRPORT
CITY OF SCOTTSDALE, ARIZONA

AIP NO.: 3-04-0032-036-2018
ADOT NO.: E9XXX
CITY PROJECT NO.: AC02A
BID NO.: 18PB021

DELTA APRON RECONSTRUCTION
TECHNICAL SPECIFICATION CERTIFICATION

1.	A-001	Special Provisions for Airport Construction
2.	A-002	Mobilization
3.	A-003	AZPDES Compliance
4.	A-004	Contractor Quality Control Program
5.	A-005	Removals and Modifications of Existing Structures
6.	A-006	Concrete Tie Down Anchors
7.	P-152	Excavation, Subgrade, and Embankment
8.	P-153	Controlled Low-Strength Material (CLSM)
9.	P-156	Temporary Air and Water Pollution, Soil Erosion, and Siltation Control
10.	P-209	Crushed Aggregate Base Course
11.	P-301	Soil-Cement Base Course
12.	P-401	Hot Mix Asphalt (HMA) Pavements
13.	P-603	Bituminous Tack Coat
14.	P-608	Emulsified Asphalt Seal Coat
15.	P-610	Structural Portland Cement Concrete
16.	P-620	Runway and Taxiway Marking
17.	F-162	Chain-Link Fence
18.	L-115	Electrical Manholes and Junction Structures

The preceding specification sections for the project stated above, were prepared by:

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Registered Professional Engineer (Civil)
CERTIFICATE NO.
55085
SCOTT M.
VAN GOMPEL
DATE SIGNED 3-19-18
ARIZONA, U.S.A.
Expires 9-30-19

TECHNICAL SPECIFICATIONS

ITEM A-001 SPECIAL PROVISIONS FOR AIRPORT CONSTRUCTION

DESCRIPTION

001-1.1 This section provides for construction safety in an airport environment; limitations on construction operations; minimum requirements for construction management and scheduling; and site specific information pertaining to potential impacts on construction activities.

001-1.2 Construction Safety and Phasing Plan (CSPP). The Contractor shall comply with the project-specific CSPP included as Appendix C to these specifications. Included as part of the requirements of the CSPP is the Safety Plan Compliance Document (SPCD), which must be completed and submitted by the Contractor and approved by the City prior to the start of construction.

001-1.3 Airfield Safety and Traffic Control. Airfield Safety and Traffic Control shall include the special requirements with respect to safely conducting construction activities, coordinating construction with aircraft operations, and maintaining the construction site in a manner that is compatible with aircraft. Unless otherwise noted, all costs associated with related work (including work required as described in the CSPP) shall be included in the contract pay item for Airfield Safety and Traffic Control.

001-1.4 Construction Schedule and Progress Schedule. A baseline construction schedule shall be submitted to the Engineer by the Contractor prior to the pre-construction meeting. The construction schedule shall be reviewed by the City. Prior to issuing a Notice to Proceed for the Construction Element, the Contractor shall receive approval from the City on the baseline construction schedule.

The construction schedule shall be a Critical Path Method (CPM) Baseline type. Schedule shall indicate the complete sequence of each construction category, indicating a time bar for each major category or unit of work to be performed with resource allocation provided. Work shall be properly sequenced and indicate being fully completed within the scheduled time of completion or substantial completion. The schedule shall also include manpower, equipment utilization and resource needs (resource loading) in order to meet the schedule. The schedule shall be coordinated with all other subcontractors and material suppliers prior to submission.

Contractor shall provide a three-week progress schedule updated for each weekly construction coordination meeting and whenever there is a significant change in progress, whether in a particular phase or total job progress. Schedule shall indicate specific work elements, quality control time, preparation time, approval time, resubmissions, fabrications, delivery dates and installation time.

001-1.5 Contractorâs Environmental Responsibilities. If any burrowing owls or active burrows are identified during construction, the Contractor shall notify the Engineer immediately. No construction activities shall take place within 100 feet of any active burrow. Construction will not commence until the owls have been relocated. Contractor will make sure that prior to construction, all personnel who will be on-site, including but not limited to Contractors, Contractor's employees, supervisors, inspectors, and subcontractors review the "Arizona Department of Transportation Environmental Planning Group Western Burrowing Owl Awareness" flyer.

001-1.6 Record Drawings. The Contractor shall maintain Record Drawings of all work continuously as the job progresses. A separate set of prints, for this purpose only, shall be kept at the job site at all times. It shall be required that these Drawings be up to date and be reviewed by the field inspector at the time each progress bill is submitted. All deviations from the Drawings, exact locations and sizes of all encountered utilities, mechanical and electrical lines, equipment details, and all stub outs and connections for future expansion, shall be incorporated. This work shall be considered incidental and shall be included in other items of work and no separate payment will be made.

001-1.7 Material Testing. All Quality Control testing as noted in the technical specifications shall be performed by the Contractor. All acceptance testing as noted in the technical specifications will be performed by the Engineer or Contractor. The Engineer has the option to perform testing for Quality Assurance in addition to the Contractor's testing. Quality Control Testing shall include but is not limited to:

a. Compaction testing for soils, soil-cement base course, and crushed aggregate base course.

b. Grade, smoothness and thickness verification for soils, soil-cement base course, crushed aggregate base course, and Hot Mix Asphalt Surface Course.

c. Mix design conformance and compressive strength testing for Structural Portland Cement Concrete and soil-cement base course.

d. Mix design conformance and other material testing required for Hot Mix Asphalt Surface Course.

e. Material testing for soils, soil-cement base course, and crushed aggregate base course.

001-1.8 Schedule of Values. A schedule of value(s) shall be provided for each lump sum bid item within 5 days of request, but not later than 10 working days before the first progress payment. The schedule of values shall be in the form of a detailed, itemized cost breakdown of the lump sum amount that includes the profit and overhead costs for each item. All work to be performed by subcontractors shall be listed. The schedule of values, once established, will serve as the basis for estimating or evaluating the percentage of lump sum work completed for progress payments. Progress payments on Unit Price Work will be based on the number of units completed.

001-1.9 Phasing and Time Limitations. The Project is divided into two main elements, Mobilization and Construction. A separate Notice to Proceed shall be issued for the Mobilization Element and the Construction Element. The Notice to Proceed for the Construction Element will not be issued until the Mobilization Element is substantially complete. The Construction Element shall be completed in four (4) phases. Each of the work elements and affected airfield areas within the AOA are detailed below. If the Contractor fails to meet any of these time limitations, liquidated damages will be assessed as described in Section 1.10. A summary of contract time is divided as follows:

a. Mobilization Element. Notice to Proceed with Mobilization shall be given immediately after execution of the Contract. A pre-construction conference will be scheduled to coordinate the start of the work. All work included in Mobilization shall be completed within thirty (30) calendar days. During this Element of the Project, no work shall be conducted that in any way restricts Airport operations. Mobilization work shall include, but not be limited to, the following:

- Processing of required submittals, including the construction schedule;
- Preparation and submission of the SPCD;
- Preparation and submission of the SWPPP;

- All prequalification material testing, review, and approval;
- Mix design preparation, review, and approval;
- Procure Airfield Safety Devices (low-profile barricades, flashing lights, flags, temporary signage, traffic cones, etc.)
- Miscellaneous mobilization efforts required to commence construction;
- Materials and/or equipment required for construction delivered to site, as applicable.

All preliminary work required in the Contract Documents and as determined by the Contractor to pursue an efficient sequence of construction to completion, shall be finalized during the Mobilization Element to minimize delays once the Notice to Proceed for construction is issued. The work shall begin on the date specified in the NTP, and the calendar day count will begin on this date.

b. Construction Element. All work included in the Construction Element shall be completed within 182 calendar days and shall be performed in the following sequence and sub-phase time limitations.

Phase 1

Location - 89-feet wide by 495-feet long area of Delta Apron in front of the Air Commerce Center and north of the bypass taxilane.

Duration - 35 calendar days.

Runway Closures – None.

Operational Impact – Three helicopter and nine aircraft parking locations on the Delta Apron and six aircraft hangars in the Air Commerce Center will be inaccessible during this phase. All other apron areas and hangar access will remain open. Temporary pavement will be required to be constructed on the south end of the apron to maintain access to the fuel farm behind the Air Commerce Center as well as the two hangars.

Phase 2

Location - 6,880 square yard middle area of Delta Apron north of the bypass taxilane and south of the City T-Hangars/T-Shades.

Duration - 39 calendar days.

Runway Closures - None.

Operational Impact – 19 aircraft parking locations on the Delta Apron will be inaccessible throughout the duration of this phase. The bypass taxilane will be closed to aircraft operations along the southeast edge of the phase limits. The bypass taxilane will remain open for vehicular traffic. All other sections of the bypass taxilane, apron areas, and hangar access will remain open.

Phase 3

Location - 7,400 square yard north area of Delta Apron north of the bypass taxilane and south of the City T-Hangars/T-Shades.

Duration - 41 calendar days.

Runway Closures - None.

Operational Impact – 18 aircraft parking locations on the Delta Apron will be inaccessible throughout the duration of this phase. The bypass taxilane will be closed to aircraft operations along the southeast edge of the phase limits including Apron Connector A3. The bypass taxilane and

Apron Connector A3 will remain open for vehicular traffic. All other sections of the bypass taxilane, apron areas, and hangar access will remain open.

Phase 4

Location – 16,810 square yard southern half of Delta Apron north of the bypass taxilane.

Duration - 67 calendar days.

Runway Closures - None.

Operational Impact – 10 helicopter parking locations and 15 aircraft parking locations on the Delta Apron will be inaccessible throughout the duration of this phase. The bypass taxilane will be closed to aircraft operations along the southeast edge of the phase limits including Apron Connector A1. The bypass taxilane and Apron Connector A1 will remain open for vehicular traffic. All other sections of the bypass taxilane, apron areas, and hangar access will remain open.

Total contract time allowed for construction work shall be 182 consecutive calendar days.

All work will be accomplished in accordance with the FAA AC 150/5370-2G, Operational Safety on Airport During Construction and the project Construction Safety and Phasing Plan. All work shall be completed within the time specified for each phase of the work.

Airport Operations shall be the sole judge of the suitability of opening any aircraft operational area for aircraft operations. The Contractor shall remove all equipment, materials and foreign objects from the air operations area and shall conduct an inspection with Airport Operations prior to the scheduled opening. Failure to remove construction materials, equipment and foreign objects from the pavement that result in air operations closures shall subject the Contractor to liquidated damages as specified herein.

The Contractor shall make his own estimate of inherent difficulties involved in completing the work under the conditions described in these specifications and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

001-1.10 Liquidated Damages. Shall the approved time limitation for any phase of work not be met, liquidated damages in accordance with the provisions of MAG Section 108.9 shall be assessed, per each calendar day.

001-1.11 Barricades. The Contractor shall provide all low-profile barricades as shown on the Construction Safety and Phasing Plans for use during this project. The low-profile barricades shall be safety orange in color and shall measure eight (8) feet in length, ten (10) inch in width and a maximum of eighteen (18) inches in height. They shall be high impact, UV resistant, high density polyethylene, equipped with orange/white reflective striping on each side and two (2) red flashing, solar-powered hazard lights. The barricades shall be continuously linked and filled with water. The Contractor shall be responsible for determining the number of barricades needed for the project and shall have an adequate amount available for use during the project. The Contractor shall be responsible for placing, filling with water, maintaining and moving the barricades as necessary during the project.

Additionally the Contractor shall provide plastic delineators or traffic cones as required to barricade hazardous areas at the project site. Unless otherwise approved by the Engineer, delineators shall be 42-

inch-high molded plastic. Delineators shall be four inches in diameter, florescent orange, supplied with a weighted base and reflective stripes. Traffic cones shall be 28-inch high with reflective stripes. All costs associated with this item shall be included in Airfield Safety and Traffic Control. All barricades and delineators shall remain property of the Contractor.

001-1.12 Runway Closure Crosses. This project does not require work within the Runway Safety Area therefore this section does not apply.

001-1.13 Radio Communication with Air Traffic Control Tower (ATCT). All traffic on the Airport is controlled by the ATCT between the hours of 0600 to 2100. The Contractor shall have no direct contact with ATCT during the project. All communication with ATCT shall be coordinated with Airport Operations.

001-1.14 Access and Security.

a. Contractor Access. Contractor access to the project work areas shall be via the closest access gates and haul routes indicated on the Construction Safety and Phasing Plans. All haul routes on Airport property shall be approved by Airport Operations. All paved access routes and haul roads shall be kept clean and free of debris. Dust control shall be maintained at all times. Traffic control across active airfield crossings should be coordinated with Airport Operations, if required. Damage to pavement, structures, gates, fences, utilities or other existing improvements will be repaired by the Contractor at his/her expense.

b. Access Security Control.

1. The Contractor shall be responsible for maintaining Airport security at all locations designated for construction access. When not actively in use, the gates or temporary security fencing will be kept closed and locked. During periods of operation, the gate or temporary security fence must be secured after each vehicle enters or departs or a gate guard shall be posted (by Contractor) so that an inadvertent entry onto the Airport by an unauthorized vehicle and/or pedestrian is prevented.

   The Contractor shall provide the gate guard with a list of authorized personnel for the project. The guard will be responsible for keeping a record of personnel access. At a minimum the guard will record the company name, driver name, entrance time and exit time for each individual allowed access to the AOA.

2. All construction access points shall be kept clear of equipment and material.

c. Temporary Fencing. The Contractor shall be responsible for modifying existing chain-link fence as directed on the Construction Safety and Phasing Plans and Details. Work shall include removing existing fabric, barbed wire, posts, rails and braces and installing temporary chain-link fence as required in accordance with Item F-162 Chain-Link Fence. Work shall be included in the contract pay item for Airfield Safety and Traffic Control.

001-1.15 Vacuum Sweeper Truck. All pavement surfaces used for hauling or otherwise become covered with dirt, debris, gravel or FOD as a result of the Contractor shall be swept and vacuumed immediately. The Contractor shall maintain onsite a vacuum sweeper truck throughout the project duration. The vacuum sweeper truck shall be included in the contract pay item for Airfield Safety and Traffic Control.

001-1.16 Dust Control. Contractor must control dust at all times during the project. Contractor shall confer with the airport staff or engineer to determine what methods of controlling dust are acceptable and allowable on the jobsite. The Contractor is responsible for obtaining all required permits with Maricopa County.

001-1.17 Cooperation between Contractors. Construction will be underway by other forces and by other contractors within or adjacent to the limits of the work in this contract. The Contractor shall cooperate with all such other contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces.

Each Contractor shall be responsible to the other for any damage to work, to persons or property caused to the other by his operations, and for loss caused the other due to his unnecessary delays or failure to finish the work within the time specified for completion.

001-1.18 Contractor Utility Coordination. The source of construction water, electricity, or other utilities required for the project shall be coordinated by the Contractor. The Contractor shall pay all applicable fees and make all necessary arrangements with the appropriate local utility to secure construction utility service for the duration of the contract, including identifying and coordination of an acceptable utility source for the project. No direct payment will be made for this work.

001-1.19 Dumping and Disposal of Waste. The Contractor is responsible for the cost to dispose of all waste products including excess material which will not be incorporated into the work under this contract. The waste product referred to herein shall become property of the Contractor and shall be disposed of at locations off airport property. The cost to dispose of these materials including any associated hauling and environmental testing shall be included in the applicable bid item.

001-1.20 Construction Activity. Closure of Airport Operations Areas (AOA) will be required when work is conducted within 57.5 feet of the Bypass Taxilane Centerline. The Contractor shall submit to the Engineer in writing a detailed work plan for the project. The work plan shall include, but not be limited to, sequence of removals, installation of underground wet and dry utilities, earthwork operations, and paving sequence. The work plan shall include details for controlling construction equipment and vehicular movements within the AOA and on haul routes. This plan shall be discussed at the Pre-Construction Meeting. No work may commence until the work plan is approved by the Engineer.

The Contractor shall be responsible for determining means and methods to meet the safety standards included in this section and in the project CSPP included as Appendix C.

001-1.21 Airport Haul Routes. Airfield pavements will be used extensively for access to the project site during construction. Prior to commencing construction, the Contractor shall document and videotape the existing pavement condition on all access and haul routes to be used for the project. Travel on these roads will be controlled by Airport Operations and the Contractor shall remain within these specified routes. After construction is complete, all Airport pavements used during the project shall be evaluated for damage and repaired as directed by the Airport or Engineer. This process may include pavement removal, unclassified excavation, subgrade treatment, new aggregate base and new hot mix asphalt pavement; or other methods as determined acceptable by the Airport or Engineer. The work shall be in accordance with Item A-005 Section 2.10.

001-1.22 Compliance with Arizona Blue Stake Law. The Contractor shall comply with the State requirements regarding excavation and underground utilities per applicable Sections of A.R.S. Chapter 2, Article 6.3, Sections 40-360.21 through 40-360.32. The Contractor shall contact Arizona 811 and City of Scottsdale Airport IT prior to any excavation work.

001-1.23 Other Requirements. The Contractor must comply with Provisions of Arizona Executive Order 75-5 dated 28 April 1975 relating to equal opportunity.

Duly authorized representatives of the State of Arizona shall have access to any books, documents, papers, and records of the Contractor which are in any way pertinent to the contract for a period of five years, in accordance with A.R.S. 35-214, for the purposes of making inspections, audits, examinations, excerpts, and transcriptions.

All Contractors and subcontractors hired to perform services shall be in compliance with A.R.S. 32-1101 through 32.1170.03.

The cost of work accomplished by the Contractor in excess of the Contract amount without a Change Order approved by the City of Scottsdale will be borne by the Contractor.

All supplemental agreements or change orders concerning FAA and ADOT funding are subject to review and approval by FAA and ADOT/MPD Aeronautics Group prior to Construction.

Additional limitations, restrictions and requirements that will apply to the Contractor's operations during construction of this project are presented in FAA AC 150/5370-2G, "Operational Safety on Airports during Construction" and the FAA approved Construction Safety and Phasing Plan.

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 14 days from the receipt of each payment the prime contractor receives from Sponsor. The prime contractor agrees further to return retainage payment to each subcontractor within 14 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 the Sponsor.

001-2.1 Basis of Measurement and Payment for Airfield Safety and Traffic Control. Airfield Safety and Traffic Control will be measured as a lump sum item and paid for at the Contract lump sum price. This price shall include full compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the work as described herein and, if not otherwise stated, in Item A-002, "Mobilization" and the Construction Safety and Phasing Plan of these Specifications. Based upon the contract lump sum price for "Airfield Safety and Traffic Control" partial payments will be allowed as follows:

a. After installation of all CSPP measures for Phase 1, 30%.

b. After installation of all CSPP measures for Phase 2, an additional 20%.

c. After installation of all CSPP measures for Phase 3, an additional 20%.

d. After installation of all CSPP measures for Phase 4, an additional 20%.

e. After final inspection, staging area clean-up and removal of all CSPP measures, the final 10%.

Payment will be made under:

Item A-001-2.1 Airfield Safety and Traffic Control – per lump sum

END OF ITEM A-001

TECHNICAL SPECIFICATIONS

ITEM A-002 MOBILIZATION

DESCRIPTION

002-1.1 General. Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the Project site; for the establishment of all field offices and other facilities necessary for work on the Project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various Contract items on the Project site.

The Mobilization Element shall begin immediately upon receipt of the Notice to Proceed. See Specification Item A-001, "Special Provisions for Airport Construction" for Mobilization time limits and liquidated damages. Contractor is solely responsible for delays in the Project resulting directly or indirectly from late submissions or resubmission of submittals.

002-1.2 Posted Notices. Prior to commencement of construction activities the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Airport.

002-1.3 Submittals. All materials and equipment used to construct this work shall be submitted to the Engineer for approval prior to ordering the materials or equipment. Contractor's Material and Equipment Submittal Checklist will be included in the Construction Management Plan.

The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the Plans and Contract Documents. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, do not meet the design requirements, standards or codes specified.

For items listed under 'General Requirements' below, the Contractor shall provide these items at least five (5) working days prior to the pre-construction meeting. Issuance of a Notice to Proceed is dependent on the timelines and the proper level of detail of these submittals. Submittals shall be submitted to the Engineer in one 3-ring loose leaf binder with appropriate dividers or electronically in PDF format.

Submittals shall include items as detailed in the Contractor's Materials and Equipment Submittal Checklist, and below, but are not limited to:

- **a.** General Requirements
  1) Key Personnel, Telephone Numbers, and Emergency Contact Information
  2) Project Construction Schedule (CPM)
- **b.** Site Work including but not limited to the Contractor's Submittal Checklist included as Appendix A.

Manufacturer's catalogs (or excerpts thereof) and affidavits of compliance with the contract documents shall be submitted for all materials to be used on the Project. Alternate products may be approved by the Engineer upon submittal of the following information and subject to the acceptance of the FAA. The Engineer will not consider an alternate product that does not have adequate demonstrated experience and meets all performance requirements of the specifications.

Contractor shall allow a minimum of ten (10) working days for evaluation of requests for substitution or deviation from the Contract Documents.

002-1.4 Submittal Procedures.

a. Submit electronic submittals via email as PDF electronic files, whenever possible.

b. Each submittal item shall be individually numbered according to the Contractor's Materials and Equipment Submittal Checklist, so that approved and rejected submittals can be tracked.

c. Edit submittals so that the submittal specifically applies to only the material or equipment furnished. Neatly cross out all extraneous text, options, models, etc. that do not apply to the material or equipment being furnished, so that the information remaining is only applicable to the material or equipment furnished.

d. Present measurements in customary American units (feet, inches, pounds, etc.).

e. After the initial submittal package, a separate transmittal form shall be used for each subsequent submittal, specific item, or class of material or equipment for which a submittal is required. However, transmittal of a submittal of various items using a single transmittal form will be allowed when the items taken together constitute a "package" or are so functionally related that expediency dictates review of the package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the Engineer.

f. Each transmittal shall identify the specification section that relates to the item being submitted.

g. After checking and verifying all field measurements, the Contractor shall thoroughly review each shop drawing for compliance and compatibility and stamp "APPROVED" and sign each shop drawing to indicate that a thorough review was made by the Contractor and that the Contractor has approved the shop drawing for the Project prior to submission for the Engineer's review.

1. Submittals shall bear a stamp or specific written indication the Contractor has satisfied its responsibilities under the Contract Documents with respect to the review of the submittal and have a signature by the Contractor.
2. Data shown shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to enable Engineer to review the information.
3. Submittals shall specify by checking a box "Yes" or "No" as to whether the submittal meets the Buy American requirements. All submittals shall be accompanied with Buy American certifications or Buy American waivers. Only Third Party certified manufacturers, listed in FAA Advisory Circular 150/5345-53, Appendix 3 Addendum (as required) and meeting the BUY AMERICAN preference requirements can provide equipment and materials specified in the Contract Documents. Documentation certifying compliance with the BUY AMERICAN preference rules for Airport Improvement Program (AIP) cited in 49 USC §50101) shall be included with each equipment and material submittal.

h. Check the samples and accompany with specific written indication that Contractor has satisfied requirements under the Contact Documents with respect to review of submittals, and identify clearly as to material, supplier, pertinent data such as catalog numbers and the intended use.

i. Before submission of each submittal, determine and verify quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto; review and coordinate each submittal with other submittals, requirements of work, and the Contract Documents.

j. Submittals shall specify by checking a box “Yes” or “No” as to whether the submittal contains variations to the Contract. At the time of each submission, give Engineer specific written notice of each variation that the submittal may have from the requirements of the Contract Documents; in addition, make specific notation on each shop drawing submitted to Engineer for review and approval of each such variation.

k. The Engineer will review up to two (2) submittals for each item. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the Engineer by the second submission of a submittal item. All costs to review shop drawings submitted more than twice to receive a “Re-submittal Not Required” or other approval designation, shall be borne by the Contractor. The Airport reserves the right to withhold moneys due the Contractor to cover additional cost of the Engineer’s review beyond the second submittal.

l. The Engineer's review is for general conformance to the Contract Documents and no check will be made to confirm dimensions, compatibility with other elements of the Work, or deviations from the Contract Documents which have not been specifically identified by the Contractor. Contractor is responsible for the installation of complete, functional improvements in accordance with the Contract Documents.

m. Engineer’s review will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents, not extending to means, methods, techniques, sequences, or procedures of construction (except where a specific means, method, technique, sequence, or procedure of construction is indicated in or required by the Contract Documents) nor to safety precautions or programs incident thereto. The review of a separate item as such will not indicate the review of the assembly in which the item functions.

n. Where a shop drawing or sample is required by the Specifications, related work performed prior to Engineer’s review and approval of the pertinent submission shall be the sole expense and responsibility of Contractor.

o. Review, acceptance, or approval of substitutions, schedules, shop drawings, list of materials, and procedures submitted or requested by Contractor shall not add to the Contract amount, and additional costs which may result therefrom shall be solely the obligation of Contractor.

p. The Airport is not responsible to provide engineering or other services to protect the Contractor from additional costs accruing from submittals.

q. Submittals processed by Engineer do not become Contract Documents and are not Change Orders. The purpose of submittal review is to establish a reporting procedure and is intended to allow the Engineer to monitor Contractor’s progress and understanding of the design.

r. Delays caused by the need for re-submittal shall not constitute a basis for claim.

s. The Airport reserves the right to modify the procedures and requirements for submittals, as necessary to accomplish the specific purpose of each submittal. Direct inquiries regarding the procedure, purpose, or extent of any submittal shall be submitted to the Engineer.

002-1.5 Underground Utility Investigation and Potholing. The Plans depict underground utilities derived from record drawings and field investigations. Not all utilities locations or depths are known. Prior to the start of excavation activities, the Contractor shall coordinate for location services. The Contractor shall pothole utility locations and verify location and depth. All work shall be coordinated with and performed under the observation of the Engineer or Airport Operations. Excavations within pavement limits shall be backfilled and capped with asphalt concrete (cold patch is acceptable). Contractor will document locations, depth, and type of utility and provide information to the Engineer prior to full production work. This work shall be incidental to other items of work.

METHOD OF MEASUREMENT

002-2.1 Mobilization will be measured by lump sum.

BASIS OF PAYMENT

002-3.1 Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. Upon acceptance of all submittals and completion of the mobilization element, 50%.

b. With the second or following pay request, an additional 40%.

c. After Final Inspection, staging area clean-up and delivery of all Project Closeout materials as required by 90-11, the final 10%.

The Contract lump sum price paid for Mobilization shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Mobilization as specified herein. Payments made for Mobilization will be excluded from consideration in determining compensation under changed quantities.

Payment will be made under:

Item A-002-3.1 Mobilization – per lump sum

END OF ITEM A-002

TECHNICAL SPECIFICATIONS

ITEM A-003 AZPDES COMPLIANCE

Supplement to Item P-156

DESCRIPTION

003-1.1 General. Operators of construction sites disturbing one or more acres of land are required to obtain Arizona Pollutant Discharge Elimination System (AZPDES) permit coverage for stormwater discharges. The US Environmental Protection Agency (USEPA) has issued a series of stormwater Construction General Permits (CGP) that provide permit coverage in states where USEPA is the permitting authority. The Arizona Department of Environmental Quality (ADEQ) received authorization to administer the NPDES program in Arizona and is responsible for issuing the CGP every five years.

The USEPA finalized the Effluent Limitations Guidelines and New Source Performance Standards for the construction and development industry (the "C&D rule") which became effective on February 1, 2010. The requirements in the C&D rule include a suite of non-numeric effluent limitations that apply to all permitted construction sites. The non-numeric effluent limits include requirements for:

- **a.** Erosion and Sediment Controls;
- **b.** Soil Stabilization;
- **c.** Pollution Prevention Measures;
- **d.** Dewatering;
- **e.** Prohibited Discharges; and
- **f.** Surface Outlets.

ADEQ's CGP issued in 2013 includes language that implements USEPA's C&D rule non-numeric limits. This permit also includes water quality-based requirements for construction sites discharging stormwater to waters requiring additional pollutant control.

CONSTRUCTION REQUIREMENTS

003-2.1 General. The Contractor shall be responsible for implementing and following the requirements of the State of Arizona, Arizona Pollutant Discharge Elimination System (AZPDES), Construction General Permit (CGP), permit no. AZG2013-001 which authorizes stormwater discharges from large and small construction activities to waters of the U.S. either directly or by conveyance, such as a Municipal Separate Storm Sewer System (MS4). A copy of the ADEQ AZPDES General Permit for stormwater discharges associated with construction activity can be found at: http://www.azdeq.gov/node/524. Useful information related to local stormwater controls and erosion control measures are presented in the, "Drainage Design Manual for Maricopa County - Erosion Control," published by the Flood Control District of Maricopa County.

003-2.2 Prerequisites for Submitting a Notice of Intent (NOI). Prior to submission of an NOI, an applicant seeking authorization to discharge under this general permit shall:

a. Meet the eligibility requirements;

b. Develop a SWPPP that meets the requirements of Part 6 of the ADEQ 2013 CGP and that covers the entire site.

1. The SWPPP shall be prepared prior to submission of the NOI and shall be implemented prior to the start of construction.
2. The SWPPP is not required to be submitted to ADEQ unless the project is within 1/4 mile of an impaired water or OAW as described in Parts 1.5(3) and 1.5(4) 6 of the ADEQ 2013 CGP but shall be retained and made available in accordance with Part 6.7 of the ADEQ 2013 CGP.

003-2.3 Stormwater Pollution Prevention Plan (SWPPP). The work shall include preparing and revising, as necessary, a comprehensive stormwater pollution prevention plan (SWPPP), including descriptions of proposed measures to be implemented, a schedule detailing the proposed coordination of accomplishing the erosion control features in a timely and appropriate manner, and site-specific diagrams indicating proposed locations where erosion control devices or measures may be required during successive construction stages. The SWPPP shall also specify the Contractor's "good housekeeping" practices and requirements, including vehicle wash-down areas, onsite and off-site tracking control, protection of equipment storage and maintenance areas, methods to minimize generation of dust, and sweeping of roadways related to hauling activities.

ADEQ offers a checklist and template to help the Contactor ensure the site SWPPP meets permit requirements. The checklist includes guidance for preparing your initial SWPPP, as well as information to include throughout the duration of your construction project, such as control measures, inspections and corrective actions. The SWPPP checklist and template are available on the internet at: http://www.azdeq.gov/node/2328. The Contractor shall submit a SWPPP to the Engineer for review and approval.

003-2.4 Submitting an NOI. Construction Contractors seeking authorization for stormwater discharges under this general permit shall submit a complete and accurate AZPDES NOI form to ADEQ. Submit to the Department a complete and accurate NOI form electronically via the Smart NOI Web site at: https://az.gov/app/smartnoi/ or submit a paper copy with original signature in accordance with A.A.C. R18-9-C901(D) to the following address:

Arizona Department of Environmental Quality
Surface Water Section - Stormwater and General Permits Unit
1110 West Washington Street, 5415A-1
Phoenix, Arizona 85007

The NOI form is available at http://www.azdeq.gov/node/524

The NOI form requires, at a minimum, the following information:

a. The name, address, and telephone number of the construction contractor;

b. The type of project shall be specifically identified on the NOI;

c. Whether the project is part of a greater plan of development;

d. Estimates of the total project acreage and the acreage to be disturbed by the contractor submitting the NOI;

e. The printed name (or other identifier), address, county, lot number or parcel or lot number as recorded by the county, of the construction project or site;

f. An accurate (within 15 seconds) latitude and longitude (in degrees/ minutes/ seconds format) of the construction site at the point nearest the closest receiving water. If the site is located within 1/4 mile of an impaired water or OAW, the operator shall provide the latitude and longitude of the property that is closest to the impaired water or OAW. If the site is part of a larger common plan of development, the operator shall provide the latitude and longitude of the discharge point for the portion of the site covered by that NOI;

g. Whether any part of the site is located on Indian Country;

h. Confirmation that a SWPPP meeting the requirements in Part 6 of this permit has been developed and will be implemented prior to commencement of construction activities. If the NOI is a late application, the operator shall certify that a SWPPP has been developed and implemented prior to submittal of the NOI;

i. The onsite location where the SWPPP may be viewed and the name and telephone number of a contact person;

j. Provide the name of the closest receiving water, which may include an unnamed wash;

k. The name(s) of the MS4 into which there is a potential to discharge, if applicable;

l. The project's estimated start and completion dates;

m. Whether the project has or will need any other water quality permits or approvals, including, but not limited to, subdivision approvals, a Clean Water Act (CWA) section 404 permit, and the permit number(s), if applicable;

n. Whether any portion is within 1/4 mile of an impaired or OAW;

o. All Notice of Intent forms must be signed in accordance with the signatory requirements of Appendix B, Subsection 9 of the ADEQ 2013 CGP.

p. An NOI is not complete unless the appropriate fee is paid.

003-2.5 Terminating Coverage. To terminate permit coverage, the contractor shall submit to ADEQ a complete and accurate NOT form electronically via the Smart NOI Web site at: https://az.gov/app/smartnoi/ or submit a paper copy to the address listed in Section 003-2.4. All NOT forms must be signed in accordance with the signatory requirements of Appendix B, Subsection 9 of the ADEQ 2013 CGP. The contractor shall receive an acknowledgement letter upon ADEQ's receipt of the contractor's completed NOT form.

The contractor is responsible for meeting the terms and conditions of this permit until the construction site's authorization is terminated. The contractor may submit a complete and accurate NOT form to ADEQ after any of the following conditions have been met:

a. The contractor has established final stabilization on all portions of the site for which the contractor is responsible, in accordance with Part 3.1.2.2 of the ADEQ 2013 CGP.

b. Another contractor who has a valid authorization number under this general permit or an individual AZPDES permit has assumed control over all areas of the site that have not been finally stabilized;

c. The planned construction activity identified on the original NOI was never initiated (i.e., no grading or earthwork was ever started) and plans for construction have been permanently abandoned or indefinitely postponed;

d. The contractor has obtained coverage for the site under another AZPDES permit;

e. The contractor qualifies for one of the stabilization alternatives in Part 3.1.2.3 of the ADEQ 2013 CGP. If qualifying for either alternative, the contractor shall submit the required documentation with the NOT demonstrating compliance with Part 3.1.2.3.

Notification to Municipal Separate Storm Sewer Systems. If the construction site was located within a regulated MS4, the contractor shall send a copy of the NOT acknowledgement letter to the MS4 operator. A list of regulated MS4s is found at: http://www.azdeq.gov/environ/water/permits/stormwater.html#ms4s

003-2.6 Contractorôs Erosion and Pollution Control Coordinator. The Contractor shall designate a competent person as the Contractor's erosion and pollution control coordinator (referred to elsewhere herein as erosion control coordinator) responsible for implementing, monitoring, and revising the approved SWPPP throughout the project, for making the required inspections, and for implementing any other permit requirements stipulated in the AZPDES general permit. The person shall be knowledgeable in the principles and practice of erosion and sedimentation controls, and possess the skills to assess conditions at the site that could impact stormwater quality and the effectiveness of the Contractor's erosion control measures used to control the quality of the stormwater discharges.

The Contractor bears all risks and liabilities for the failure of its erosion control coordinator to properly implement the requirements of the AZPDES general permit. The person shall be capable of identifying existing and predictable effects of the Contractor's operations, and shall have complete authority to direct the Contractor's personnel and equipment to implement the requirements described herein, including prompt placement of corrective measures to minimize or eliminate pollution and damage to downstream watercourses. The erosion control coordinator shall also be familiar with procedures and practices identified in the SWPPP.

The erosion control coordinator shall at all times be aware of the Contractor's work activities, schedule, and effect of the work on the environment, and shall, at any time, be accessible to direct the Contractor's personnel to replace or repair erosion control measures as necessary. Should the erosion control coordinator not be present at the project site on a full-time basis, the Contractor shall establish procedures to ensure that its erosion control coordinator is promptly notified of any damage or displacement of the required erosion control measures, whether from construction, vandalism, or other cause. In addition, the Contractor shall provide the Engineer with a phone number through which the erosion control coordinator can be contacted at any time, 24 hours a day, seven days a week, including holidays. The erosion control coordinator must be present at the jobsite within 24 hours of such call being placed.

The proposed erosion control coordinator shall have successfully completed the 16 hour "Erosion Control Coordinator" training class or the 6 hour Refresher Course (if previously certified) provided by the Arizona Chapter of Associated General Contractors. In addition, the proposed erosion control coordinator shall

have documented experience equal to a minimum of one year in the development and implementation of Stormwater Pollution Prevention Plans (SWPPP), as specified in the AZPDES general permit referenced herein, or the National Pollutant Discharge Elimination System (NPDES). The proposed erosion control coordinator's experience shall also demonstrate full-time responsibility for directly supervising construction personnel in the installation, monitoring, and maintenance of erosion control items.

The Contractor shall submit documentation indicating the qualifications of the proposed erosion control coordinator to the Engineer for approval within seven calendar days of the notice to proceed of the mobilization phase.

003-2.7 Inspections. The Engineer and the erosion control coordinator shall inspect the project site a minimum of once per month, but not within 14 calendar days of the previous inspection and within 24 hours of the occurrence of a storm event of 0.25 inch or greater. The inspections shall include disturbed areas that have been temporarily stabilized, areas used for storage of materials, locations where vehicles enter or exit the site, and all of the erosion and sediment controls included in the SWPPP.

The Contractor shall monitor rainfall on the site with a commercially manufactured rain gauge accurate to within 0.10 inches of rain. Rainfall records shall be submitted to the Engineer on a monthly basis.
For each inspection, the Contractor's erosion control coordinator shall complete and sign the Construction General Permit Inspection & Corrective Action Report Form. Copies of the completed reports shall be retained on-site in the SWPPP file throughout the construction period. The erosion control coordinator shall also provide a copy of the report to the Engineer following each inspection. The electronically fillable form is available on the internet at http://www.azdeq.gov/node/524.

003-2.8 Record Keeping. The Contractor shall post their NOI, authorization certification, and the information required in the AZPDES general permit on the construction-site bulletin board throughout the duration of the project. A copy of the AZPDES general permit shall also be kept at the construction site at all times. The Contractor's erosion control coordinator shall maintain the SWPPP along with completed inspection forms and other AZPDES records in a three-ring binder at the job site from the time construction begins until completion of the project. The erosion control coordinator shall provide copies of any or all such documents to the Engineer upon request.

003-2.9 Contractorôs Responsibility for Work. No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP, shall be started until the SWPPP has been approved and the NOI has been completed and submitted in accordance with the ADEQ 2013 CGP.

MEASUREMENT AND PAYMENT

003-3.1 Measurement and payment for AZPDES Compliance shall be as described in Technical Specification Item P-156 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control.

END OF ITEM A-003

TECHNICAL SPECIFICATIONS

ITEM A-004 CONTRACTOR QUALITY CONTROL PROGRAM

DESCRIPTION

004-1.1 This item covers all work associated with, establishing, providing and maintaining a Contractor Quality Control Program consistent with Section 100 of the FAA General Provisions and the Technical Specifications during the full term of the project.

004-1.2 The Contractor shall be responsible for conducting all Quality Control Testing as indicated in the Technical Specifications for each item, as well as any other tests not specifically listed, but necessary to control the work. The Engineer's Quality Acceptance and Assurance test results will be made available to the Contractor as additional information. The Contractor shall not rely on the Engineer's Quality Acceptance or Assurance Testing as part of the Contractor's Quality Control Program.

004-1.3 The Contractor shall establish, provide, and maintain an effective Contractor 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. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Contractor Quality Control Program has been reviewed and accepted by the Engineer. See Section 100 of the FAA General Provisions for Contractor Quality Control Program requirements.

004-1.4 Lines and Grades. The Contractor shall construct all improvements according to the lines and grades as shown on the Plans. The Contractor shall provide all survey and staking as necessary to meet the requirements of the Contract Documents. The initial survey layout shall be performed by a Registered Land Surveyor in the State of Arizona and shall be reconfirmed after completion of each specification item (i.e. P-152, P-209, P-301, & P-401). The Plans indicate elevations at points of paving and grading joins and daylights. Contractor shall verify existing elevations and advise the Engineer of any discrepancies prior to pavement removal. Any costs for rework required due to existing grade discrepancies not brought to the Engineer's attention shall be borne by the Contractor. The Contractor shall protect and preserve all marks set by others and shall be liable for replacement of marks destroyed during construction. The Engineer shall be given 48 hours' notice prior to subgrade, aggregate base, and hot mix asphalt completion, so finished grades and layout may be checked. The Contractor shall include all associated costs in the Contract item for Construction Staking and Survey Layout.

METHOD OF MEASUREMENT

004-2.1 Contractor Quality Control Program will be measured for payment as a lump sum.

004-2.2 Construction Staking and Survey Layout will be measured for payment as a lump sum.

BASIS OF PAYMENT

004-3.1 Contractor Quality Control Program and Construction Staking and Survey Layout will be paid as a lump sum with the following schedule of partial payments:

a. After completion of Phase 1 Construction, 25% with approval of Contractor Quality Control Program.

b. After completion of Phase 2 Construction, an additional 25%.

c. After completion of Phase 3 Construction, an additional 25%.

d. After completion of Phase 4 Construction, an additional 25%.

004-3.2 Construction Staking and Survey Layout shall include full compensation for all staking and survey required to construct the Project to the lines and grades as indicated on the Plans to meet the specified tolerances.

a. After completion of Phase 1 Construction, 25%.

b. After completion of Phase 2 Construction, an additional 25%.

c. After completion of Phase 3 Construction, an additional 25%.

d. After completion of Phase 4 Construction, an additional 25%.

Payment will be made under:

Item A-004-3.1 Contractor Quality Control Program – per lump sum

Item A-004-3.2 Construction Staking and Survey Layout – per lump sum

END OF ITEM A-004

TECHNICAL SPECIFICATIONS

ITEM A-005 REMOVALS AND MODIFICATIONS OF EXISTING STRUCTURES

DESCRIPTION

005-1.1 The work under this section shall consist of the removal, demolition, wholly or in part, and modifications to existing facilities or structures within the project limits, that are not specified elsewhere in these specifications. The work shall also include salvaging of designated materials where required and backfilling the resulting cavities.

Existing structures, pavement, and other existing improvements which are to become an integral part of the planned improvements shall remain in place even though not specifically noted.

Materials removed and not designated to be salvaged or incorporated into the work shall become the property of the Contractor and shall be hauled off Airport property and disposed of accordingly.

CONSTRUCTION REQUIREMENTS

005-2.1 General. Culverts and other structures in use by traffic shall not be removed until satisfactory arrangements have been made to accommodate the traffic.

Operations necessary for the removal of an existing structure or obstruction, which may damage new construction, shall be completed prior to commencing the new work.

Items designated to be salvaged shall be carefully stockpiled or stored by the Contractor at locations designated by the Engineer or Airport Operations.

Items which are to be salvaged or reused in the new construction and are damaged or destroyed as a result of the Contractor's operations shall be repaired or replaced, in-kind by the Contractor at his expense.

Holes, cavities, trenches and depressions resulting from the removal of structures or obstructions, except in areas to be excavated, shall be backfilled to the top of proposed subgrade with suitable select fill materials and compacted to a density of not less than 95 percent of the maximum density as determined by ASTM D1557. For holes or cavities resulting from the removal of structures within the pavement join area, the holes or cavities shall be filled with Item P-153 Controlled Low-Strength Material to the top of the existing aggregate base course. This work shall be considered incidental to the removal items.

005-2.2 Pavement Removal, Cold Milling, Full Depth. This work shall include the full depth removal of asphalt concrete pavement by cold milling to the dimensions called out on the Plans. Milling shall be performed with a power-operated milling machine or grinder. The milling machine or grinder shall be equipped with automatic grade and slope controls. Any excessive area that is milled or areas that are damaged because of the Contractor’s negligence, shall not be included in the measurement for payment. If the Contractor mills or grinds deeper or wider than specified by the plans, the Contractor shall replace the material that was removed with new approved material at no additional cost to the Airport. The Contractor is advised to review the boring logs included in the project Plans to obtain an approximate depth

of existing asphalt concrete pavement. The Contractor is advised that the actual depth of the pavement may vary. All millings shall be removed and disposed off Airport property, unless otherwise specified. The Contractor shall be responsible to perform any hazardous material testing that may be necessary to dispose of the material. Millings may be reused as select fill material, if required, provided the material meets the gradation requirements specified below.

a. Gradation Requirements for Select Fill

Sieve designation (square openings) as per ASTM C136 and ASTM D422	Percentage by weight passing sieves
3 inch	100
No. 10	20-100
No. 40	5-60
No. 200	0-8

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 six (6) when tested in accordance with ASTM D4318.

b. Sampling and testing for Select Fill. Material to be used for select fill shall be tested for gradation per ASTM C136 and sieve analysis on material passing the No. 200 sieve per ASTM C117. The Contractor shall take at least two samples per day while stockpiling select fill material generated from the pavement removal process. The samples shall be taken from the in-place, un-compacted material in the presence of the Engineer. Sampling points and intervals will be designated by the Engineer.

005-2.3 Miscellaneous Concrete & Structures Removal. Remove existing concrete pads, foundations and structures in their entirety at locations called out on the Plans or encountered during excavation activities. Removal shall include disposal off Airport property of the existing concrete pad, foundation, reinforcing steel, encountered conduit or wiring, structure, wind cone and any other items necessary for the complete removal of the item.

005-2.4 Pavement Join. The Contractor shall sawcut the existing asphalt concrete pavement, full depth, two feet outward from the planned full depth reconstruction limits or as called out on the Plans. The pavement join limit may be adjusted in the field by the Engineer depending on actual field conditions. The pavement shall be sawcut by a device capable of making a neat, straight and smooth cut without damaging adjacent pavement to remain. The pavement shall be cut and trimmed after completion of the required aggregate base course and prior to placement of new asphalt pavement. After the pavement is sawcut, the remaining pavement debris shall be removed and disposed off Airport property, unless otherwise specified. Item P-603 Bituminous Tack Coat shall be applied to the exposed vertical edge of the existing asphalt concrete pavement prior to paving operations. Bituminous Tack Coat shall be incidental to Item P-401 Hot Mix Asphalt Pavements. If the underlying aggregate base course is disturbed during the removal process, the Contractor shall reprocess and compact the material in accordance with Item P-209. New pavement in the pavement join area is paid for in Item P-401.

005-2.5 Partial Pullbox Removal. This item shall consist of the complete removal of the pullbox frame and cover and partial removal of the pullbox base as detailed on the Plans. All existing material indicated to be removed shall be disposed off Airport property. Existing fiber optic cables and conduits within the pullbox shall remain in place. The Contractor is responsible for protecting existing fiber optic cables and conduit in place and for any damage caused during construction. Any damage to the fiber optic cables shall

be brought to the immediate attention of the Airport and repaired immediately by a contractor certified in general fiber optic technology and application.

005-2.6 Concrete Tie Down Anchor Removal. This item shall consist of the complete removal of all concrete tie down anchors and attached accessories. Tie down accessories/chains shall be salvaged for installation on new tie down anchors. All waste materials shall be removed and disposed off Airport property. The hole or cavity resulting from the removal of concrete tie down anchor shall be filled with native soils or approved select fill material and compacted in accordance with Item P-152. The backfill work shall be considered incidental to the removal item.

005-2.7 Fire Hydrant Vault Removals and Water Line Modifications. This item shall consist of the complete removal of the fire hydrant vaults, valves, blow-off, fittings, piping, and related appurtenances as detailed on the Plans. The Contractor shall assume the existing water distribution line is asbestos cement pipe. All waste materials shall be removed and disposed off Airport property in accordance with federal, state, and local environmental protection regulations. The existing tee or cross shall be removed and replaced with new ductile iron pipe and fittings with a minimum pressure class of 350 and polyethylene wrapping. Polyethylene locating tape (color coded blue) shall be placed above the water line. The hole or cavity resulting from the fire hydrant vault removal shall be filled with native soils or approved select fill material and compacted in accordance with Item P-152. The Contractor shall be responsible for obtaining all required permits and coordination of water line modifications with the City of Scottsdale Water Department. This work shall be considered incidental to the removal item.

005-2.8 Remove and Replace Slurry/Concrete Cap. The Contractor shall pothole and locate existing active electrical and fiber optic ductbanks prior to beginning excavation and earthwork. The Contractor is responsible for protecting existing fiber optic and electrical cables and conduit in place and for any damage to the cables or conduit caused during construction. All disturbed or damaged concrete or slurry caps on top of existing ductbanks shall be removed and replaced with a new 3-inch thick slurry or concrete cap in accordance with Item P-153 or P-610 respectively. All waste materials shall be removed and disposed off Airport property.

005-2.9 Removal of Existing Pavement Markings. All paint shall be removed from the surface of existing pavement to remain as called out on the Plans. High-pressure water or rotary grinding may be used. Methods used shall not cause major damage to the pavement. Major damage is defined as changing the properties of the pavement or removing pavement over 1/8 inch deep. Removal methods and waste disposal must comply with federal, state, and local environmental protection regulations. All waste materials shall be removed and disposed off Airport property. After removal of pavement markings, an asphalt surface treatment shall be applied to the removal area in accordance with Item P-608.

005-2.10 Haul Route Pavement Repair. Airfield pavements will be used extensively for access to the Airport during construction. Prior to construction, the Contractor will document and videotape the existing pavement condition along haul routes to be used. Haul route pavements damaged during the project shall be repaired or replaced to the satisfaction of the Airport and the Engineer at the conclusion of the project. Damaged pavements shall be replaced with hot mix asphalt pavement conforming to the requirements of Item P-401 for aircraft rated pavements or MAG Section 710, ½" Mix for vehicle rated pavements. This work shall include removal of damaged pavements, preparation of existing base materials, furnishing all materials, hauling, and placement of new hot mix asphalt pavement and for all labor, equipment, tools, and

incidentals necessary to complete this item. A lump sum allowance has been included in the Proposal Form/Bid Schedule for this work. The actual amount paid may vary as required and approved by the City.

METHOD OF MEASUREMENT

005-3.1 Pavement Removal, Cold Milling, Full Depth. The unit of measurement for pavement removal, cold milling, full depth shall be the number of square yards removed by the Contractor regardless of depth. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment.

005-3.2 Miscellaneous Concrete & Structures Removal. The unit of measurement for miscellaneous concrete and structures removal shall be lump sum.

005-3.3 Pavement Join. The unit of measurement for pavement join shall be the linear foot of pavement join sawcut by the Contractor.

005-3.4 Partial Pullbox Removal. The unit of measurement for partial pullbox removal shall be each complete unit removed.

005-3.5 Concrete Tie Down Anchor Removal. The unit of measurement for concrete tie down anchor removal shall be each complete unit removed.

005-3.6 Fire Hydrant Vault Removals & Water Line Modifications. The unit of measurement for fire hydrant vault removals & water line modifications shall be lump sum.

005-3.7 Remove and Replace Slurry/Concrete Cap. The unit of measurement for remove and replace slurry/concrete cap shall be the number of linear feet removed and replaced by the Contractor.

005-3.8 Pavement Marking Removal, 100%. The unit of measurement for pavement marking removal, 100% shall be the number of square feet removed by the Contractor.

005-3.9 Haul Route Pavement Repair. Haul route pavement repair, as directed by the City, will be measured by lump sum. An allowance for this work is included on the Proposal Form/Bid Schedule. The City reserves the right to vary this quantity as required from zero to the full amount, to cover applicable work.

BASIS OF PAYMENT

005-4.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, removals, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item A-005-4.1 Pavement Removal, Cold Milling, Full Depth – per square yard

Item A-005-4.2 Miscellaneous Concrete & Structures Removal – per lump sum

Item A-005-4.3	Pavement Join – per linear foot
Item A-005-4.4	Partial Pullbox Removal – per each
Item A-005-4.5	Concrete Tie Down Anchor Removal – per each
Item A-005-4.6	Fire Hydrant Vault Removals & Water Line Modifications – per lump sum
Item A-005-4.7	Remove and Replace Slurry/Concrete Cap – per linear foot
Item A-005-4.8	Pavement Marking Removal, 100% – per square foot
Item A-005-4.9	Haul Route Pavement Repair – per lump sum

END OF ITEM A-005

TECHNICAL SPECIFICATIONS

ITEM A-006 CONCRETE TIE DOWN ANCHORS

DESCRIPTION

006-1.1 General. This item shall consist of furnishing and installing concrete and tie down anchors and installing salvaged chains and hardware in conformance with the details and dimensions shown on the plans.

006-1.2 Submittals. The Contractor shall submit manufacturer's letters of compliance, samples or manufacturer's literature for the following items:

1.2.1 Anchor Rods

MATERIAL

006-2.1 Concrete. Concrete used in this item shall conform to Item P-610, Structural Portland Cement Concrete.

006-2.2 Tie down Anchor Rods. Tie down anchor rods shall be manufactured from high-strength steel to the dimensions and shape detailed on the Plans. Steel shall be galvanized in accordance with ASTM A 153.

006-2.3 Chains and Hooks. Existing chains, hooks and hardware shall be salvaged for installation on new tie down anchors. Additional chains, hooks and hardware are available from the Airport if required.

CONSTRUCTION METHODS

006-3.1 Excavation. Excavation for tie down anchors shall be such that the adjoining pavement or base materials are not disturbed. The hole in the asphalt concrete pavement shall be made with a coring machine or as approved by the Engineer.

006-3.2 Anchor Installation. The anchor points shall be installed as shown on the Plans. Locations to be field verified and approved by the Engineer prior to excavating anchor holes.

006-3.3 Cleanup. The Contractor shall exercise due diligence in maintaining cleanliness on the apron during construction. Laitance and slurry from coring shall be immediately removed with water to avoid staining the asphalt surface. Excavated material shall not be placed on the apron surface. At completion of installation, the area shall be thoroughly swept and washed clean with water. Pressure washing shall be performed if necessary to adequately clean the area.

METHOD OF MEASUREMENT

006-4.1 Individual Concrete Tie Down Anchors will be measured per each installed with salvaged chains and hooks.

BASIS OF PAYMENT

006-5.1 Payment for Concrete Tie Down Anchors will be made at the contract unit price per each.

These prices shall be full compensation for furnishing and installing all materials, including labor, coring, excavation, anchor rods, concrete, hardware, and accessories.

Payment will be made under:

Item A-006-5.1 Concrete Tie Down Anchor – per each

END OF ITEM A-006

TECHNICAL SPECIFICATIONS

ITEM P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature.

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. Material, suitable for topsoil may be used on the embankment slope when approved by the Engineer.

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be completely cleared and grubbed.

The suitability of material to be placed in embankments shall be subject to approval by the Engineer. All unsuitable material shall be disposed *off Airport property*.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the Engineer notified per subsection 70-20. At the direction of the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Those areas outside of the limits of the pavement areas where the top layer of soil material has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches, to loosen and pulverize the soil.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the Engineer, who shall arrange for their removal if necessary. The Contractor, at his or her expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the Engineer has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. All areas to be excavated shall be stripped of vegetation and topsoil. All suitable

excavated material shall be used in the formation of embankment, subgrade, or other purposes shown on the plans. All unsuitable material shall be disposed *off Airport property*.

When the volume of the excavation exceeds that required to construct the embankments to the grades indicated, the excess shall be disposed *off Airport property*. *All environmental testing, hauling, and off-site disposal is the responsibility of the Contractor and shall be included in the cost for unclassified excavation*. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from *approved select fill materials*.

The grade shall be maintained so that the surface is well drained at all times. When necessary, temporary drains and drainage ditches shall be installed to intercept or divert surface water that may affect the work.

a. Selective grading. When selective grading is indicated on the plans, the more suitable material designated by the Engineer shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas *for later use*.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, or shoulders shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the Engineer. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per square yard for unclassified excavation. The excavated area shall be backfilled with suitable material obtained from the grading operations or *offsite sources* and compacted to specified densities. The necessary backfill will constitute a part of the embankment. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans.

c. Overbreak. Overbreak, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the Engineer. All overbreak shall be graded or removed by the Contractor and disposed of as directed by the Engineer. The Engineer shall determine if the displacement of such material was unavoidable and his or her decision shall be final. Payment will not be made for the removal and disposal of overbreak that the Engineer determines as avoidable. Unavoidable overbreak will be classified as “Unclassified Excavation.”

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor, unless otherwise shown on the plans. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed *off Airport property*. All foundations thus excavated shall be backfilled with suitable material and compacted as specified.

e. Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of **12 inches** and to a density of not less than **95 percent** of the maximum density as determined by ASTM D1557. The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils).

*Samples of all subgrade materials for testing will be taken for each **1,000 square yards** of material placed per layer. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified density. The Contractor’s laboratory shall*

perform all density tests in the Engineer's presence and provide the test results upon completion daily to the Engineer for acceptance. The Engineer has the option to perform density testing for Quality Assurance in addition to the Contractor's tests.

The in-place field density shall be determined in accordance with ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade. The finished grading operations, conforming to the typical cross-section, shall be completed and maintained at least 1,000 feet ahead of the paving operations or as directed by the Engineer.

All loose or protruding rocks on the back slopes of cuts shall be pried loose or otherwise removed to the slope finished grade line. All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the Engineer.

Blasting shall not be allowed.

f. Proof rolling. After compaction is completed, the subgrade area shall be proof rolled with a heavy pneumatic-tired roller having four or more tires abreast, each tire loaded to a minimum of 30,000 pounds and inflated to a minimum of 125 psi in the presence of the Engineer. Apply a minimum of 2 coverages, or as specified by the Engineer, to all paved areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications.

152-2.3 Borrow excavation. *Not used*.

152-2.4 Drainage excavation. *Not used*.

152-2.5 Preparation of embankment area. Where an embankment is to be constructed to a height of 4 feet or less, all sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches and shall then be compacted as indicated in paragraph 152-2.6. When the height of fill is greater than 4 feet, sod not required to be removed shall be thoroughly disked and recompacted to the density of the surrounding ground before construction of embankment.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.6 Formation of embankments. Embankments shall be formed in successive horizontal layers of not more than 8 inches in loose depth for the full width of the cross-section, unless otherwise approved by the Engineer.

The layers shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the Engineer. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each layer shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. To achieve a uniform moisture content throughout the layer, the material shall be moistened or aerated as necessary. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken for each 1,000 square yards of material placed per layer. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density for noncohesive soils, and 90% of maximum density for cohesive soils as determined by ASTM D1557. Under all areas to be paved, the embankments shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D1557.

The in-place field density shall be determined in accordance with ASTM D1556 or ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The Contractor's laboratory shall perform all density tests in the Engineer's presence and provide the test results upon completion to the Engineer for acceptance.

Compaction areas shall be kept separate, and no layer shall be covered by another layer until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each layer is placed. Layer placement shall begin in the deepest portion of the embankment fill. As placement progresses, the layers shall be constructed approximately parallel to the finished pavement grade line.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the embankment and the other material shall be incorporated under the future paved areas. Stones or fragmentary rock larger than 4 inches in their greatest dimensions will not be allowed in the top 6 inches of the subgrade. Rockfill shall be brought up in layers as specified or as directed by the Engineer and the finer material shall be used to fill the voids with forming a dense, compact mass. Rock or boulders shall not be disposed of outside the excavation or embankment areas, except at places and in the manner designated on the plans or by the Engineer.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in layers not exceeding 2 feet in thickness. Each layer shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The layer shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in layers, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for unclassified excavation or other items.

152-2.7 Finishing and protection of subgrade. After the subgrade is substantially complete, the Contractor shall remove any soft or other unstable material over the full width of the subgrade that will not compact properly. All low areas, holes or depressions in the subgrade shall be brought to grade with suitable select material. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans.

Grading of the subgrade shall be performed so that it will drain readily. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes. All ruts or rough places that develop in the completed subgrade shall be graded and recompacted.

No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer.

152-2.8 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

152-2.9 Tolerances. In those areas upon which a subbase or base course is to be placed, the top of the subgrade shall be of such smoothness that, when tested with a *Contractor provided* 12-foot straightedge applied parallel and at right angles to the centerline, it shall not show any deviation in excess of 1/2 inch, or shall not be more than 0.05 feet from true grade as established by grade hubs. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials; reshaping; and recompacting.

On safety areas, intermediate and other designated areas, the surface shall be of such smoothness that it will not vary more than 0.10 feet from true grade as established by grade hubs. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.10 Topsoil. *Not used.*

METHOD OF MEASUREMENT

152-3.1 The quantity of unclassified excavation to be paid for shall be the number of square yards measured in its original position. Measurement shall not include the quantity of materials excavated without

authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

BASIS OF PAYMENT

152-4.1 "Unclassified excavation" payment shall be made at the contract unit price per square yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-152-4.1	Unclassified Excavation - per square yard

TESTING REQUIREMENTS

ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3)
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

END OF ITEM P-152

TECHNICAL SPECIFICATIONS

ITEM P-153 CONTROLLED LOW-STRENGTH MATERIAL (CLSM)

DESCRIPTION

153-1.1 This item shall consist of furnishing, transporting, and placing a controlled low-strength material (CLSM) as flowable backfill in trenches or at other locations shown on the plans or as directed by the Engineer.

MATERIALS

153-2.1 Materials.

a. Portland cement. Portland cement shall conform to the requirements of ASTM C150 Type II. 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.

b. Fly ash. Fly ash shall conform to ASTM C618, Class C or F.

c. Fine aggregate (sand). Fine aggregate shall conform to the requirements of ASTM C33 except for aggregate gradation. Any aggregate gradation which produces performance characteristics of the CLSM specified here will be accepted, except as follows.

Sieve Size	Percent Passing by weight
3/4 inch	100
No. 200	0 - 12

d. Water. Water used in mixing shall be potable and free of oil, salt, acid, alkali, sugar, vegetable matter, or other substances injurious to the finished product.

MIX DESIGN

153-3.1 Proportions. The Contractor shall submit, to the Engineer, a mix design including the proportions and source of aggregate, fly ash, cement, water, and approved admixtures. No CLSM mixture shall be produced for payment until the Engineer has given written approval of the proportions. The proportions shall be prepared by a laboratory and shall remain in effect for the duration of the project. Laboratory costs are incidental to this item. The proportions shall establish a single percentage or weight for aggregate, fly ash, cement, water, and any admixtures proposed.

a. Compressive strength. CLSM shall be designed to achieve a 28-day compressive strength of 100 to 200 psi when tested in accordance with ASTM D4832. There should be no significant strength gain after 28 days.

b. Consistency. CLSM should be designed to achieve a consistency that will produce an approximate 8-inch diameter circular-type spread without segregation when tested by: (1) filling a 3-inch inside diameter by 6-inch length flow cylinder (non-absorbent pipe) (2) strike off of the flow cylinder and start of lift within five seconds of filling and (3) by steady upward pull, lift the cylinder in a time period of between two and four seconds. Adjustments of the material proportions should be made to achieve proper solid suspension and flowable characteristics, however the theoretical yield shall be maintained at one cubic yard for the given batch weights.

CONSTRUCTION METHODS

153-4.1 Placement.

a. Placement. CLSM may be placed by any reasonable means from a mixing unit into the space to be filled. Agitation is required during transportation and waiting time. Placement shall be performed so structures or pipes are not displaced from their final position and intrusion of CLSM into unwanted areas is avoided. The material shall be brought up uniformly to the fill line shown on the plans or as directed by the Engineer. Each placement of CLSM shall be as continuous an operation as possible. If CLSM is placed in more than one layer, the base layer shall be free of surface water and loose foreign material prior to placement of the next layer.

b. Limitations of placement. CLSM shall not be placed on frozen ground. Mixing and placing may begin when the air or ground temperature is at least 35°F and rising. At the time of placement, CLSM shall have a temperature of at least 40°F. Mixing and placement shall stop when the air temperature is 40°F and falling or when the anticipated air or ground temperature will be 35°F or less in the 24 hour period following proposed placement.

153-4.2 Curing and protection.

a. Curing. The air in contact with the CLSM shall be maintained at temperatures above freezing for a minimum of 72 hours. If the CLSM is subjected to temperatures below 32°F, the material may be rejected by the Engineer if damage to the material is observed.

b. Protection. The CLSM shall not be subject to loads and shall remain undisturbed by construction activities for a period of 48 hours or until a compressive strength of 15 psi is obtained. The Contractor shall be responsible for providing evidence to the Engineer that the material has reached the desired strength. Acceptable evidence shall be based upon compressive tests made in accordance with paragraph 153-3.1a.

153-4.3 Acceptance. Acceptance of CLSM delivered and placed as shown on the plans or as directed by the Engineer shall be based upon mix design approval and batch tickets provided by the Contractor to confirm that the delivered material conforms to the mix design. The Contractor shall verify by additional testing, each 1,000 cubic yards of material used. Verification shall include confirmation of material proportions and tests of compressive strength to confirm that the material meets the original mix design and the requirements of CLSM as defined in this specification. Adjustments shall be made as necessary to the proportions and materials prior to further production.

METHOD OF MEASUREMENT

153-5.1 Measurement. No separate measurement will be made for controlled low-strength material.

BASIS OF PAYMENT

153-6.1 Payment. No separate payment shall be made for controlled low-strength material. This item shall be considered incidental to other items of work as required.

TESTING REQUIREMENTS

ASTM D4832	Standard Test Method for Preparation and Testing of Controlled Low-Strength Material (CLSM) Test Cylinders

MATERIAL REQUIREMENTS

ASTM C33	Standard Specification for Concrete Aggregates
ASTM C150	Standard Specification for Portland Cement
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C595	Standard Specification for Blended Hydraulic Cements

END OF ITEM P-153

TECHNICAL SPECIFICATIONS

ITEM P-156 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

DESCRIPTION

156-1.1 This item shall consist of temporary control measures as shown on the plans or as ordered by the Engineer during the life of a contract to control water pollution, soil erosion, and siltation through the use of silt fences, fiber rolls, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods. *Included in this item is the preparation, management, and monitoring of a Stormwater Pollution Prevention Plan (SWPPP).*

The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be design, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

MATERIALS

156-2.1 Grass. *Not used.*

156-2.2 Mulches. *Not used.*

156-2.3 Fertilizer. *Not used.*

156-2.4 Slope drains. *Not used.*

156-2.5 Silt fence. *Not used.*

156-2.6 ***Fiber Roll.*** *A fiber roll consists of wood excelsior, rice or wheat straw, or coconut fibers that are rolled or bound into a tight tubular roll, 8-inch minimum diameter. Fiber rolls are placed at the limits of grading to provide erosion control.*

156-2.7 ***Inlet Protection.*** *Inlet protection shall be constructed of geotextile fabric and be capable of keeping silt, sediment and construction debris out of the storm drain system. The geotextile fabric must be installed underneath the catch basin grate and be repaired or replaced when required.*

156-2.8 Other. All other materials shall meet commercial grade standards and shall be approved by the Engineer before being incorporated into the project. *All specified materials shall meet or exceed the requirements of Maricopa County Best Management Practices (BMPs).*

CONSTRUCTION REQUIREMENTS

156-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The Engineer shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

156-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the Engineer.

156-3.3 Construction details. The Contractor will be required to incorporate all temporary erosion control features into the project *prior to any ground disturbance or earthwork operations* as outlined in the Plans. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately if project conditions permit; otherwise, temporary erosion control measures may be required.

The Engineer shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the Engineer.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the Engineer. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the Engineer, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The Engineer may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor during the construction period.

Whenever construction equipment must cross watercourses at frequent intervals, temporary structures should be provided.

Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

156-3.4 Installation, maintenance and removal of *fiber rolls*. *Fiber rolls shall be installed in a 2- to 4-inch deep trench. Stakes shall be driven into the ends of each fiber roll and spaced 4 feet maximum on center as shown on the plans. Wood stakes shall have a nominal classification of 3/4 inch by 3/4 inch, and minimum length of 24 inches. If more than one fiber roll is placed in a row, the rolls shall be overlapped and not abutted. The Contractor shall remove and dispose of any silt that accumulates during construction. The erosion control devices shall be maintained in good working condition until the conclusion of the project. The Contractor shall repair or replace split, torn, unraveling, or slumping erosion control devices. Erosion control devices shall be removed upon approval of the Engineer.*

METHOD OF MEASUREMENT

156-4.1 The unit of measurement for Temporary Erosion and Pollution Control work will be lump sum.

BASIS OF PAYMENT

156-5.1 Payment shall be made at the contract unit price for the unit of measurement as specified above. The payment shall be compensation in full for all temporary erosion and pollution control including AZPDES compliance as described in Item A-003, SWPPP preparation, management, monitoring, and compliance, materials, labor, equipment, documentation, maintenance and incidentals necessary to complete the work.

Payment will be made under:

Item P-156-5.1 Temporary Erosion and Pollution Control - per lump sum

Payment for this item shall be based on the following Schedule:

a. After approval of the stormwater pollution prevention plan and installation of temporary erosion and pollution control measures, 50%

b. When 30% or more of the original contract is earned, an additional 20%

c. When 60% or more of the original contract is earned, an additional 20%

d. After Final Inspection, staging area clean-up and delivery of all Project Closeout materials as required by 90-11, the final 10%.

MATERIAL REQUIREMENTS

ASTM D6461	Standard Specification for Silt Fence Materials
AC 150/5200-33	Hazardous Wildlife Attractants

END OF ITEM P-156

TECHNICAL SPECIFICATIONS

ITEM P-209 CRUSHED AGGREGATE BASE COURSE

DESCRIPTION

209-1.1 This item consists of a base course composed of crushed aggregate base constructed on a prepared course in accordance with these specifications and in conformity to the dimensions and typical cross-sections shown on the plans.

MATERIALS

209-2.1 Crushed aggregate base. Crushed aggregate shall consist of clean, sound, durable particles of crushed stone, crushed gravel, and shall be free from coatings of clay, silt, organic material, or other objectionable materials. Aggregates shall contain no clay lumps or balls. Fine aggregate passing the No. 4 sieve shall consist of fines from the coarse aggregate crushing operation. If necessary, fine aggregate may be added to produce the correct gradation. The fine aggregate shall be produced by crushing stone or gravel that meet the coarse aggregate requirements for wear and soundness.

The coarse aggregate portion, defined as the material retained on the No. 4 sieve, shall not have a loss of greater than 45% when tested per ASTM C131. The sodium sulfate soundness loss shall not exceed 12%, or the magnesium sulfate soundness loss shall not exceed 18%, after five cycles, when tested in accordance with ASTM C88. The aggregate shall contain no more than 15%, by weight, of flat, elongated, or flat and elongated particles per ASTM D4791. A flat particle is one having a ratio of width to thickness greater than 3; an elongated particle is one having a ratio of length to width greater than three (3). The aggregate shall have at least 90% by weight of particles with at least two fractured faces and 100% with at least one fractured face per ASTM D5821. The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

a. Sampling and testing for initial aggregate base requirements. Samples shall be taken by the Contractor in the presence of the Engineer. Material shall meet the requirements in paragraph 209-2.1 and 209-2.2. This sampling and testing will be the basis for approval of the aggregate base quality requirements. *All testing for material prequalification submittals required to determine compliance with specification requirements shall be performed by the Contractor.*

209-2.2 Gradation requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine as defined by ASTM D2487 and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa. The fraction of material passing the No. 200 sieve shall not exceed one-half the fraction passing the No. 40 sieve.

Requirements For Gradation Of Aggregate Base

Sieve Size	Design Range Percentage by Weight	Contractorôs Final Gradation	Job Control Grading Band Tolerances for Contractorôs Final Gradation Percent
2 inch	100		0
1-1/2 inch	95-100		±5
1 inch	70-95		±8
3/4 inch	55-85		±8
No. 4	30-60		±8
No. 40	10-30		±5
No. 200	0-8		±3

The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

a. Sampling and testing for gradation. Gradation tests shall be performed by the Contractor per ASTM C136 and sieve analysis on material passing the No. 200 sieve per ASTM C117. The Contractor shall take at least two aggregate base samples per lot to check the final gradation. Sampling shall be per ASTM D75. The lot will be consistent with the lot size used for density. The samples shall be taken from the in-place, un-compacted material in the presence of the Engineer. Sampling points and intervals will be designated by the Engineer. *The Engineer has the option to perform gradation testing for Quality Assurance in addition to the Contractor's tests.*

CONSTRUCTION METHODS

209-3.1 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the Engineer before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with P-152, at the Contractor's expense, may be required by the Engineer if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

209-3.2 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.4, the approved material may be transported directly to the spreading equipment.

209-3.3 Placing. The aggregate base material shall be placed on the prepared underlying subgrade and/or subbase and compacted in layers to the thickness shown on the plans. Work shall progress without interruption. The material shall be deposited and spread in lanes in a uniform layer without segregation to such loose depth that, when compacted, the layer shall have the specified thickness. The aggregate base course shall be constructed in layers of uniform thickness of not less than 3 inches nor more than 6 inches of compacted thickness. The aggregate as spread shall be of uniform grading with no pockets of fine or coarse materials. The aggregate, unless otherwise permitted by the Engineer, shall not be spread more

than 2,000 square yards in advance of the rolling. Any necessary sprinkling shall be kept within these limits. Care shall be taken to prevent cutting into the underlying layer during spreading. No material shall be placed in snow or on a soft, muddy, or frozen course. The aggregate base material shall be spread by spreader boxes or other approved devices. This equipment shall have positive thickness controls that spread the aggregate in the required amount to avoid or minimize the need for hand manipulation. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

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

209-3.4 Compaction. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D6938 using Procedure A, the direct transmission method and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated per ASTM D6938.

209-3.5 Acceptance sampling and testing for density. Aggregate base course shall be accepted for density on a lot basis. A lot will consist of one day's production if it does not exceed 2,400 square yards. A lot will consist of one-half day's production if a day's production consists of between 2,400 and 4,800 square yards. The Contractor's laboratory shall perform all density tests in the Engineer's presence and provide the test results upon completion daily to the Engineer for acceptance**.** *The Engineer has the option to perform density testing for Quality Assurance in addition to the Contractor's tests.*

Each lot shall be divided into two equal sublots. One test shall be made for each sublot and shall consist of the average of two random locations for density determination. Sampling locations will be determined by the Engineer on a random basis per ASTM D3665.

Each lot will be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens. The specimens shall be compacted and tested per ASTM D1557. The in-place field density shall be determined per ASTM D1556 (Test in accordance with ASTM D4718 if greater than 30% is retained on the 3/4 inch sieve) or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the entire lot shall be reworked and/or recompacted and two additional random tests made at the Contractor's expense. This procedure shall be followed until the specified density is reached.

209-3.6 Surface tolerances. After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and recompacted to grade. Until the required smoothness and accuracy are obtained and approved by the Engineer. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8 inch when tested with a *Contractor provided* 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Accuracy. The grade and crown shall be measured on a 50-foot grid and shall be within +0 and -1/2 inch of the specified grade.

209-3.7 Thickness control. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the Engineer. Tests shall be taken at intervals representing no more than 300 square yards per test. Sampling locations will be determined by the Engineer per ASTM D3665. *The Contractor may elect to perform thickness determination by survey. The survey evaluation will be required before and after placement of the base course on a minimum 50 foot grid or the elevation grid frequency established and illustrated on the Plans.* Where the thickness is deficient by more than 1/2 inch, the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches, adding new material of proper gradation, and the material shall be blended and recompacted to grade. Additional test holes may be required to identify the limits of deficient areas. The Contractor shall replace, at his expense, base material where depth tests have been taken.

209-3.8 Protection. Perform construction when the atmospheric temperature is above 35°F. When the temperature falls below 35°F, protect all completed areas by approved methods against detrimental effects of freezing. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements. When the aggregates contain frozen materials or when the underlying course is frozen or wet, the construction shall be stopped. Hauling equipment may be routed over completed portions of the base course, provided no damage results. Equipment shall be routed over the full width of the base course to avoid rutting or uneven compaction. The Engineer will stop all hauling over completed or partially completed base course when, in the Engineer's opinion, such hauling is causing damage. Any damage to the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.9 Maintenance. The Contractor shall maintain the base course in a satisfactory condition until the full pavement section is completed and accepted by the Engineer. The surface shall be kept clean and free from foreign material and properly drained at all times. Maintenance shall include immediate repairs to any defects and shall be repeated as often as necessary to keep the area intact. Any base course that is not paved over prior to the onset of winter shall be retested to verify that it still complies with the requirements of this specification. Any area of base course that is damaged shall be reworked or replaced as necessary to comply with this specification.

Equipment used in the construction of an adjoining section may be routed over completed base course, if no damage results and the equipment is routed over the full width of the base course to avoid rutting or uneven compaction.

The Contractor shall remove all survey and grade hubs from the base courses prior to placing any bituminous surface course.

METHOD OF MEASUREMENT

209-4.1 The quantity of crushed aggregate base course will be determined by measurement of the number of cubic yards of material actually constructed and accepted by the Engineer as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

209-5.1 Payment shall be made at the contract unit price per cubic yard for crushed aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-209-5.1	Crushed Aggregate Base Course, P-209 - per cubic yard

TESTING REQUIREMENTS

ASTM C29	Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D422	Standard Test Method for Particle-Size Analysis of Soils
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3)
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4718	Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate

ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

END OF ITEM P-209

TECHNICAL SPECIFICATIONS

ITEM P-301 SOIL-CEMENT BASE COURSE

DESCRIPTION

301-1.1 This item shall consist of constructing a base course by uniformly mixing soil, Portland cement, and water. The mixed material shall be spread, shaped, and compacted in accordance with these specifications and in conformity to the dimensions and typical cross-section shown on the plans. Tests shall be required for each approved soil included within the treated layer.

Runway, taxiway, or apron pavements shall be built in a series of parallel lanes using a plan that reduces the number of longitudinal and transverse joints to a minimum.

MATERIALS

301-2.1 Portland cement. Portland cement shall conform to the requirements of ASTM C150, Type I, IA, II, or IIA or ASTM C595, Type IS or IS(A).

301-2.2 Water. Water used for mixing or curing shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

301-2.3 Soil. The soil shall consist of an approved select soil. The soil shall be free of roots, sod, weeds, and shall not contain gravel or stone retained on a 2-inch sieve or more than 45% retained on a No. 4 sieve, as determined by ASTM C136.

301-2.4 Bituminous material. The types, grades, controlling specifications, and application temperatures for the bituminous materials used for curing the soil-cement shall be emulsified asphalt.

Bituminous Materials

Type and Grade	Specification	Application Temperature Degrees F
Emulsified Asphalt		
RS-1, SS-1	ASTM D977	75-130

MIX DESIGN

301-3.1 Proportions. Before the start of base course construction, tests shall be made on the soil or soil-aggregate material to be stabilized to determine the quantity of cement required for the mix design.

Test specimens containing various amounts of cement shall be compacted per ASTM D558, and the optimum moisture determined for each test specimen. *Cement-treated material shall achieve a 7-day accelerated (100°F) minimum compressive strength of 500 psi per ASTM C593. The Contractor shall*

assume a 5 percent minimum cement content for construction. Payment will be based on the amount of cement required to obtain the minimum soil properties specified.

CONSTRUCTION METHODS

301-4.1 Weather limitations. The soil-cement base shall not be mixed or placed while the atmospheric temperature is below 40°F or when conditions indicate that the temperature may fall below 40°F within 24 hours, or when the weather is foggy or rainy, or to soils that are frozen or contain frost, or when the underlying material is frozen.

301-4.2 Equipment. The soil-cement may be constructed with any equipment that will meet the requirements for soil pulverization, cement application, mixing, water application, incorporation of materials, compaction, finishing, and curing specified here.

301-4.3 Preparation. The area to be stabilized shall be graded and shaped to conform to the lines, grades and cross-section shown on the plans. Any soft or yielding areas in the subgrade shall be removed and replaced with acceptable soil and compacted to the specified density.

301-4.4 Pulverization. After completion of moist-mixing, the soil for the base course shall be pulverized so that 100% by dry weight passes a 1-inch sieve and a minimum of 80% passes a No. 4 sieve.

301-4.5 Cement application, mixing, and spreading. Mixing of the soil, cement, and water shall be accomplished by the mixed-in-place method. Approximately shape pulverized material to the cross-section indicated. Cement shall be applied so that when uniformly mixed with the soil, the specified cement content is obtained, and a sufficient quantity of cement-treated soil is produced to construct a compacted cement-treated course conforming to the lines, grades, and cross-section indicated. Immediately after the cement has been distributed, it shall be mixed with the soil. The cement shall not be mixed below the required depth. Continue mixing until the cement has been sufficiently blended with the soil to prevent the formation of cement balls when water is applied. Determine moisture content of the mixture immediately after completion of mixing of the soil and cement. Provide water supply and pressure distributing equipment that will permit the application within three (3) hours of all mixing water on the section being processed. Incorporate water in the mix so that concentration of water near the surface does not occur. After all mixing water has been applied, continue mixing until the water is uniformly distributed throughout the full depth of the mixture. Do not apply cement if the soil moisture content exceeds the optimum moisture content specified for the cement-treated mixture. After mixing is complete, the proportions of the mixture shall be in accordance with the approved mix design.

301-4.6 Compaction. Immediately after spreading, the mixture shall be thoroughly compacted. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density.

The field density of the compacted mixture shall be at least 98% of the maximum density of laboratory prepared specimens compacted and tested in accordance with ASTM D558. The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. No portion of the mixture shall remain undisturbed during mixing and before compaction for more than 30 minutes. The moisture content of the mixture at the start of compaction shall be within ±2 percentage points of the optimum moisture content. The optimum moisture

content shall be determined in accordance with ASTM D558. *Samples of finished soil-cement for testing will be taken for each 1,000 square yards of material mixed-in-place. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified density.* All testing shall be done by the Contractor's laboratory in the presence of the Engineer and density test results shall be furnished upon completion to the Engineer for acceptance determination. *The Engineer has the option to perform field density testing for Quality Assurance in addition to the Contractor's tests.*

301-4.7 Finishing. Finishing operations shall be completed during daylight hours. The completed base course shall conform to the required lines, grades, and cross-section. If necessary, the surface shall be lightly scarified to eliminate any imprints made by the compacting or shaping equipment. The surface shall then be recompacted to the required density. The finishing operations shall be complete within two (2) hours after completion of mixing operations.

All irregularities, depressions, or weak spots that develop shall be corrected immediately by scarifying the areas affected, adding or removing material as required, and reshaping and recompacting. The surface of the base course shall be maintained in a smooth condition, free from undulations and ruts, until other work is placed thereon or the work is accepted. Should the material, due to any reason or cause, lose the required stability, density, and finish before the next course is placed or the work is accepted, it shall be recompacted and refinished at the sole expense of the Contractor.

301-4.8 Construction joints. At the end of each day's construction, a straight transverse construction joint shall be formed by a header or by cutting back into the compacted material to form a true vertical face free of loose material.

The protection provided for construction joints shall permit the placing, spreading, and compacting of base material without injury to the previous work. Where it is necessary to operate or turn any equipment on the completed base course, sufficient protection and cover shall be provided to prevent damage to the finished surface. A supply of mats or wooden planks shall be maintained and used as approved and directed by the Engineer.

Care shall be exercised to ensure thorough compaction of the base material immediately adjacent to all construction joints. When spreading or compacting base material adjacent to a previously constructed lane, care shall be taken to avoid damaging the previous work.

301-4.9 Protection and curing. After the base course has been finished to grade and compacted as specified, it shall be protected against drying for a period of seven (7) days by the application of bituminous material. The curing method shall begin as soon as possible, but no later than 24 hours after the completion of finishing operations. The finished base course shall be kept moist continuously until the curing material is placed.

The bituminous material specified shall be uniformly applied to the surface of the completed base course at the rate of approximately 0.1 to 0.2 gallons per square yard with approved heating and distributing equipment. The exact rate and temperature of application to give complete coverage without excessive runoff shall be determined by the Contractor.

At the time the bituminous material is applied, the surface shall be dense, free of all loose and extraneous material, and shall contain sufficient moisture to prevent penetration of the bituminous material. Water shall be applied in sufficient quantity to fill the surface voids immediately before the bituminous curing material is applied.

The curing material shall be maintained and applied as needed by the Contractor during the 7-day protection period.

Completed portions of the cement-treated soil area may be opened to light traffic, if approved by the Engineer, and provided the curing is not impaired. Sufficient protection from freezing shall be provided to the soil-cement for seven (7) days after its construction and until it has hardened.

301-4.10 Construction limitations. When any of the operations after the application of cement are interrupted for more than 30 minutes or when the uncompacted soil-cement mixture is wetted by rain so that the moisture content is exceeded by a small amount, the decision to reconstruct the portion affected shall rest with the Engineer. If the uncompacted, rain-wetted mixture exceeds the specified moisture content tolerance, the Contractor shall reconstruct the affected portion at the Contractor's expense the portion affected. All material along the longitudinal or transverse construction joints not properly compacted shall be removed and replaced, at the Contractor's expense, with properly moistened and mixed soil-cement compacted to specified density.

301-4.11 Surface tests. The finished surface shall not vary more than 3/8 inch when tested with a *Contractor provided* 12-foot straightedge applied parallel with, or at right angles to, the longitudinal axis of the pavement. Any variations in excess of this tolerance shall be corrected by the Contractor, at the Contractor's expense, in a manner satisfactory to the Engineer.

301-4.12 Thickness. The completed thickness of the stabilized course shall be within 1/2 inch of the thickness indicated. Where the measured thickness is more than 1/2 inch deficient, such areas shall be corrected by scarifying, adding mixture of proper gradation, reblading, and recompacting as directed. Where the measured thickness is more than 1/2 inch thicker than indicated, the course shall be considered as conforming to the specified thickness requirements. Average job thickness shall be the average of all thickness measurements taken for the job, but shall be within 1/4 inch of the thickness indicated. The thickness of the stabilized course shall be measured at intervals which ensure one measurement for each 2,000 square yards of stabilized course. Measurements shall be made in 3-inch diameter test holes penetrating the stabilized course. Where the average thickness shown by the measurements made in one day's construction is not within the tolerance given, the Engineer shall evaluate the area and determine if, in the Engineer's opinion, it shall be reconstructed at the Contractor's expense or the deficiency deducted from the total material in place.

301-4.13 Maintenance. The Contractor shall be required to maintain, at the Contractor's expense, the entire base course within the limits of the contract in a condition satisfactory to the Engineer until all the work has been completed. Maintenance shall include immediate repairs of any defects that may occur either before or after the cement is applied. The work shall be repeated as often as necessary to keep the area intact at all times. Repairs shall be made to ensure restoration of a uniform surface and the durability of the area repaired. Faulty work shall be replaced for the full depth of treatment. Adding a thin layer of soil-cement to the completed work to remedy low areas shall not be permitted.

METHOD OF MEASUREMENT

301-5.1 The quantity of soil-cement base course, 12 inch depth shall be the number of square yards of completed and accepted base course.

301-5.2 Portland cement shall be measured by the hundredweight.

BASIS OF PAYMENT

301-6.1 Payment shall be made at the contract unit price per square yard for soil-cement base course. This price shall be full compensation for furnishing all materials, except Portland cement, and for all preparation, delivering, placing, and mixing of these materials; and for all labor, equipment, tools and incidentals necessary to complete the item.

301-6.2 Payment shall be made at the contract unit price per hundredweight for cement. This price shall be full compensation for furnishing this material and for all delivery, placing, and incorporation of this material, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-301-6.1	Soil-Cement Base Course, 12 Inch Depth - per square yard
Item P-301-6.2	Portland Cement - per hundredweight

TEST REQUIREMENTS

ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C593	Standard Specification for Fly Ash and Other Pozzolans for Use with Lime for Soil Stabilization
ASTM D558	Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3)
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

MATERIAL REQUIREMENTS

ASTM C150	Standard Specification for Portland Cement
ASTM D977	Standard Specification for Emulsified Asphalt

END OF ITEM P-301

TECHNICAL SPECIFICATIONS

ITEM P-401 HOT MIX ASPHALT (HMA) PAVEMENTS

DESCRIPTION

401-1.1 This item shall consist of pavement courses composed of mineral aggregate and asphalt cement binder (asphalt binder) mixed in a central mixing plant and placed on a prepared course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross-sections shown on the plans. Each course shall be constructed to the depth, typical section, and elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course.

MATERIALS

401-2.1 Aggregate. Aggregates shall consist of crushed stone, crushed gravel, crushed slag, screenings, natural sand and mineral filler, as required. The aggregates should be free of ferrous sulfides, such as pyrite, that would cause “rust” staining that can bleed through pavement markings. The portion retained on the No. 4 sieve is coarse aggregate. The portion passing the No. 4 sieve and retained on the No. 200 sieve is fine aggregate, and the portion passing the No. 200 sieve is mineral filler.

a. Coarse aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from films of matter that would prevent thorough coating and bonding with the bituminous material and free from organic matter and other deleterious substances. The percentage of wear shall not be greater than 40% when tested in accordance with ASTM C131. The sodium sulfate soundness loss shall not exceed 12%, or the magnesium sulfate soundness loss shall not exceed 18%, after five cycles, when tested in accordance with ASTM C88. Clay lumps and friable particles shall not exceed 1.0% when tested in accordance with ASTM C142.

Aggregate shall contain at least 75 percent by weight of individual pieces having two or more fractured faces and 85 percent by weight having at least one fractured face. The area of each face shall be equal to at least 75% of the smallest midsectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces. Fractured faces shall be achieved by crushing.

The aggregate shall not contain more than a total of 8%, by weight, of flat particles, elongated particles, and flat and elongated particles, when tested in accordance with ASTM D4791 with a value of 5:1.

b. Fine aggregate. Fine aggregate shall consist of clean, sound, tough, durable, angular shaped particles produced by crushing stone, slag, or gravel that meets the requirements for wear and soundness specified for coarse aggregate. The aggregate particles shall be free from coatings of clay, silt, or other objectionable matter.

The fine aggregate, including any blended material for the fine aggregate, shall have a plasticity index of not more than six (6) and a liquid limit of not more than 25 when tested in accordance with ASTM D4318.

The soundness loss shall not exceed 10% when sodium sulfate is used or 15% when magnesium sulfate is used, after five cycles, when tested per ASTM C88.

Clay lumps and friable particles shall not exceed 1.0%, by weight, when tested in accordance with ASTM C142.

Natural (non-manufactured) sand may be used to obtain the gradation of the aggregate blend or to improve the workability of the mix. The amount of sand to be added will be adjusted to produce mixtures conforming to requirements of this specification. The fine aggregate shall not contain more than 15% natural sand by weight of total aggregates. If used, the natural sand shall meet the requirements of ASTM D1073 and shall have a plasticity index of not more than six (6) and a liquid limit of not more than 25 when tested in accordance with ASTM D4318.

The aggregate shall have sand equivalent values of 45 or greater when tested in accordance with ASTM D2419.

c. Sampling. ASTM D75 shall be used in sampling coarse and fine aggregate, and ASTM C183 shall be used in sampling mineral filler.

401-2.2 Mineral filler. If filler, in addition to that naturally present in the aggregate, is necessary, it shall meet the requirements of ASTM D242.

401-2.3 Asphalt cement binder. Asphalt cement binder shall conform to ASTM D6373 Performance Grade (PG) 76-22. A certificate of compliance from the manufacturer shall be included with the mix design submittal. *A PG Plus Test will be required to determine if the asphalt binder has been properly modified. Use the PG Plus Test found in the Asphalt Institute's State Binder Specification Database for the project location. When a State does not specify a PG Plus Test, use ASTM D6084 with a minimum elastic recovery of 70%.*

The supplier's certified test report with test data indicating grade certification for the asphalt binder shall be provided to the Engineer for each load at the time of delivery to the mix plant. A certified test report with test data indicating grade certification for the asphalt binder shall also be provided to the Engineer for any modification of the asphalt binder after delivery to the mix plant and before use in the HMA.

401-2.4 Preliminary material acceptance. Prior to delivery of materials to the job site, the Contractor shall submit certified test reports to the Engineer for the following materials:

a. Coarse aggregate:

(1) Percent of wear

(2) Soundness

(3) Clay lumps and friable particles

(4) Percent fractured faces

(5) Flat and elongated particles

b. Fine aggregate:

(1) Liquid limit and Plasticity index

(2) Soundness

(3) Clay lumps and friable particles

(4) Percent natural sand

(5) Sand equivalent

c. Mineral filler.

d. Asphalt binder. Test results for asphalt binder shall include temperature/viscosity charts for mixing and compaction temperatures.

The certifications shall show the appropriate ASTM tests for each material, the test results, and a statement that the material meets the specification requirement.

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.

401-2.5 Anti-stripping agent. Any anti-stripping agent or additive if required shall be heat stable, shall not change the asphalt cement viscosity beyond specifications, shall contain no harmful ingredients, shall be added in recommended proportion by approved method, and shall be a material approved by the Department of Transportation of the State in which the project is located.

COMPOSITION

401-3.1 Composition of mixture. The HMA mix shall be composed of a mixture of well-graded aggregate, filler and anti-strip agent if required, and asphalt binder. The several aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

401-3.2 Job mix formula (JMF). No hot-mixed asphalt (HMA) for payment shall be produced until a JMF has been approved in writing by the Engineer. The asphalt mix-design and JMF shall be prepared by an accredited laboratory that meets the requirements of paragraph 401-3.4. The HMA shall be designed using procedures contained in Asphalt Institute MS-2 Mix Design Manual, 7th Edition. ASTM D6926 shall be used for preparation of specimens using the manually held and operated hammer for the mix design procedure. ASTM D6927 shall be used for testing for Marshall stability and flow.

Tensile strength ratio (TSR) of the composite mixture, as determined by ASTM D4867, shall not be less than 75 when tested at a saturation of 70-80% or an anti-stripping agent shall be added to the HMA, as necessary, to produce a TSR of not less than 75 when tested at a saturation of 70-80%. If an anti-strip agent is required, it shall be provided by the Contractor at no additional cost to the Owner.

The JMF shall be submitted in writing by the Contractor at least 30 days prior to the start of paving operations. The JMF shall be developed within the same construction season using aggregates currently being produced.
The submitted JMF shall be stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items as a minimum:

a. Percent passing each sieve size for total combined gradation, individual gradation of all aggregate stockpiles and percent by weight of each stockpile used in the job mix formula.

b. Percent of asphalt cement.

c. Asphalt performance grade and type of modifier if used.

d. Number of blows per side of molded specimen.

e. Laboratory mixing temperature.

f. Laboratory compaction temperature.

g. Temperature-viscosity relationship of the PG asphalt cement binder showing acceptable range of mixing and compaction temperatures; and for modified binders include supplier recommended mixing and compaction temperatures.

h. Plot of the combined gradation on a 0.45 power gradation curve.

i. Graphical plots of stability, flow, air voids, voids in the mineral aggregate, and unit weight versus asphalt content.

j. Specific Gravity and absorption of each aggregate.

k. Percent natural sand.

l. Percent fractured faces.

m. Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).

n. Tensile Strength Ratio (TSR).

o. Anti-strip agent (if required).

p. Date the JMF was developed. Mix designs that are not dated or which are from a prior construction season shall not be accepted.

The Contractor shall submit to the Engineer the results of verification testing of three (3) asphalt samples prepared at the optimum asphalt content. The average of the results of this testing shall indicate conformance with the JMF requirements specified in Tables 1 and 3.

When the project requires asphalt mixtures of differing aggregate gradations, a separate JMF and the results of JMF verification testing shall be submitted for each mix.

The JMF for each mixture shall be in effect until a modification is approved in writing by the Engineer. Should a change in sources of materials be made, a new JMF must be submitted within 15 days and approved by the Engineer in writing before the new material is used. After the initial production JMF has been approved by the Engineer and a new or modified JMF is required for whatever reason, the subsequent cost of the Engineer's approval of the new or modified JMF, including a new test strip when required by the engineer, will be borne by the Contractor. There will be no time extension given or considerations for extra costs associated with the stoppage of production paving or restart of production paving due to the time needed for the Engineer to approve the initial, new or modified JMF.

The Marshall Design Criteria applicable to the project shall meet the criteria specified in Table 1.

Table 1. Marshall Design Criteria

Test Property	Value
Number of blows	75
Stability, pounds minimum	2150
Flow, 0.01 in.	10-16
Air voids (%)	3.5
Percent voids in mineral aggregate, minimum	See Table 2

Table 2. Minimum Percent Voids In Mineral Aggregate (VMA)

Aggregate (See Table 3)	Minimum VMA
Gradation 3	N/A
Gradation 2	15%
Gradation 1	N/A

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 3 when tested in accordance with ASTM C136 and ASTM C117.

The gradations in Table 3 represent the limits that shall determine the suitability of aggregate for use from the sources of supply; be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa.

Table 3. Aggregate - HMA Pavements

Sieve Size	Percentage by Weight Passing Sieve
1 inch	--
3/4 inch	100
1/2 inch	79-99
3/8 inch	68-88
No. 4	48-68
No. 8	33-53
No. 16	20-40
No. 30	14-30
No. 50	9-21
No. 100	6-16
No. 200	3-6
Asphalt Percent:	
Stone or gravel	5.0-7.5

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition.

401-3.3 Reclaimed asphalt pavement (RAP). RAP shall not be used.

401-3.4 Job mix formula (JMF) laboratory. The Contractor's laboratory used to develop the JMF shall be accredited in accordance with ASTM D3666. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the JMF 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.

401-3.5 Test section. Prior to full production, the Contractor shall prepare and place a quantity of HMA according to the JMF. The amount of HMA shall be sufficient to construct a test section 300 feet long and 30 feet wide, placed in two lanes, with a longitudinal cold joint, and shall be of the same depth specified for the construction of the course which it represents. A cold joint for this test section is an exposed construction joint at least four (4) hours old or whose mat has cooled to less than 160°F. The cold joint must be cut back using the same procedure that will be used during production in accordance with 401-4.13. The underlying grade or pavement structure upon which the test section is to be constructed shall be the same as the remainder of the course represented by the test section. The equipment used in construction of the test section shall be the same type and weight to be used on the remainder of the course represented by the test section.

The test section shall be evaluated for acceptance as a single lot in accordance with the acceptance criteria in paragraph 401-5.1 and 401-5.2. The test section shall be divided into equal sublots. As a minimum the test section shall consist of three (3) sublots.

The test section shall be considered acceptable if (1) stability, flow, mat density, air voids, and joint density are 90% or more within limits, (2) gradation and asphalt content are within the action limits specified in paragraphs 401-6.5a and 5b, and (3) the voids in the mineral aggregate are within the limits of Table 2.

If the initial test section should prove to be unacceptable, the necessary adjustments to the JMF, plant operation, placing procedures, and/or rolling procedures shall be made. A second test section shall then be placed. If the second test section also does not meet specification requirements, both sections shall be removed at the Contractor's expense. Additional test sections, as required, shall be constructed and evaluated for conformance to the specifications. Any additional sections that are not acceptable shall be removed at the Contractor's expense. Full production shall not begin until an acceptable test section has been constructed and accepted in writing by the Engineer. Once an acceptable test section has been placed, payment for the initial test section and the section that meets specification requirements shall be made in accordance with paragraph 401-8.1.

Job mix control testing shall be performed by the Contractor at the start of plant production and in conjunction with the calibration of the plant for the JMF. If aggregates produced by the plant do not satisfy the gradation requirements or produce a mix that meets the JMF, it will be necessary to reevaluate and redesign the mix using plant-produced aggregates. Specimens shall be prepared and the optimum asphalt content determined in the same manner as for the original JMF tests.

Contractor will not be allowed to place the test section until the Contractor Quality Control Program, showing conformance with the requirements of Paragraph 401-6.1, has been approved, in writing, by the Engineer.

CONSTRUCTION METHODS

401-4.1 Weather limitations. The HMA shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 4. The temperature requirements may be waived by the Engineer, if requested; however, all other requirements including compaction shall be met.

Table 4. Surface Temperature Limitations of Underlying Course

Mat Thickness	Base Temperature (Minimum) °F
3 inches or greater	40
Greater than 2 inches but less than 3 inches	45

401-4.2 HMA plant. Plants used for the preparation of HMA shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M156 with the following changes:
Requirements for all plants include:

a. Truck scales. The HMA shall be weighed on approved scales furnished by the Contractor, or on certified public scales at the Contractor's expense. Scales shall be inspected and sealed as often as the Engineer deems necessary to assure their accuracy. Scales shall conform to the requirements of the General Provisions, subsection 90-01.

In lieu of scales, and as approved by the Engineer, HMA weight may be determined by the use of an electronic weighing system equipped with an automatic printer that weighs the total HMA production and as often thereafter as requested by the Engineer.

b. Testing facilities. The Contractor shall ensure laboratory facilities are provided at the plant for the use of the Engineer. The lab shall have sufficient space and equipment so that both testing representatives (Engineer's and Contractor's) can operate efficiently. The lab shall meet the requirements of ASTM D3666 including all necessary equipment, materials, calibrations, current reference standards to comply with the specifications and a masonry saw with diamond blade for trimming pavement cores and samples.

The plant testing laboratory shall have a floor space area of not less than 200 square feet, with a ceiling height of not less than 7-1/2 feet. The laboratory shall be weather tight, sufficiently heated in cold weather, air-conditioned in hot weather to maintain temperatures for testing purposes of 70°F ±5°F. The plant testing laboratory shall be located on the plant site to provide an unobstructed view, from one of its windows, of the trucks being loaded with the plant mix materials. In addition, the facility shall include the minimum:

(1) Adequate artificial lighting.

(2) Electrical outlets sufficient in number and capacity for operating the required testing equipment and drying samples.

(3) A minimum of two (2) Underwriter's Laboratories approved fire extinguishers of the appropriate types and class.

(4) Work benches for testing.

(5) Desk with chairs and file cabinet.

(6) Sanitary facilities convenient to testing laboratory.

(7) Exhaust fan to outside air.

(8) Sink with running water.

Failure to provide the specified facilities shall be sufficient cause for disapproving HMA plant operations.

Laboratory facilities shall be kept clean, and all equipment shall be maintained in proper working condition. The Engineer shall be permitted unrestricted access to inspect the Contractor's laboratory facility and witness quality control activities. The Engineer will advise the Contractor in writing of any noted deficiencies concerning the laboratory facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

c. Inspection of plant. The Engineer, or Engineer's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.

d. Storage bins and surge bins. The HMA stored in storage and surge bins shall meet the same requirements as HMA loaded directly into trucks and may be permitted under the following conditions:

(1) Stored in non-insulated bins for a period of time not to exceed three (3) hours.

(2) Stored in insulated bins for a period of time not to exceed eight (8) hours.

If the Engineer determines that there is an excessive amount of heat loss, segregation, or oxidation of the HMA due to temporary storage, no temporary storage will be allowed.

401-4.3 Hauling equipment. Trucks used for hauling HMA shall have tight, clean, and smooth metal beds. To prevent the HMA from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the Engineer. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

401-4.3.1 Material transfer vehicle (MTV). Material transfer vehicles are not required.

401-4.4 HMA pavers. HMA pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of HMA that will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface.

The paver shall have a receiving hopper of sufficient capacity to permit a uniform spreading operation. The hopper shall be equipped with a distribution system to place the HMA uniformly in front of the screed without segregation. The screed shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

If, during construction, it is found that the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued and satisfactory equipment shall be provided by the Contractor.

401-4.4.1 Automatic grade controls. The HMA paver shall be equipped with a control system capable of automatically maintaining the specified screed elevation. The control system shall be automatically actuated from either a reference line and/or through a system of mechanical sensors or sensor-directed mechanisms or devices that will maintain the paver screed at a predetermined transverse slope and at the proper elevation to obtain the required surface. The transverse slope controller shall be capable of maintaining the screed at the desired slope within ±0.1%.

The controls shall be capable of working in conjunction with any of the following attachments:

- **a.** Ski-type device of not less than 30 feet in length.
- **b.** Taut string-line (wire) set to grade.
- **c.** Short ski or shoe.
- **d.** Laser control.

401-4.5 Rollers. Rollers of the vibratory, steel wheel, and pneumatic-tired type shall be used. They shall be in good condition, capable of operating at slow speeds to avoid displacement of the HMA. The number, type, and weight of rollers shall be sufficient to compact the HMA to the required density while it is still in a workable condition.

All rollers shall be specifically designed and suitable for compacting HMA concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used. Depressions in pavement surfaces caused by rollers shall be repaired by the Contractor at their own expense.

The use of equipment that causes crushing of the aggregate will not be permitted.

401-4.6 Density device. The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall also supply a qualified technician during all paving operations to calibrate the gauge and obtain accurate density readings for all new HMA. These densities shall be supplied to the Engineer upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.7 Preparation of asphalt binder. The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt binder to the mixer at a uniform

temperature. The temperature of unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325°F when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F when added to the aggregate.

401-4.8 Preparation of mineral aggregate. The aggregate for the HMA shall be heated and dried. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350°F when the asphalt binder is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

401-4.9 Preparation of HMA. The aggregates and the asphalt binder shall be weighed or metered and introduced into the mixer in the amount specified by the JMF. The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in ASTM D2489, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer. The moisture content of all HMA upon discharge shall not exceed 0.5%.

401-4.10 Preparation of the underlying surface. Immediately before placing the HMA, the underlying course shall be cleaned of all dust and debris. A tack coat shall be applied in accordance with Item P-603, if shown on the plans.

401-4.11 Laydown plan, transporting, placing, and finishing. Prior to the placement of the HMA, the Contractor shall prepare a laydown plan for approval by the Engineer. This is to minimize the number of cold joints in the pavement. The laydown plan shall include the sequence of paving laydown by stations, width of lanes, temporary ramp locations, and laydown temperature. The laydown plan shall also include estimated time of completion for each portion of the work (that is, milling, paving, rolling, cooling, etc.). Modifications to the laydown plan shall be approved by the Engineer.

The HMA shall be transported from the mixing plant to the site in vehicles conforming to the requirements of paragraph 401-4.3. Deliveries shall be scheduled so that placing and compacting of HMA is uniform with minimum stopping and starting of the paver. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to atmospheric temperature.

The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose for the first lift of all runway and taxiway pavements. Successive lifts of HMA surface course may be placed using a ski, or laser control per paragraph 401-4.4.1, provided grades of the first lift of HMA surface course meet the tolerances of paragraphs 401-5.2b(6) as verified by a survey. Contractor shall survey each lift of HMA surface course and certify to Engineer that every lot of each lift meets the grade tolerances of paragraph 401-5.2b(6) before the next lift can be placed.

The initial placement and compaction of the HMA shall occur at a temperature suitable for obtaining density, surface smoothness, and other specified requirements but not less than 250°F.

Edges of existing HMA pavement abutting the new work shall be saw cut and carefully removed as shown on the drawings and coated with asphalt tack coat before new material is placed against it.

Upon arrival, the HMA shall be placed to the full width by a HMA paver. It shall be struck off in a uniform layer of such depth that, when the work is completed, it shall have the required thickness and conform to the grade and contour indicated. The speed of the paver shall be regulated to eliminate pulling and tearing of the HMA mat. Unless otherwise permitted, placement of the HMA shall begin along the centerline of a crowned section or on the high side of areas with a one-way slope. The HMA shall be placed in consecutive adjacent strips having a minimum width of 12 feet except where edge lanes require less width to complete the area. Additional screed sections shall not be attached to widen paver to meet the minimum lane width requirements specified above unless additional auger sections are added to match. The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least 1 foot; however, the joint in the surface top course shall be at the centerline of crowned pavements. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course.

Transverse joints in adjacent lanes shall be offset a minimum of 10 feet.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the HMA may be spread and luted by hand tools.

Areas of segregation in the surface course, as determined by the Engineer, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of 2 inches deep. The area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet long.

401-4.12 Compaction of HMA. After placing, the HMA shall be thoroughly and uniformly compacted by power rollers. The surface shall be compacted as soon as possible when the HMA has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross-section, and the required field density is obtained. To prevent adhesion of the HMA to the roller, the wheels shall be equipped with a scraper and kept properly moistened but excessive water will not be permitted.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with approved power driven tampers. Tampers shall weigh not less than 275 pounds, have a tamping plate width not less than 15 inches, be rated at not less than 4,200 vibrations per minute, and be suitably equipped with a standard tamping plate wetting device.

Any HMA that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

401-4.13 Joints. The formation of all joints shall be made in such a manner as to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid HMA except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. In both methods, all contact surfaces shall be coated with an asphalt tack coat before placing any fresh HMA against the joint.

Longitudinal joints which have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°F; or are irregular, damaged, uncompacted or otherwise defective shall be cut back 3 inches to 6 inches to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material shall be removed from the project. Asphalt tack coat or other product approved by the Engineer shall be applied to the clean, dry joint, prior to placing any additional fresh HMA against the joint. Any laitance produced from cutting joints shall be removed by vacuuming and washing. The cost of this work shall be considered incidental to the cost of the HMA.

401-4.14 Saw-cut grooving. *Not required.*

401-4.15 Diamond grinding. When required, diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive. The saw blades shall be assembled in a cutting head mounted on a machine designed specifically for diamond grinding that will produce the required texture and smoothness level without damage to the pavement. The saw blades shall be 1/8-inch wide and there shall be a minimum of 55 to 60 blades per 12 inches of cutting head width; the actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Each machine shall be capable of cutting a path at least 3 feet wide. Equipment that causes ravels, aggregate fractures, spalls or disturbance to the pavement will not be permitted. The depth of grinding shall not exceed 1/2 inch and all areas in which diamond grinding has been performed will be subject to the final pavement thickness tolerances specified. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. Areas that have been ground will be sealed with a P-608 surface treatment as directed by the Engineer. It may be necessary to seal a larger area to avoid surface treatment creating any conflict with runway or taxiway markings.

401-4.16 Nighttime paving requirements. Paving during nighttime construction shall require the following:

a. All paving machines, rollers, distribution trucks and other vehicles required by the Contractor for his operations shall be equipped with artificial illumination sufficient to safely complete the work.

b. Minimum illumination level shall be twenty (20) horizontal foot-candles and maintained in the following areas:

(1) An area of 30 feet wide by 30 feet long immediately behind the paving machines during the operations of the machines.

(2) An area 15 feet wide by 30 feet long immediately in front and back of all rolling equipment, during operation of the equipment.

(3) An area 15 feet wide by 15 feet long at any point where an area is being tack coated prior to the placement of pavement.

c. As partial fulfillment of the above requirements, the Contractor shall furnish and use, complete artificial lighting units with a minimum capacity of 3,000 watt electric beam lights, affixed to all equipment in such a way to direct illumination on the area under construction.

d. A lighting plan must be submitted by the Contractor and approved by the Engineer prior to the start of any nighttime work.

MATERIAL ACCEPTANCE

401-5.1 Acceptance sampling and testing. Unless otherwise specified, all acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the Engineer at no cost to the Contractor except that coring as required in this section shall be completed and paid for by the Contractor.

Testing organizations performing these tests shall be accredited in accordance with ASTM D3666. 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. All equipment in Contractor furnished laboratories shall be calibrated by an independent testing organization prior to the start of operations at the Contractor's expense.

a. Hot mixed asphalt. Plant-produced HMA shall be tested for air voids and stability and flow on a lot basis. Sampling shall be from material deposited into trucks at the plant or from trucks at the job site. Samples shall be taken in accordance with ASTM D979.

A standard lot shall be equal to one day's production or 2000 tons whichever is smaller. If the day's production is expected to exceed 2000 tons, but less than 4000 tons, the lot size shall be 1/2 day's production. If the day's production exceeds 4000 tons, the lot size shall be an equal sized fraction of the day's production, but shall not exceed 2000 tons.

Where more than one plant is simultaneously producing HMA for the job, the lot sizes shall apply separately for each plant.

(1) Sampling. Each lot will consist of four equal sublots. Sufficient HMA for preparation of test specimens for all testing will be sampled by the Engineer on a random basis, in accordance with the procedures contained in ASTM D3665. Samples will be taken in accordance with ASTM D979.

The sample of HMA may be put in a covered metal tin and placed in an oven for not less than 30 minutes nor more than 60 minutes to stabilize to compaction temperature. The compaction temperature of the specimens shall be as specified in the JMF.

(2) Testing. Sample specimens shall be tested for stability and flow in accordance with ASTM D6927. Air voids will be determined by the Engineer in accordance with ASTM D3203. One set of

laboratory compacted specimens will be prepared for each sublot in accordance with ASTM D6926 at the number of blows required by paragraph 401-3.2, Table 1. Each set of laboratory compacted specimens will consist of three test specimens prepared from the same sample. The manual hammer in ASTM D6926 shall be used.

Prior to testing, the bulk specific gravity of each test specimen shall be measured by the Engineer in accordance with ASTM D2726 using the procedure for laboratory-prepared thoroughly dry specimens for use in computing air voids and pavement density.

For air voids determination, the theoretical maximum specific gravity of the mixture shall be measured one time for each sublot in accordance with ASTM D2041. The value used in the air voids computation for each sublot shall be based on theoretical maximum specific gravity measurement for the sublot.

The stability and flow for each sublot shall be computed by averaging the results of all test specimens representing that sublot.

(3) Acceptance. Acceptance of plant produced HMA for stability, flow, and air voids shall be determined by the Engineer in accordance with the requirements of paragraph 401-5.2b.

b. In-place HMA. HMA placed in the field shall be tested for mat and joint density on a lot basis. A standard lot shall be equal to one day's production or 2000 tons whichever is smaller. If the day's production is expected to exceed 2000 tons, but less than 4000 tons , the lot size shall be 1/2 day's production. If the day's production exceeds 4000 tons , the lot size shall be an equal sized fraction of the day's production, but shall not exceed 2000 tons.

(1) Mat density. The lot size shall be the same as that indicated in paragraph 401-5.1a and shall be divided into four equal sublots. One core of finished, compacted HMA shall be taken by the Contractor from each sublot. Core locations will be determined by the Engineer on a random basis in accordance with procedures contained in ASTM D3665. Cores for mat density shall not be taken closer than one foot (30 cm) from a transverse or longitudinal joint.

(2) Joint density. The lot size shall be the total length of longitudinal joints constructed by a lot of HMA as defined in paragraph 401-5.1a. The lot shall be divided into four equal sublots. One core of finished, compacted HMA shall be taken by the Contractor from each sublot. Core locations will be determined by the Engineer on a random basis in accordance with procedures contained in ASTM D3665. All cores for joint density shall be taken centered on the joint. The minimum core diameter for joint density determination shall be 5 inches.

(3) Sampling. Samples shall be neatly cut with a diamond core drill bit. Samples will be taken in accordance with ASTM D979. The minimum diameter of the sample shall be 5 inches. Samples that are clearly defective, as a result of sampling, shall be discarded and another sample taken. The Contractor shall furnish all tools, labor, and materials for cutting samples, cleaning, and filling the cored pavement. Cored pavement shall be cleaned and core holes shall be filled in a manner acceptable to the Engineer and within one day after sampling. Laitance produced by the coring operation shall be removed immediately.

The top most lift of HMA shall be completely bonded to the underlying layer. If any of the cores reveal that the surface is not bonded to the layer immediately below the surface then additional cores shall be taken as directed by the Engineer in accordance with paragraph 401-5.1b to determine the extent of any delamination. All delaminated areas shall be completely removed by milling to the limits and depth and replaced as directed by the Engineer at no additional cost.

(4) Testing. The bulk specific gravity of each cored sample will be measured by the Engineer in accordance with ASTM D2726. Samples will be taken in accordance with ASTM D979. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each sublot sample by the average bulk specific gravity of all laboratory prepared specimens for the lot, as determined in paragraph 401-5.1a(2). The bulk specific gravity used to determine the joint density at joints formed between different lots shall be the lowest of the bulk specific gravity values from the two different lots.

(5) Acceptance. Acceptance of field placed HMA format density will be determined by the Engineer in accordance with the requirements of paragraph 401-5.2b(1). Acceptance for joint density will be determined by the Engineer in accordance with the requirements of paragraph 401-5.2b(3).

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 other minor tonnage 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.

The last batch produced where production is halted will be sampled, and its properties shall be considered as representative of the particular sublot from which it was taken. In addition, an agreed to minor placement will be sampled, and its properties shall be considered as representative of the particular sublot from which it was taken. Where three sublots are produced, they shall constitute a lot. Where one or two sublots are produced, they shall be incorporated into the next lot, and the total number of sublots shall be used in the acceptance plan calculation, that is, n = 5 or n = 6, for example. Partial lots at the end of asphalt production on the project shall be included with the previous lot. The lot size for field placed material shall correspond to that of the plant material, except that, in no cases, shall less than three (3) cored samples be obtained, that is, n = 3.

401-5.2 Acceptance criteria.

a. General. Acceptance will be based on the following characteristics of the HMA and completed pavement as well as the implementation of the Contractor Quality Control Program and test results:

(1) Air voids

(2) Mat density

(3) Joint density

(4) Thickness

(5) Smoothness

(6) Grade

(7) Stability

(8) Flow

Mat density and air voids will be evaluated for acceptance in accordance with paragraph 401-5.2b(1). Stability and flow will be evaluated for acceptance in accordance with paragraph 401-5.2b(2). Joint density will be evaluated for acceptance in accordance with paragraph 401-5.2b(3).

Thickness will be evaluated by the Engineer for compliance in accordance with paragraph 401-5.2b(4). Acceptance for smoothness will be based on the criteria contained in paragraph 401-5.2b(5). Acceptance for grade will be based on the criteria contained in paragraph 401-5.2b(7).

The Engineer may at any time, reject and require the Contractor to dispose of any batch of HMA which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or improper mix temperature. Such rejection may be based on only visual inspection or temperature measurements. 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. Acceptance criteria.

(1) Mat density and air voids. Acceptance of each lot of plant produced material for mat density and air voids shall be based on the percentage of material within specification limits (PWL). If the PWL of the lot equals or exceeds 90%, the lot shall be acceptable. Acceptance and payment shall be determined in accordance with paragraph 401-8.1.

(2) Stability and flow. Acceptance of each lot of plant produced HMA for stability and flow shall be based on the PWL. If the PWL of the lot equals or exceeds 90%, the lot shall be acceptable. If the PWL is less than 90%, the Contractor shall determine the reason and take corrective action. If the PWL is below 80%, the Contractor must stop production until the reason for poor stability and/or flow has been determined and adjustments to the HMA are made.

(3) Joint density. Acceptance of each lot of plant produced HMA for joint density shall be based on the PWL. If the PWL of the lot is equal to or exceeds 90%, the lot shall be considered acceptable. If the PWL is less than 90%, the Contractor shall evaluate the reason and act accordingly. If the PWL is less than 80%, the Contractor shall cease operations and until the reason for poor compaction has been determined. If the PWL is less than 71%, the pay factor for the lot used to complete the joint shall be reduced by five (5) percentage points. This lot pay factor reduction shall be incorporated and evaluated in accordance with paragraph 401-8.1.

(4) Thickness. Thickness of each lift of surface course shall be evaluated by the Engineer for compliance to the requirements shown on the plans. Measurements of thickness shall be made by the Engineer using the cores extracted for each sublot for density measurement. The maximum allowable deficiency at any point shall not be more than 1/4 inch less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, shall not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sublot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the Engineer to circumscribe the deficient area.

(5) Smoothness. The final surface shall be free from roller marks. After the final rolling, but not later than 24 hours after placement, the surface of each lot shall be tested in both longitudinal and transverse directions for smoothness to reveal all surface irregularities exceeding the tolerances specified. The Contractor shall furnish paving equipment and employ methods that produce a surface for each pavement lot having a finished surface course which shall not vary more than 1/4 inch when evaluated with a *Contractor provided* 12-foot straightedge. When the surface course smoothness exceeds specification tolerances which cannot be corrected by diamond grinding of the surface course, full depth removal and replacement of surface course corrections shall be to the limit of the longitudinal

placement. Corrections involving diamond grinding will be subject to the final pavement thickness tolerances specified. The Contractor shall apply a surface treatment per Item P-608 to all areas that have been subject to grinding as directed by the Engineer.

(a) Transverse measurements. Transverse measurements will be taken for each lot placed. Transverse measurements will be taken perpendicular to the pavement centerline each 50 feet or more often as determined by the Engineer.

(i) Testing shall be continuous across all joints, starting with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Smoothness readings will not be made across grade changes or cross slope transitions; at these transition areas, the straightedge position shall be adjusted to measure surface smoothness and not design grade or cross slope transitions. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between these two high points. High spots on final surface course > 1/4 inch in transverse direction shall be corrected with diamond grinding per paragraph 401-4.15 or by removing and replacing full depth of surface course. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

(ii) The joint between lots shall be tested separately to facilitate smoothness between lots. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface, with half the straightedge on one side of the joint and the other half of the straightedge on the other side of the joint. Measure the maximum gap between the straightedge and the pavement surface in the area between these two high points. One measurement shall be taken at the joint every 50 feet or more often if directed by the Engineer. Deviations on final surface course > 1/4 inch in transverse direction shall be corrected with diamond grinding per paragraph 401-4.15 or by removing and replacing full depth of surface course. Each measurement shall be recorded and a copy of the data shall be furnished to the Engineer at the end of each days testing.

(b) Longitudinal measurements. Longitudinal measurements will be taken for each lot placed. Longitudinal tests will be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet; and at the third points of paving lanes when widths of paving lanes are 20 ft. or greater.

(i) Longitudinal Short Sections. Longitudinal Short Sections are when the longitudinal lot length is less than 200 feet . When approved by the Engineer, the first and last 15 feet of the lot can also be considered as short sections for smoothness. The finished surface shall not vary more than 1/4 inch when evaluated with a 12-foot straightedge. Smoothness readings will not be made across grade changes or cross slope transitions; at these transition areas, the straightedge position shall be adjusted to measure surface smoothness and not design grade or cross slope transitions. Testing shall be continuous across all joints, starting with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between these two high points. Deviations on final surface course > 1/4 inch in

longitudinal direction will be corrected with diamond grinding per paragraph 401-4.15 or by removing and replacing full depth of surface course. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

(ii) Profilograph Testing. Not required.

Smoothness testing indicated in the above paragraphs shall be performed within 24 hours of placement of material. The primary purpose of smoothness testing is to identify areas that may be prone to ponding of water which could lead to hydroplaning of aircraft. If the contractor's machines and/or methods are producing significant areas that need corrective actions then production should be stopped until corrective measures can be implemented. If corrective measures are not implemented and when directed by the Engineer, production shall be stopped until corrective measures can be implemented.

(6) Grade. Grade shall be evaluated every day to allow adjustments to paving operations if measurements do not meet specification requirements. The Contractor must submit the survey data to the Engineer by the following day after measurements have been taken. The finished surface of the pavement shall not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch. The finished grade of each lot will be determined by running levels at intervals of 50 feet or less longitudinally and all breaks in grade transversely (not to exceed 50 feet) to determine the elevation of the completed pavement. The Contractor shall pay the cost of surveying of the level runs that 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. The lot size shall be 2,000 square yards. When more than 15% of all the measurements within a lot are outside the specified tolerance, or if any one shot within the lot deviates 3/4 inch or more from planned grade, the Contractor shall remove the deficient area to the depth of the final course plus 1/2 inch of pavement and replace with new material. Skin patching shall not be permitted. Isolated high points may be ground off provided the course thickness complies with the thickness specified on the plans. The surface of the ground pavement shall have a texture consisting of grooves between 0.090 and 0.130 inches wide. The peaks and ridges shall be approximately 1/32 inch higher than the bottom of the grooves. The pavement shall be left in a clean condition. The removal of all of the slurry resulting from the grinding operation shall be continuous The grinding operation should be controlled so the residue from the operation does not flow across other lanes of pavement. High point grinding will be limited to 15 square yards. Areas in excess of 15 square yards will require removal and replacement of the pavement in accordance with the limitations noted above. The Contractor shall apply a surface treatment per P-608 to all areas that have been subject to grinding.

c. Percentage of material within specification limits (PWL). The PWL shall be determined in accordance with procedures specified in Section 110 of the General Provisions. The specification tolerance limits (L) for lower and (U) for upper are contained in Table 5.

Table 5. Marshall acceptance limits for stability, flow, air voids, density

TEST PROPERTY		
Number of Blows	**75 blows**	
	Specification Tolerance	
	L	**U**
Stability, minimum (pounds)	1800	--
Flow, 0.01 inch	8	18*
Air Voids Total Mix (%)	2	5
Surface Course Mat Density (%)	96.3	--
Joint Density (%)	93.3	--

* Upper flow limit requirements do not apply for any mix with a polymer-modified binder (where the difference between the upper and lower temperature number is 90°F or greater).

d. Outliers. All individual tests for mat density and air voids shall be checked for outliers (test criterion) in accordance with ASTM E178, at a significance level of 5%. Outliers shall be discarded, and the PWL shall be determined using the remaining test values. The criteria in Table 5 is based on production processes which have a variability with the following standard deviations: Surface Course Mat Density (%), 1.30; Base Course Mat Density (%), 1.55; Joint Density (%), 2.1.

The Contractor should note that (1) 90 PWL is achieved when consistently producing a surface course with an average mat density of at least 98% with 1.30% or less variability, (2) 90 PWL is achieved when consistently producing a base course with an average mat density of at least 97.5% with 1.55% or less variability, and (3) 90 PWL is achieved when consistently producing joints with an average joint density of at least 96% with 2.1% or less variability.

401-5.3 Resampling pavement for mat density.

a. General. Resampling of a lot of pavement will only be allowed for mat density, and then, only if the Contractor requests same, in writing, within 48 hours after receiving the written test results from the Engineer. A retest will consist of all the sampling and testing procedures contained in paragraphs 401-5.1b and 401-5.2b(1). Only one resampling per lot will be permitted.

(1) A redefined PWL shall be calculated for the resampled lot. The number of tests used to calculate the redefined PWL shall include the initial tests made for that lot plus the retests.

(2) The cost for resampling and retesting shall be borne by the Contractor.

b. Payment for resampled lots. The redefined PWL for a resampled lot shall be used to calculate the payment for that lot in accordance with Table 6.

c. Outliers. Check for outliers in accordance with ASTM E178, at a significance level of 5%.

CONTRACTOR QUALITY CONTROL

401-6.1 General. 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 grading

c. Quality of materials

d. Stockpile management

e. Proportioning

f. Mixing and transportation

g. Placing and finishing

h. Joints

i. Compaction

j. Surface smoothness

k. Personnel

l. Laydown plan

The Contractor shall perform quality control sampling, testing, and inspection during all phases of the work and shall perform them at a rate sufficient to ensure that the work conforms to the contract requirements, and at minimum test frequencies required by paragraph 401-6.3 and Section 100 of the General Provisions. As a part of the process for approving the Contractor's plan, the Engineer may require the Contractor's technician to perform testing of samples to demonstrate an acceptable level of performance.

No partial payment will be made for materials that are subject to specific quality control requirements without an approved plan.

401-6.2 Contractor testing laboratory. The lab shall meet the requirements of ASTM D3666 including all necessary equipment, materials, and current reference standards to comply with the specifications.

401-6.3 Quality control testing. The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to these specifications and as set forth in the approved Quality Control Program. The testing program shall include, but not necessarily be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A Quality Control Testing Plan shall be developed as part of the Quality Control Program.

a. Asphalt content. A minimum of two asphalt content tests shall be performed per lot in accordance with ASTM D6307 or ASTM D2172 if the correction factor in ASTM D6307 is greater than 1.0. The asphalt content for the lot will be determined by averaging the test results.

b. Gradation. Aggregate gradations shall be determined a minimum of twice per lot from mechanical analysis of extracted aggregate in accordance with ASTM D5444, ASTM C136, and ASTM C117.

c. Moisture content of aggregate. The moisture content of aggregate used for production shall be determined a minimum of once per lot in accordance with ASTM C566.

d. Moisture content of HMA. The moisture content shall be determined once per lot in accordance with ASTM D1461.

e. Temperatures. Temperatures shall be checked, at least four times per lot, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the HMA at the plant, and the HMA at the job site.

f. In-place density monitoring. The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density in accordance with ASTM D2950.

g. Additional testing. Any additional testing that the Contractor deems necessary to control the process may be performed at the Contractor's option.

h. Monitoring. The Engineer reserves the right to monitor any or all of the above testing.

401-6.4 Sampling. When directed by the Engineer, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

401-6.5 Control charts. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for aggregate gradation, asphalt content, and VMA. The VMA for each sublot will be calculated and monitored by the Quality Control laboratory.

Control charts shall be posted in a location satisfactory to the Engineer and shall be kept current. 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 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 problem and the Contractor is not taking satisfactory corrective action, the Engineer may suspend production or acceptance of the material.

a. Individual measurements. Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation, asphalt content, and VMA. The control charts shall use the job mix formula target values as indicators of central tendency for the following test parameters with associated Action and Suspension Limits:

Control Chart Limits For Individual Measurements		
Sieve	**Action Limit**	**Suspension Limit**
3/4 inch	±6%	±9%
1/2 inch	±6%	±9%
3/8 inch	±6%	±9%
No. 4	±6%	±9%
No. 16	±5%	±7.5%
No. 50	±3%	±4.5%
No. 200	±2%	±3%
Asphalt Content	±0.45%	±0.70%
VMA	-1.00%	-1.50%

b. Range. Control charts for range shall be established to control process variability for the test parameters and Suspension Limits listed below. The range shall be computed for each lot as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of n = 2. Should the Contractor elect to perform more than two tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for n = 3 and by 1.27 for n = 4.

Control Chart Limits Based On Range (Based On n = 2)	
Sieve	**Suspension Limit**
1/2 inch	11%
3/8 inch (9 mm)	11%
No. 4	11%
No. 16	9%
No. 50	6%
No. 200	3.5%
Asphalt Content	0.8%

c. Corrective Action. The Contractor Quality Control Program shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain sets of rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:

(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.

401-6.6 Quality control reports. The Contractor shall maintain records and shall submit reports of quality control activities daily, in accordance with the Contractor Quality Control Program described in General Provisions, Section 100.

METHOD OF MEASUREMENT

401-7.1 Measurement. HMA shall be measured by the number of tons of HMA used in the accepted work. Recorded batch weights or truck scale weights will be used to determine the basis for the tonnage.

BASIS OF PAYMENT

401-8.1 Payment. Payment for a lot of HMA meeting all acceptance criteria as specified in paragraph 401-5.2 shall be made based on results of tests for mat density and air voids. Payment for acceptable lots shall be adjusted according to paragraph 401-8.1a for mat density and air voids and 401-8.1c, subject to the limitation that:

a. The total project payment for plant mix bituminous concrete pavement shall not exceed 100 percent of the product of the contract unit price and the total number of tons of HMA used in the accepted work (See Note 1 under Table 6).

b. The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

c. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with Table 6. A pay factor shall be calculated for both mat density and air voids. The lot pay factor shall be the higher of the two values when calculations for both mat density and air voids are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either mat density or air voids is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both mat density and air voids are less than 100%. If PWL for joint density is less than 71 percent then the lot pay factor shall be reduced by 5% but be no higher than 95%.

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 401-8.1. Payment in excess of 100% for accepted lots of HMA shall be used to offset payment for accepted lots of bituminous concrete pavement that achieve a lot pay factor less than 100%.

Table 6. Price adjustment schedule[1]

Percentage of material within specification limits (PWL)	Lot pay factor (percent of contract unit price)
96 – 100	106
90 – 95	PWL + 10
75 – 89	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject [2]

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment above 100% shall be subject to the total project payment limitation specified in paragraph 401-8.1.

[2] 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% of the contract unit price and the total project payment shall be reduced by the amount withheld for the rejected lot.

d. Profilograph smoothness. *Not used*.

e. Basis of adjusted payment for smoothness. *Not used.*

HMA placed above the specified grade shall not be included in the quantities for payment.

Payment will be made under:

Item P-401-8.1.1 Hot Mix Asphalt Surface Course, P-401 – per ton

TESTING REQUIREMENTS

ASTM C29 Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate

ASTM C88 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C117 Standard Test Method for Materials Finer than (No. 200) Sieve in Mineral Aggregates by Washing

ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C183	Standard Practice for Sampling and the Amount of Testing of Hydraulic Cement
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D979	Standard Practice for Sampling Bituminous Paving Mixtures
ASTM D1073	Standard Specification for Fine Aggregate for Bituminous Paving Mixtures
ASTM D2172	Standard Test Method for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D1461	Standard Test Method for Moisture or Volatile Distillates in Bituminous Paving Mixtures
ASTM D2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D2489	Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures
ASTM D2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
ASTM D2950	Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D3203	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D4867	Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate

ASTM D6084	Standard Test Method for Elastic Recovery of Bituminous Materials by Ductilometer
ASTM D6307	Standard Test Method for Asphalt Content of Hot Mix Asphalt by Ignition Method
ASTM D6752	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method
ASTM D6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D6927	Standard Test Method for Marshall Stability and Flow of Bituminous mixtures
ASTM E11	Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves
ASTM E178	Standard Practice for Dealing with Outlying Observations
AASHTO T030	Standard Method of Test for Mechanical Analysis of Extracted Aggregate
AASHTO T110	Standard Method of Test for Moisture or Volatile Distillates in Hot Mix Asphalt (HMA)
AASHTO T275	Standard Method of Test for Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Using Paraffin-Coated Specimens
AASHTO M156	Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
AASHTO T329	Standard Method of Test for Moisture Content of Hot Mix Asphalt (HMA) by Oven Method
Asphalt Institute Handbook MS-26,	Asphalt Binder
Asphalt Institute MS-2	Mix Design Manual, 7th Edition

MATERIAL REQUIREMENTS

ASTM D242	Standard Specification for Mineral Filler for Bituminous Paving Mixtures
ASTM D946	Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D3381	Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D4552	Standard Practice for Classifying Hot-Mix Recycling Agents
ASTM D6373	Standard Specification for Performance Graded Asphalt Binder

END OF ITEM P-401

TECHNICAL SPECIFICATIONS

ITEM P-603 BITUMINOUS TACK COAT

DESCRIPTION

603-1.1 This item shall consist of preparing and treating a bituminous or concrete surface with bituminous material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

603-2.1 Bituminous materials. The bituminous material shall be an emulsified asphalt indicated in ASTM D3628 as a bituminous application for tack coat appropriate to local conditions or as designated by the Engineer.

CONSTRUCTION METHODS

603-3.1 Weather limitations. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50°F or above; the temperature has not been below 35°F for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the Engineer.

603-3.2 Equipment. The Contractor shall provide equipment for heating and applying the bituminous material.

Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 65.0 psi of tire width to prevent rutting, shoving or otherwise damaging the base, surface or other layers in the pavement structure. Design and equip the distributor to spray the bituminous material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.05 to 2.0 gallons per square yard, with a pressure range of 25 to 75 psi and with an allowable variation from the specified rate of not more than ±5%, and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying bituminous material manually to areas inaccessible to the distributor. Equip the distributor to circulate and agitate the bituminous material during the heating process. If the distributor is not equipped with an operable quick shutoff valve, the tack operations shall be started and stopped on building paper. The Contractor shall remove blotting sand prior to asphalt concrete lay down operations at no additional expense to the Owner.

A power broom and/or power blower suitable for cleaning the surfaces to which the bituminous tack coat is to be applied shall be provided.

603-3.3 Application of bituminous material. Immediately before applying the tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

Emulsified asphalt shall be diluted by the addition of water when directed by the Engineer and shall be applied a sufficient time in advance of the paver to ensure that all water has evaporated before the overlying mixture is placed on the tacked surface.

The bituminous material including vehicle shall be uniformly applied with a bituminous distributor at the rate of 0.05 to 0.10 gallons per square yard depending on the condition of the existing surface. The type of bituminous material and application rate shall be approved by the Engineer prior to application.

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the Engineer. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed.

603-3.4 Bituminous material Contractorôs responsibility. The Contractor shall provide a statement of source and character of the proposed bituminous material which must be submitted and approved by the Engineer before any shipment of bituminous materials to the project.

The Contractor shall furnish the vendor's certified test reports for each carload, or equivalent, of bituminous material shipped to the project. The tests reports shall be provided to and approved by the Engineer before the bituminous material is applied. If the bituminous material does not meet the specifications, it shall be replaced at the Contractor's expense. Furnishing the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance.

603-3.5 Freight and weigh bills The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the Engineer certified waybills and certified delivery tickets for all bituminous materials used in the construction of the pavement covered by the contract. Do not remove bituminous material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

603-4.1 There will be no separate measurement for bituminous tack coat.

BASIS OF PAYMENT

603-5.1 There will be no separate payment for bituminous tack coat. All costs shall be included in the respective Contract price for Item P-401 Hot Mix Asphalt Surface Course.

MATERIAL REQUIREMENTS

ASTM D633	Standard Volume Correction Table for Road Tar
ASTM D977	Standard Specification for Emulsified Asphalt
ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2028	Standard Specification for Cutback Asphalt (Rapid-Curing Type)

ASTM D2397	Standard Specification for Cationic Emulsified Asphalt
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END ITEM P-603

TECHNICAL SPECIFICATIONS

ITEM P-608 EMULSIFIED ASPHALT SEAL COAT

DESCRIPTION [1]

608-1.1 This item shall consist of the application of a emulsified asphalt surface treatment composed of an emulsion of natural and refined asphalt materials, water and, if specified, a polymer additive, for taxiways and runways with the application of a suitable aggregate to maintain adequate surface friction; and airfield secondary and tertiary pavements including low-speed taxiways, shoulders, overruns, roads, parking areas, and other general applications with or without aggregate applied. Emulsified Asphalt Seal Coat products assist in pavement preservation through reducing the rate of pavement oxidation. The emulsified asphalt surface treatment shall be applied in accordance with these specifications, and as shown on the plans or as directed by the Engineer.

[1] The terms seal coat and sealer binder and asphalt material are interchangeable throughout this specification. The term emulsified asphalt means an emulsion of natural and refined asphalt materials.

608-1.2 Quantities of materials per square yard. The approximate amounts of materials per square yard for the asphalt surface treatment shall be as provided in the table for the treatment area(s) at the specified dilution rate(s) as noted on the plans. The actual application rates will vary within the range specified to suit field conditions and will be recommended by the manufacturer's representative and approved by the Engineer from the test area/sections evaluation.

Application Rate

Dilution Rate	Quantity of Emulsion gal/yd^2	Quantity of Aggregate lb/yd^2
1:1	0.10-0.15	0.20-0.50

MATERIALS

608-2.1 Aggregate. The aggregate material shall be a dry, clean, dust and dirt free, sound, durable, angular shaped manufactured specialty sand, such as that used as an abrasive, with a Mohs hardness of 6 to 8. The Contractor shall submit manufacturer's technical data and a manufacturer's certification indicating that the specialty sand meets the requirements of the specification to the Engineer prior to start of construction. The sand must be approved for use by the Engineer and shall meet the following gradation limits when tested in accordance with ASTM C136 and ASTM C117:

Aggregate Material Gradation Requirements

Sieve Designation (square openings)	Percentage by Weight Retained Sieves
No. 8	0
No. 16	0-8
No. 20	0-28
No. 30	20-50
No. 40	10-55
No. 50	0-30
No. 70	0-5
No. 100	0-2
No. 200	0-2

The Contractor shall provide a certification showing particle size analysis and properties of the material delivered for use on the project. The Contractor's certification may be subject to verification by testing the material delivered for use on the project.

608-2.2 Asphalt material. The Contractor shall furnish the vendor's certified test reports for the emulsified asphalt, in its concentrated form, to the Engineer, showing that the material meets the following properties:

Concentrated Asphalt Material Properties

Properties	Specification	Limits
Saybolt Furol Viscosity at 77°F	ASTM D244	20 – 100 seconds
Residue by Distillation or Evaporation	ASTM D244	57% minimum
Sieve Test	ASTM D244	0.1% maximum
24-hour Stability	ASTM D244	1% maximum
5-day Settlement Test	ASTM D244	5.0% maximum
Particle Charge [1]	ASTM D244	Positive 6.5 maximum pH

[1] pH may be used in lieu of the particle charge test which is sometimes inconclusive in slow setting, asphalt emulsions.

The asphalt material concentrate must be diluted with heated water prior to application. The asphalt material, when diluted in the volumetric proportion of one part concentrated asphalt material to one part hot water shall have the following properties:

One-to-One Dilution Emulsion Properties

Properties	Specification	Limits
In Ready-to-Apply Form, one part concentrate to one part water, by volume		
Saybolt Furol Viscosity at 77°F	ASTM D244	10 – 50 seconds
Residue by Distillation or Evaporation	ASTM D244	28.5% minimum
Pumping Stability [1]		Pass

[1] Pumping stability is tested by pumping one pint of seal coat diluted one (1) part concentrate to one (1) part water, at 77°F, through a 1/4-inch gear pump operating 1750 rpm for 10 minutes with no significant separation or coagulation.

The asphalt material base residue shall contain not less than 20% gilsonite, or uintaite and shall not contain any tall oil pitch or coal tar material. The material shall be compatible with asphaltic concrete, and have a 5-year minimum proven performance record at airports with similar climatic conditions. Curing time, under recommended application conditions, shall not exceed eight (8) hours.

Emulsion Residue by Distillation or Evaporation Tests

Properties	Specification	Limits
Viscosity at 275°F	ASTM D4402	1750 cts maximum
Solubility in 1, 1, 1 trichloroethylene	ASTM D2042	97.5% minimum
Penetration	ASTM D5	50 dmm maximum
Asphaltenes	ASTM D2007	15% minimum
Saturates	ASTM D2007	15% maximum
Polar Compounds	ASTM D2007	25% minimum
Aromatics	ASTM D2007	15% minimum

The Contractor shall furnish vendor's certified test reports showing that the material is the type, grade and quality specified for each load of asphalt material delivered to the project. The certification shall also show the shipment number, refinery, consignee, destination, contract number and date of shipment. The test reports and certification shall be delivered to the Engineer before permission is granted to use the material. The furnishing of the vendor's certified test report for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's material test report certification may be subject to verification by testing the material delivered for use on the project.

The asphalt material storage and handling temperature shall be between 50°F - 160°F and the material shall be protected from freezing, or whenever outside temperature drops below 40°F for prolonged time periods.

608-2.3 Water. Water used in making the emulsion shall be potable, free from harmful soluble salts and chemicals, and at least 100°F.

608-2.4 Polymer. The polymer shall be a vinyl acrylic polymer approved for use by the asphalt material manufacturer. The Contractor shall submit manufacturer's technical data, the manufacturer's certification indicating that the polymer meets the requirements of the specification, and the asphalt material manufacturer's approval of its use to the Engineer. The polymer must be approved for use by the Engineer and shall meet the following properties:

Polymer Properties

Properties	Limits
Solids Content	54 to 57%, Percent by Weight
Weight	8.9 to 9.8 pounds/gallon
pH	4.0 to 6.0
Particle Charge	Nonionic/Anionic
Mechanical Stability	Excellent
Film Forming Temperature, °F	+5°F, minimum
Tg,°F	71.6°F, maximum

APPLICATION RATE

608-3.1 Material performance for runway and high-speed taxiway projects. *Not required.*

608-3.2 Test areas and test sections. A qualified manufacturer's representative shall be present in the field to assist the Contractor in applying test areas and/or test sections to determine the optimum application rate of both emulsion and sand to be approved by the Engineer.

A test area and/or section shall be applied for each differing HMA pavement surface identified in the project. The test area(s) and/or test section(s) shall be used to determine the material application rate(s) of both emulsion and sand prior to full production. The same equipment and method of operation shall be utilized on the test area(s) and/or test section(s) as will be utilized on the remainder of the work.

a. For taxiway, taxilane and apron surfaces. Prior to full application, the Contractor shall place test areas at varying application rates as advised by the manufacturer's representative and acceptable to the Engineer to determine appropriate application rate(s). The test areas will be located on representative section(s) of the pavement to receive the asphalt surface treatment designated by the Engineer.

b. For runway and high speed exit taxiway surfaces. *Not required.*

CONSTRUCTION METHODS

608-4.1 Worker safety. The seal coat product shall be handled with caution. The Contractor shall obtain a Material Safety Data Sheet (MSDS) for both the asphalt emulsion product and sand and require workmen to follow the manufacturer's recommended safety precautions.

608-4.2 Weather limitations. The asphalt emulsion shall be applied only when the existing pavement surface is dry and when the weather is not foggy, rainy, or when the wind velocity will prevent the uniform application of the material. No material shall be applied when dust or sand is blowing or when rain is anticipated within eight (8) hours of application completion. The atmospheric temperature and the pavement surface temperature shall both be above 60°F and rising. During application, account for wind drift. Cover existing buildings, structures, runway edge lights, taxiway edge lights, informational signs, retro-reflective marking and in-pavement duct markers as necessary to protect against overspray before applying the emulsion. Should emulsion get on any light or marker fixture, promptly clean the fixture. If cleaning is not satisfactory to the Engineer, the Contractor shall replace any light, sign or marker with equivalent equipment at no cost to the Owner.

608-4.3 Equipment and tools. The Contractor shall furnish all equipment, tools, and machinery necessary for the performance of the work.

a. Pressure distributor. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spreader bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour or seven (700) feet per minute. Test the equipment under pressure for leaks and to ensure it is in good working order before use.

The distributor truck shall be equipped with a 12-foot, minimum, spreader bar with individual nozzle control. The distributor truck shall be capable of specific application rates in the range of 0.05 to 0.25 gallons per square yard. These rates shall be computer-controlled rather than mechanical. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy.

A distributor truck shall be provided, if necessary, equipped to effectively heat and mix the material to the required temperature prior to application. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Care shall be taken not to overheat or over mix the material.

The distributor shall be equipped to hand spray the emulsion in areas identified either on the plans or by the Engineer.

b. Aggregate spreader. The asphalt distributor truck will be equipped with an aggregate spreader mounted to the distributer truck that can apply sand to the emulsion in a single pass operation without driving through wet emulsion. The aggregate spreader shall be equipped with a variable control system capable of uniformly distributing the sand at the specified rate at varying application widths and speeds. The sander shall have a minimum hopper capacity of at least 3,000 pounds of sand. Push-type hand sanders will be allowed for use around lights, signs and other obstructions.

c. Power broom/blower. A power broom and/or blower shall be provided for removing loose material from the surface to be treated.

d. Equipment calibration. The Contractor shall calibrate the equipment using either of the following procedures:

(1) First procedure. The Contractor shall furnish a State Calibration Certification for the emulsified asphalt distributor, from any state providing that service, or other acceptable agency certification approved by the Engineer, and the calibration date shall have been within six (6) months of the contract award, or up to 12 months if supporting documents substantiate continuous work using the same distributor.

(2) Second procedure. The Contractor shall furnish all equipment, materials and labor necessary to calibrate the emulsified asphalt distributor and the aggregate spreader. Perform all calibrations with the approved job materials and prior to applying the specified coatings to the prepared surface. Perform calibration of the emulsified asphalt distributor in accordance with ASTM D2995. Perform work to calibrate the tank and measuring devices of the distributor. Perform inspection and calibration at the beginning of the work and at least once a day during construction.

608-4.4 Preparation of asphalt pavement surfaces. Clean pavement surface immediately prior to placing the seal coat by sweeping, flushing well with water leaving no standing water, or a combination of both, so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film. Remove oil or grease that has not penetrated the asphalt pavement by scraping or by scrubbing with a detergent, then wash thoroughly with clean water. After cleaning, treat these areas with the oil spot primer. Any additional surface preparation, such as crack repair, shall be in accordance with paragraph 101-3.6.

a. New asphalt pavement surfaces. Allow new asphalt pavement surfaces to cure so that there is no concentration of oils on the surface. A period of at least 30 days at 70°F daytime temperatures shall elapse between the placement of a hot mixed asphalt concrete surface course and the application of the surface treatment.

Perform a water-break-free test to confirm that the surface oils have degraded and dissipated. (Cast approximately one gallon of clean water out over the surface. The water should sheet out and wet the surface uniformly without crawling or showing oil rings.) If signs of crawling or oil rings are apparent on the pavement surface, additional time must be allowed for additional curing and retesting of the pavement surface prior to treatment.

608-4.5 Emulsion mixing. The application emulsion shall be obtained by blending asphalt material concentrate, water and polymer, if specified. Always add heated water to the asphalt material concentrate, never add asphalt material concentrate to heated water. Mix one part heated water to **[** one part **] [** two parts **]** asphalt material concentrate, by volume.

If polymer is required, add 1% polymer, by volume, to the emulsion mix. If the polymer is added to the emulsion mix at the plant, submit weigh scale tickets to the Engineer. As an option, the polymer may be added to the emulsion mix at the job site provided the polymer is added slowly while the circulating pump is running. The mix must be agitated for a minimum of 15 minutes or until the polymer is mixed to the satisfaction of the Engineer.

608-4.6 Application of asphalt emulsion. The asphalt emulsion shall be applied using a pressure distributor upon the properly prepared, clean and dry surface at the application rate recommended by the manufacturer's representative and approved by the Engineer from the test area/sections evaluation for

each designated treatment area. The asphalt emulsion should be applied at a temperature between 130°F and 160°F or in accordance with the manufacturer's recommendation.

Pavement surfaces which have excessive runoff of seal coat due to excessive amount of material being applied or excessive surface grade shall be treated in two or more applications to the specified application rate at no additional cost to the Owner. Each additional application shall be performed after the prior application of material has penetrated into the pavement.

If low spots and depressions greater than 1/2 inch (in depth in the pavement surface cause ponding or puddling of the applied materials, the pavement surface shall be broomed with a broom drag. Brooming shall continue until the pavement surface is free of any pools of excess material. Ponding and/or puddling shall not cause excessive pavement softening and/or additional distress. The Engineer shall inspect and approve areas after brooming.

During all applications, the surfaces of adjacent structures shall be protected to prevent their being spattered or marred. Asphalt materials shall not be discharged into borrow pits or gutters or on the airport area.

608-4.7 Application of aggregate material. Immediately following the application of the asphalt emulsion or as directed by the Engineer, sand at the rate recommended by the manufacturer's representative and approved by the Engineer from the test area/sections evaluation for each designated application area, shall be spread uniformly over the asphalt emulsion. The aggregate shall be spread to the same width of application as the asphalt material and shall not be applied in such thickness as to cause blanketing.

Sprinkling of additional aggregate material, and spraying additional asphalt material over areas that show up having insufficient cover or bitumen, shall be done by hand whenever necessary. In areas where hand work is necessitated, the sand shall be applied before the sealant begins to break.
Sanding shall be performed to prevent excessive amounts of sand from accumulating on the pavement prior to the emulsion being applied. The Contractor shall clean areas with excess or loose sand and dispose of off airport property.

QUALITY CONTROL

608-5.1 Manufacturerôs representation. The manufacturer's representative shall have knowledge of the material, procedures, and equipment described in the specification and shall be responsible for determining the application rates and shall oversee the preparation and application of the seal coat product. Documentation of the manufacturer representative's experience and knowledge for applying the seal coat product shall be furnished to the Engineer a minimum of 10 work days prior to placement of the test sections. The cost of the manufacturer's representative shall be included in the bid price.

608-5.2 Contractor qualifications. The Contractor shall provide the Engineer Contractor qualifications for applicators, personnel and equipment. The Contractor shall also provide documentation that the Contractor is qualified to apply the seal coat and to have made at least three (3) applications similar to this project in the past two (2) years.

MATERIAL ACCEPTANCE

608-6.1 Friction tests. *Not required.*

METHOD OF MEASUREMENT

608-7.1 The quantity of asphalt surface treatment will not be measured separately and will be incidental to the items requiring asphalt surface treatment.

BASIS OF PAYMENT

608-8.1 Asphalt surface treatment shall not be paid for separately and shall be incidental to the items requiring asphalt surface treatment.

MATERIAL REQUIREMENTS

ASTM C117	Standard Test Method for Materials Finer than (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D5	Standard Test Method for Penetration of Bituminous Materials
ASTM D244	Standard Test Methods and Practices for Emulsified Asphalts
ASTM D2007	Standard Test Method for Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method
ASTM D2042	Standard Test Method for Solubility of Asphalt Materials in Trichloroethylene
ASTM D2995	Standard Practice for Estimating Application Rate of Bituminous Distributors
ASTM D4402	Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer
ASTM D5340	Standard Test Method for Airport Pavement Condition Index Surveys
AC 150/5320-12	Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces
AC 150/5320-17	Airfield Pavement Surface Evaluation and Rating (PASER) Manuals
AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements

END OF ITEM P-608

TECHNICAL SPECIFICATIONS

ITEM P-610 STRUCTURAL PORTLAND CEMENT CONCRETE

DESCRIPTION

610-1.1 This item shall consist of plain and reinforced structural portland cement concrete (PCC), prepared and constructed in accordance with these specifications, at the locations and of the form and dimensions shown on the plans. This specification shall be used for all structural and miscellaneous concrete including signage bases.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Engineer before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine and Coarse aggregates to be used in all concrete shall be evaluated and tested by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and C1567. Aggregate and mix proportion reactivity tests shall be performed for each project.

(1) Coarse and fine aggregate shall be tested separately in accordance with ASTM C1260. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.10% at 28 days (30 days from casting).

(2) Combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) CRD C662. If lithium nitrate admixture is used, it shall be nominal 30% ±0.5% weight lithium nitrate in water.

(3) If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C1567, modified for combined aggregates, or COE CRD C662, 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.

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33. The Engineer may consider and reserve final approval of other State classification procedures addressing aggregate durability.

Coarse aggregate shall be well graded from coarse to fine and shall meet the following gradation shown in the table below when tested per ASTM C136.

Gradation For Coarse Aggregate

Sieve Designation (square openings)	Percentage by Weight Passing Sieves
	No. 4 to 1 in.
1-1/2 in.	100
1 in.	90-100
3/4 in.	--
1/2 in.	25-60
3/8 in.	--
No. 4	0-10

610-2.2.1 Aggregate susceptibility to durability (D) cracking. Aggregates that have a history of D-cracking shall not be used. *The Contractor shall submit a current certification that the aggregate does not have a history of D-cracking and that the aggregate meets the state specifications for use in PCC pavement for use on interstate highways. Certifications, tests and any history reports must be for the same gradation as being proposed for use on the project.*

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet the requirements of ASTM C33.

The fine aggregate shall be well graded from fine to coarse and shall meet the requirements of the table below when tested in accordance with ASTM C136:

Gradation For Fine Aggregate

Sieve Designation (square openings)	Percentage by Weight Passing Sieves
3/8 inch	100
No. 4	95-100
No. 16	45-80
No. 30	25-55
No. 50	10-30
No. 100	2-10

Blending will be permitted, if necessary, to meet the gradation requirements for fine aggregate. Fine aggregate deficient in the percentage of material passing the No. 50 mesh sieve may be accepted, if the deficiency does not exceed 5% and is remedied by the addition of pozzolanic or cementitious materials other than Portland cement, as specified in paragraph 610-2.6, Admixtures, in sufficient quantity to produce the required workability as approved by the Engineer.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C150 Type II.

If aggregates are deemed innocuous when tested in accordance with paragraph 610-2.1.a.1 and accepted in accordance with paragraph 610-2.1.a.3, higher equivalent alkali content in the cement may be allowed if approved by the Engineer and FAA. If 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.

The Contractor shall furnish vendors' certified test reports for each carload, or equivalent, of cement shipped to the project. The report shall be delivered to the Engineer before use of the cement is granted. All test reports shall be subject to verification by testing sample materials received for use on the project.

610-2.5 Water. The water used in concrete shall be fresh, clean and potable; free from injurious amounts of oils, acids, alkalies, salts, organic materials or other substances deleterious to concrete.

610-2.6 Admixtures and supplementary cementitious material. 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 C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the Engineer. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

d. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash for use in mitigating alkali-silica reactivity shall have a Calcium Oxide (CaO) content of less than 13%.

610-2.7 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751 or ASTM D1752 **.**

610-2.8 Joint filler. The filler for joints shall meet the requirements of *ASTM D5893 or ASTM D6690*, unless otherwise specified.

610-2.9 Steel reinforcement. Reinforcing shall consist of Reinforcing Steel or Welded Steel Wire Fabric conforming to the requirements of ASTM A615 or ASTM A1064**.**

610-2.10 Materials for curing concrete. Curing materials shall consist of White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B conforming to the requirements of ASTM C309.

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the Engineer.

610-3.2 Concrete composition. The concrete shall develop a compressive strength of 4,000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cement per cubic yard. The concrete shall contain 5% of entrained air, ±1%, as determined by ASTM C231 and shall have a slump of not more than 4 inches as determined by ASTM C143.

610-3.3 Acceptance sampling and testing. Concrete for each structure will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The concrete shall be sampled in accordance with ASTM C172. Concrete cylindrical compressive strength specimens shall be made in accordance with ASTM C31 and tested in accordance with ASTM C39. The Contractor shall cure and store the test specimens under such conditions as directed by the Engineer. The Engineer will make the actual tests on the specimens at no expense to the Contractor. *A minimum of four samples shall be taken each day concrete is placed on the Project and/or as directed by the Engineer.*

610-3.4 Qualifications for concrete testing service. Perform concrete testing by an approved laboratory and inspection service experienced in sampling and testing concrete. Testing agency must meet the requirements of ASTM C1077 or ASTM E329.

610-3.5 Proportioning and measuring devices. When package cement is used, the quantity for each batch shall be equal to one or more whole sacks of cement. The aggregates shall be measured separately by weight. If aggregates are delivered to the mixer in batch trucks, the exact amount for each mixer charge shall be contained in each batch compartment. Weighing boxes or hoppers shall be approved by the Engineer and shall provide means of regulating the flow of aggregates into the batch box so the required, exact weight of aggregates is obtained.

610-3.6 Consistency. The consistency of the concrete shall be determined by the slump test specified in ASTM C143.

610-3.7 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94.

610-3.8 Mixing conditions. The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F without permission of the Engineer. If permission is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F nor more than 100°F. The Contractor shall

be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material shall not be permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.9 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the Engineer. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface. The forms shall not be removed until at least 30 hours after concrete placement for vertical faces, walls, slender columns, and similar structures. Forms supported by falsework under slabs, beams, girders, arches, and similar construction shall not be removed until tests indicate the concrete has developed at least 60% of the design strength.

610-3.10 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.11 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.12 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the Engineer. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet. Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.13 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309, Guide for Consolidation of Concrete. Where bars meeting ASTM A775 or A934 are used, the vibrators shall be equipped with rubber or non-metallic vibrator heads. Furnish a spare, working, vibrator on the job

site whenever concrete is placed. Consolidate concrete slabs greater than 4 inches in depth with high frequency mechanical vibrating equipment supplemented by hand spading and tamping. Consolidate concrete slabs 4 inches or less in depth by wood tampers, spading, and settling with a heavy leveling straightedge. Operate internal vibrators with vibratory element submerged in the concrete, with a minimum frequency of not less than 6000 cycles per minute when submerged. Do not use vibrators to transport the concrete in the forms. Penetrate the previously placed lift with the vibrator when more than one lift is required. Use external vibrators on the exterior surface of the forms when internal vibrators do not provide adequate consolidation of the concrete. Vibrators shall be manipulated to work the concrete thoroughly around the reinforcement and embedded fixtures and into corners and angles of the forms. The vibration at any point shall be of sufficient duration to accomplish compaction but shall not be prolonged to where segregation occurs. Concrete deposited under water shall be carefully placed in a compact mass in its final position by means of a tremie or other approved method and shall not be disturbed after placement.

610-3.14 Construction joints. If the placement of concrete is suspended, necessary provisions shall be made for joining future work before the placed concrete takes its initial set. For the proper bonding of old and new concrete, provisions shall be made for grooves, steps, reinforcing bars or other devices as specified. The work shall be arranged so that a section begun on any day shall be finished during daylight of the same day. Before depositing new concrete on or against concrete that has hardened, the surface of the hardened concrete shall be cleaned by a heavy steel broom, roughened slightly, wetted, and covered with a neat coating of cement paste or grout.

610-3.15 Expansion joints. Expansion joints shall be constructed at such points and dimensions as indicated on the drawings. The premolded filler shall be cut to the same shape as the surfaces being joined. The filler shall be fixed firmly against the surface of the concrete already in place so that it will not be displaced when concrete is deposited against it.

610-3.16 Defective work. Any defective work discovered after the forms have been removed, which in the opinion of the Engineer cannot be repaired satisfactorily, shall be immediately removed and replaced at the expense of the Contractor. Defective work shall include deficient dimensions, or bulged, uneven, or honeycomb on the surface of the concrete.

610-3.17 Surface finish. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated. Mortar finishing shall not be permitted, nor shall dry cement or sand-cement mortar be spread over the concrete during the finishing of horizontal plane surfaces.

The surface finish of exposed concrete shall be a rubbed finish. If forms can be removed while the concrete is still green, the surface shall be wetted and then rubbed with a wooden float until all irregularities are removed. If the concrete has hardened before being rubbed, a carborundum stone shall be used to finish the surface. When approved, the finishing can be done with a finishing machine.

610-3.18 Curing and protection. All concrete shall be properly cured and protected by the Contractor. The concrete shall be protected from the weather, flowing water, and from defacement of any nature during the project. The concrete shall be cured by covering with an approved material as soon as it has sufficiently hardened. Water-absorptive coverings shall be thoroughly saturated when placed and kept saturated for at least three (3) days following concrete placement. All curing mats or blankets shall be sufficiently weighted

or tied down to keep the concrete surface covered and to prevent the surface from being exposed to air currents. Wooden forms shall be kept wet at all times until removed to prevent opening of joints and drying out of the concrete. Traffic shall not be allowed on concrete surfaces for seven (7) days after the concrete has been placed.

610-3.19 Drains or ducts. Drainage pipes, conduits, and ducts that are to be encased in concrete shall be installed by the Contractor before the concrete is placed. The pipe shall be held rigidly so that it will not be displaced or moved during the placing of the concrete.

610-3.20 Cold weather placing. When concrete is placed at temperatures below 40°F, the Contractor shall provide satisfactory methods and means to protect the mix from injury by freezing. The aggregates, or water, or both, shall be heated to place the concrete at temperatures between 50°F and 100°F.

Calcium chloride may be incorporated in the mixing water when directed by the Engineer. Not more than 2 pounds of Type 1 nor more than 1.6 pounds of Type 2 shall be added per bag of cement. After the concrete has been placed, the Contractor shall provide sufficient protection such as cover, canvas, framework, heating apparatus, etc., to enclose and protect the structure and maintain the temperature of the mix at not less than 50°F until at least 60% of the designed strength has been attained.

610-3.21 Hot weather placing. Concrete shall be properly placed and finished with procedures previously submitted. The concrete-placing temperature shall not exceed 90°F when measured in accordance with ASTM C1064. Cooling of the mixing water and aggregates, or both, may be required to obtain an adequate placing temperature. A retarder meeting the requirements of paragraph 610-2.6 may be used to facilitate placing and finishing. Steel forms and reinforcement shall be cooled prior to concrete placement when steel temperatures are greater than 120°F. Conveying and placing equipment shall be cooled if necessary to maintain proper concrete-placing temperature. Submit the proposed materials and methods for review and approval by the Engineer, if concrete is to be placed under hot weather conditions.

610-3.22 Filling joints. All joints that require filling shall be thoroughly cleaned, and any excess mortar or concrete shall be cut out with proper tools. Joint filling shall not start until after final curing and shall be done only when the concrete is completely dry. The cleaning and filling shall be done with proper equipment to obtain a neat looking joint free from excess filler.

METHOD OF MEASUREMENT

610-4.1 Structural Portland cement concrete, including reinforcing steel, will not be measured separately and will be incidental to the items requiring Portland cement concrete.

BASIS OF PAYMENT

610-5.1 Structural Portland cement concrete, including reinforcing steel, shall not be paid for separately and shall be incidental to the items requiring Portland cement concrete.

TESTING REQUIREMENTS

ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field

ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C138	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1064	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1567	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregates (Accelerated Mortar-Bar Method)
ASTM E329	Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

U.S. Army Corps of Engineers (USACE) Concrete Research Division (CRD) C662
Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method)

MATERIAL REQUIREMENTS

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A185	Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars

ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 309R	Guide for Consolidation of Concrete

END OF ITEM P-610

TECHNICAL SPECIFICATIONS

ITEM P-620 RUNWAY AND TAXIWAY MARKING

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Engineer. The terms “paint” and “marking material” as well as “painting” and “application of markings” are interchangeable throughout this specification.

MATERIALS

620-2.1 Materials acceptance. The Contractor shall furnish manufacturer’s certified test reports for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. The reports can be used for material acceptance or the Engineer may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the Engineer upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers 55 gallons or smaller for inspection by the Engineer. Material shall not be loaded into the equipment until inspected by the Engineer.

620-2.2 Marking materials. Paint shall be waterborne, in accordance with the requirements of paragraph 620-2.2.a. Paint shall be furnished in White (37925), Yellow (33538 or 33655) and Black (37038) in accordance with Federal Standard No. 595.

a. Waterborne. Paint shall meet the requirements of Federal Specification TT-P-1952E, Type II. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

620-2.3 Reflective media. Glass beads shall meet the requirements for Federal Specification TT-B-1325D, Type I, Gradation A. Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Paint Color	Glass Beads, Type III
White	See Table 1
Yellow	See Table 1
Black	Not used

CONSTRUCTION METHODS

620-3.1 Weather limitations. The painting shall be performed only when the surface is dry and when the surface temperature is at least 45°F and rising and the pavement surface temperature is at least 5°F above the dew point or meets the manufacturer’s recommendations. Markings shall not be applied when the pavement temperature is greater than 130°F. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns.

620-3.2 Equipment. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless-type marking machine suitable for application of traffic paint. It shall produce an even and uniform film thickness at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray.

620-3.3 Preparation of surface. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other foreign material that would reduce the bond between the paint and the pavement. The area to be painted shall be cleaned by sweeping and blowing or by other methods as required to remove all contaminants without damage to the pavement surface. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the Engineer. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

At least 24 hours prior to remarking existing markings, existing markings must be removed such that 100% of the existing markings are removed with a low pressure (3,500-10,000 psi) water blaster. After water blasting, the surface shall be cleaned of all residue or debris either with sweeping or blowing with compressed air or both.

Prior to the initial application of any markings, the Contractor shall certify in writing that the surface has been prepared in accordance with the paint manufacturer's requirements, that the application equipment is appropriate for the type of marking paint and that environmental conditions are appropriate for the material being applied. This certification along with a copy of the paint manufacturer's surface preparation and application requirements must be submitted and approved by the Engineer prior to the initial application of markings.

620-3.4 Layout of markings. The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans.

620-3.5 Application. Paint shall be applied at the locations and to the dimensions and spacing shown on the plans. Paint shall not be applied until the layout and condition of the surface has been approved by the Engineer. The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet, and marking dimensions and spacings shall be within the following tolerances:

Dimension and Spacing	Tolerance
36 inch or less	±1/2 inch
greater than 36 inch to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inch
greater than 60 feet	±3 inch

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted. A period of 24 hours shall elapse between placement of a bituminous surface course or seal coat and first/temporary

application of the paint. A period of 30 calendar days shall elapse between placement of a bituminous surface course or seal coat and application of the second/final coat of paint.

Prior to the initial application of markings, the Contractor shall certify in writing that the surface has been prepared in accordance with the paint manufacturer's requirements, that the application equipment is appropriate for the marking paint and that environmental conditions are appropriate for the material being applied. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the Engineer prior to the initial application of markings.

620-3.6 Test strip. Prior to the full application of airfield markings, the Contractor shall produce a test strip in the presence of the Engineer. The test strip shall include the application of a minimum of 5 gallons of paint and application of 35 lbs of Type I glass beads. The test strip shall be used to establish thickness/darkness standard for all markings. The test strip shall cover no more than the maximum area prescribed in Table 1 (e.g., for 5 gallons of waterborne paint shall cover no more than 575 square feet).

Table 1. Application Rates For Paint And Glass Beads

Paint Type	Paint Square feet per gallon, ft^2/gal	Glass Beads, Type I, Gradation A Pounds per gallon of paint, lb/gal
First Coat: Waterborne Type II	230 ft^2/gal max	7 lb/gal min
Second Coat: Waterborne Type II	115 ft^2/gal max	7 lb/gal min

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment should be performed.

All emptied containers shall be returned to the paint storage area for checking by the Engineer. The containers shall not be removed from the airport or destroyed until authorized by the Engineer.

620-3.7 Application--preformed thermoplastic airport pavement markings. *Not used.*

620-3.8 Protection and cleanup. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose or unadhered reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the Engineer. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and Federal environmental statutes and regulations.

METHOD OF MEASUREMENT

620-4.1 The quantity of runway, taxiway and apron markings to be paid for shall be the number of square feet of painting including reflective media performed in accordance with the specifications and accepted by the Engineer.

BASIS OF PAYMENT

620-5.1 Payment shall be made at the respective contract price per square foot for runway, taxiway and apron painting including reflective media**.** This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-620-5.1	Pavement Marking, Yellow with Reflective Media - per square foot
Item P-620-5.2	Pavement Marking, White with Reflective Media - per square foot
Item P-620-5.3	Pavement Marking, Black - per square foot

TESTING REQUIREMENTS

ASTM C371	Standard Test Method for Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders
ASTM D92	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
ASTM D711	Standard Test Method for No-Pick-Up Time of Traffic Paint
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

MATERIAL REQUIREMENTS

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products

40 CFR Part 60, Appendix A-7, Method 24
Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings

29 CFR Part 1910.1200 Hazard Communication

FED SPEC TT-B-1325D
Beads (Glass Spheres) Retro-Reflective

American Association of State Highway and Transportation Officials (AASHTO) M247
Standard Specification for Glass Beads Used in Pavement Markings

FED SPEC TT-P-1952E
Paint, Traffic and Airfield Marking, Waterborne

Commercial Item Description A-A-2886B
Paint, Traffic, Solvent Based

FED STD 595 Colors used in Government Procurement

AC 150/5340-1 Standards for Airport Markings

END OF ITEM P-620

TECHNICAL SPECIFICATIONS

ITEM F-162 CHAIN-LINK FENCE

DESCRIPTION

162-1.1 This item shall consist of furnishing and erecting a chain-link fence in accordance with these specifications, the details shown on the plans, and in conformity with the lines and grades shown on the plans or established by the Engineer.

MATERIALS

162-2.1 Fabric. The fabric shall be woven with a 9-gauge galvanized steel wire in a 2-inch mesh and shall meet the requirements of ASTM A392, Class 2.

162-2.2 Barbed wire. Barbed wire shall be 3-strand 12-1/2 gauge zinc-coated or aluminum-coated wire with 4-point barbs and shall conform to the requirements of ASTM A121, Class 3, Chain Link Fence Grade, or ASTM A121, Class II, respectively.

162-2.3 Posts, rails, and braces. Line posts, rails, and braces shall conform to the requirements of ASTM F1043 or ASTM F1083 as follows:

Galvanized tubular steel pipe shall conform to the requirements of Group IA, (Schedule 40) coatings conforming to Type A, or Group IC (High Strength Pipe), External coating Type B, and internal coating Type B or D.

Posts, rails, and braces, with the exception of galvanized steel conforming to ASTM F1043 or ASTM F1083, Group 1A, Type A, or aluminum alloy, shall demonstrate the ability to withstand testing in salt spray in accordance with ASTM B117 as follows:

External: 1,000 hours with a maximum of 5% red rust.

Internal: 650 hours with a maximum of 5% red rust.

The dimensions of the posts, rails, and braces shall be in accordance with Tables I through VI of Federal Specification RR-F-191/3.

162-2.4 Gates. *Not used.*

162-2.5 Wire ties and tension wires. Wire ties for use in conjunction with a given type of fabric shall be of the same material and coating weight identified with the fabric type. Tension wire shall be 7-gauge marcelled steel wire with the same coating as the fabric type and shall conform to ASTM A824.

All material shall conform to Federal Specification RR-F-191/4.

162-2.6 Miscellaneous fittings and hardware. Miscellaneous steel fittings and hardware for use with steel fabric shall be of commercial grade steel or better quality, wrought or cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric posts, and wires

of the quality specified herein. All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A153. Barbed wire support arms shall withstand a load of 250 pounds applied vertically to the outermost end of the arm.

162-2.7 Concrete. Concrete shall conform to Item P-610, Structural Portland Cement Concrete with a minimum 28-day compressive strength of 3,000 psi.

162-2.8 Marking. Each roll of fabric shall carry a tag showing the kind of base metal (steel, aluminum, or aluminum alloy number), kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal (steel, aluminum, or aluminum alloy number), and kind of coating.

CONSTRUCTION METHODS

162-3.1 Clearing fence line. All trees, brush, stumps, logs, and other debris which would interfere with the proper construction of the fence in the required location shall be removed a minimum width of 5 feet on each side of the fence centerline before starting fencing operations. The cost of removing and disposing of the material shall not constitute a pay item and shall be considered incidental to fence construction.

162-3.2 Installing posts. All posts shall be set in concrete at the required dimension and depth and at the spacing shown on the plans. Posts should be spaced not more than 10 feet apart and should be set a minimum of 36 inches in concrete footings. The posts holes shall be in proper alignment so that there is a minimum of 3 inches of concrete on all sides of the posts.

The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within seven (7) days after the individual post footing is completed.

Should rock be encountered at a depth less than the planned footing depth, a hole 2 inches larger than the greatest dimension of the posts shall be drilled to a depth of 12 inches. After the posts are set, the remainder of the drilled hole shall be filled with grout, composed of one part Portland cement and two parts mortar sand. Any remaining space above the rock shall be filled with concrete in the manner described above.

In lieu of drilling, the rock may be excavated to the required footing depth. No extra compensation shall be made for rock excavation.

162-3.3 Installing top rails. The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion.

162-3.4 Installing braces. Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts.

162-3.5 Installing fabric. The wire fabric shall be firmly attached to the posts and braced as shown on the plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no less than one inch or more

than 4 inches from the ground surface. Grading shall be performed where necessary to provide a neat appearance.

At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used and multiple strands of barbed wire stretched to span the opening below the fence. The vertical clearance between strands of barbed wire shall be 6 inches or less.

162-3.6 Electrical grounds. *Not used.*

162-3.7 Cleaning up. The Contractor shall remove from the vicinity of the completed work all tools, buildings, equipment, etc., used during construction.

METHOD OF MEASUREMENT

162-4.1 Chain-Link Fence Modifications will not be measured separately and will be incidental to "Airfield Safety and Traffic Control" as specified in Item A-001.

BASIS OF PAYMENT

162-5.1 Chain-Link Fence Modifications shall not be paid for separately and shall be incidental to "Airfield Safety and Traffic Control" as specified in Item A-001 which includes furnishing all materials, removal and disposal of existing fence, and for all preparation, erection, and installation of these materials, and for all labor equipment, tools, and incidentals necessary to complete the item.

MATERIAL REQUIREMENTS

ASTM A121	Standard Specification for Metallic-Coated Carbon Steel Barbed Wire
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153	Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A392	Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A491	Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A572	Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
ASTM A653	Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A824	Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence
ASTM A1011	Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High Strength Low Alloy with Improved Formability, and Ultra High Strength
ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus

ASTM B221	Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Profiles and Tubes
ASTM B429	Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM F1043	Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework
ASTM F1083	Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
ASTM F1183	Standard Specification for Aluminum Alloy Chain Link Fence Fabric
ASTM F1345	Standard Specification for Zinc 5% Aluminum-Mischmetal Alloy Coated Steel Chain-Link Fence Fabric
ASTM G152	Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G153	Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials
ASTM G155	Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
FED SPEC RR-F-191/3	Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces)
FED SPEC RR-F-191/4	Fencing, Wire and Post, Metal (Chain-Link Fence Accessories)
FAA-STD-019	Lightning and Surge Protection, Grounding, Bonding and Shielding Requirements for Facilities and Electronic Equipment

END OF ITEM F-162

TECHNICAL SPECIFICATIONS

ITEM L-115 ELECTRICAL MANHOLES AND JUNCTION STRUCTURES

DESCRIPTION

115-1.1 This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the Engineer. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the Engineer.

EQUIPMENT AND MATERIALS

115-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the Engineer.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the Engineer) and replaced with materials that comply with these specifications at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the Engineer for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted electronically or neatly bound in a properly sized 3-ring binder, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 Concrete structures. Cast-in-place concrete structures shall be per the details and dimensions shown on the plans.

Provide precast concrete structures where shown on the plans. Precast concrete structures shall be an approved standard design of the manufacturer. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. The structure shall be designed to withstand *a maximum tire pressure of 250 psi and maximum load of 100,000 lb dual wheel aircraft*, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans.

Threaded inserts and pulling eyes shall be cast in.

The Contractor is responsible for the structural design. Signed and sealed shop drawings, design calculations, and other information requested by the Engineer shall be submitted by the Contractor to allow for a full evaluation by the Engineer. The Engineer shall review and approve per the process defined in the General Provisions.

115-2.3 Junction boxes. *Not used*.

115-2.4 Mortar. The mortar shall be composed of one part of Portland cement and two parts of mortar sand, by volume. The Portland cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C6. Water shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.5 Concrete. All concrete used in structures shall conform to the requirements of Item P-610, Structural Portland Cement Concrete.

115-2.6 Frames and covers. The frames shall conform to one of the following requirements:

a.	ASTM A48	Gray iron castings
b.	ASTM A47	Malleable iron castings
c.	ASTM A27	Steel castings
d.	ASTM A283, Grade D	Structural steel for grates and frames
e.	ASTM A536	Ductile iron castings
f.	ASTM A897	Austempered ductile iron castings

All castings specified shall withstand *a maximum tire pressure of 250 psi and maximum load of 100,000 lbs dual wheel aircraft*.

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings specified.

Each frame and cover unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

Each cover shall have the word "*FIBER OPTIC*" or other approved designation cast on it. Each frame and cover shall be as shown on the plans or approved equivalent. No cable notches are required.

Each manhole shall be provided with a "DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" safety warning sign as detailed in the Contract Documents and in accordance with OSHA 1910.146 (c)(2).

115-2.7 Ladders. *Not required*.

115-2.8 Reinforcing steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

115-2.9 Bedding/special backfill. Bedding or special backfill shall be as shown on the plans.

115-2.10 Flowable backfill. Flowable material used to backfill shall conform to the requirements of Item P-153, Controlled Low Strength Material.

115-2.11 Cable *Racks*. *Non-metallic, one per pullbox*.

115-2.12 Plastic conduit. *Not required*.

115-2.13 Conduit terminators. Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.

115-2.14 Pulling-in irons. Pulling-in irons shall be manufactured with 7/8 inch diameter hot-dipped galvanized steel or stress-relieved carbon steel roping designed for concrete applications (7 strand, 1/2 inch diameter with an ultimate strength of 270,000 psi). Where stress-relieved carbon steel roping is used, a rustproof sleeve shall be installed at the hooking point and all exposed surfaces shall be encapsulated with a polyester coating to prevent corrosion.

115-2.15 Ground rods. Ground rods shall be one piece, copper clad**.** The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 10 feet long nor less than 3/4 inch in diameter.

CONSTRUCTION METHODS

115-3.1 Unclassified excavation. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the Engineer without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans or as staked by the Engineer. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to the respective L-115 pay item of which it is a component part. Dewatering necessary for L-115 structure installation, erosion and turbidity control, per Federal, state, and local requirements is incidental to its respective pay item as a part of Item L-115. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-115 Item.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the Engineer. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the Engineer. Structures shall be placed after the Engineer has approved the depth of the excavation and the suitability of the foundation material. Prior to installation the Contractor shall provide a minimum of 6 inches of sand or a material approved by the Engineer as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

115-3.2 Concrete structures. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the Engineer before the concrete is placed.

115-3.3 Precast unit installations. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

115-3.4 Placement and treatment of castings, frames and fittings. All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the Engineer and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written permission is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or

deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the Engineer and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-3.5 Installation of ladders. *Not required*.

115-3.6 Removal of sheeting and bracing. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The Engineer may order the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 Backfilling. After a structure has been completed, the area around it shall be backfilled *with Item P-153, Controlled Low Strength Material. All other disturbed areas* shall be backfilled in horizontal layers not to exceed 6 inches in thickness measured after compaction to the density requirements in Item P-152. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the Engineer.

Backfill shall not be placed against any structure until permission is given by the Engineer. In the case of concrete, such permission shall not be given until tests made by the laboratory under supervision of the Engineer establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the Engineer may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 Connection of duct banks. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 Grounding. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches above the floor. The ground rod shall be installed within one foot of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition

does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4 inch diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtails shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

115-3.10 Cleanup and repair. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared and compound applied per the manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All grading and restoration shall be considered incidental to the respective L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part. After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 Inspection. Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes.

115-3.13 Manhole, Pullbox and Valve Cover elevation adjustments. The Contractor shall adjust the tops of existing manholes, pullboxes and valve covers in areas designated in the Contract Documents to

the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise the top of each manhole, pullbox or valve cover to the new elevations. The existing top elevation of each manhole, pullbox or valve cover to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation.

The Contractor shall remove/extend the existing top section or ring and cover on the manhole structure or manhole access. The Contractor shall then install precast concrete sections or grade rings of the required dimensions to adjust the manhole top to the new proposed elevation or shall cut the existing manhole walls to shorten the existing structure, as required by final grades. Finally, the Contractor shall reinstall the manhole top section or ring and cover on top and check the new top elevation.

The Contractor shall construct a concrete slab around the top of adjusted structures located in graded areas that are not to be paved. The concrete slab shall conform to the dimensions shown on the plans.

115-3.14 Duct extension to existing ducts. *Not required*.

METHOD OF MEASUREMENT

115-4.1 Pullbox structures shall be measured by each unit completed in place and accepted. The following additional items are specifically included in each unit:

- All Required Excavation, Dewatering
- Sheeting and Bracing
- All Required Backfilling with On-Site Materials
- Restoration of All Surfaces and Finished Grading, Sodding
- All Required Connections
- Dewatering If Required
- Temporary Cables and Connections
- Ground Rod Testing

BASIS OF PAYMENT

115-5.1 The accepted quantity of pullbox structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item L-115-5.1 Install Pullbox Frame, Cover and Partial Base, 100,000 lb Dual Wheel Aircraft Rated, Spring Assist Cover - Per Each

MATERIAL REQUIREMENTS

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
Advisory Circular (AC) 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program
Commercial Item Description A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)
ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C206	Standard Specification for Finishing Hydrated Lime
FAA EB #83	In Pavement Light Fixture Bolts
MIL-P-21035	Paint High Zinc Dust Content, Galvanizing Repair
NFPA-70	National Electrical Code (NEC)

END OF ITEM L-115

Appendices

Appendix A
Contractorôs Submittal Checklist

Contractorôs Submittal Checklist

Submittal No.	Description	Action*	Remarks
1.	**Contractor Quality Control Program** FAA General Provisions, Section 100-02.b		Approval required prior to the issuance of the Notice to Proceed
2.	**Construction Schedule** FAA General Provisions, Section 100-04 Technical Specifications, A-001-1.4		Required prior to the preconstruction meeting
3.	**Safety Plan Compliance Document** Technical Specifications, A-001-1.2		Form located in CSPP; Submittal and approval required prior to the issuance of the Notice to Proceed
4.	**Dust Control Permit** Technical Specifications, A-001-1.16		Submit permit
5.	**Detailed Work Plan** Technical Specifications, A-001-1.20		Required 7 calendar days before the start of each phase of work
6.	**Stormwater Pollution Prevention Plan** Technical Specifications, A-003-2.3		Submittal and approval required prior to the issuance of the Notice to Proceed
7.	**Stormwater Discharge Permit ï Notice of Intent (NOI)** Technical Specifications, A-003-2.4		Submit permit
8.	**P-153 Controlled Low-Strength Material** Technical Specifications, P-153-3.1		Prequalification Material Testing and Mix Design
9.	**P-209 Crushed Aggregate Base Course** Technical Specifications, P-209-2.1 & 2.2		Prequalification Material Testing
10.	**P-301 Soil-Cement Base Course** Technical Specifications, P-301-2.1, 2.3, 2.4, & 3.1		Material Certification & Mix Design
11.	**P-401 Hot Mix Asphalt Pavement** Technical Specifications, P-401-2.1, 2.2, 2.3, 2.4, 3.2, & 3.4		Prequalification Material Testing and Job Mix Formula (JMF)
12.	**P-603 Bituminous Tack Coat** Technical Specifications, P-603-2.1		Material Certification
13.	**P-608 Emulsified Asphalt Seal Coat** Technical Specifications, P- 608-2.1, 2.2, 2.4, 5.1, & 5.2		Material Certification; Equipment Calibration Certification; Manufacturer's Representation; Contractor's Qualifications
14.	**P-610 Structural Portland Cement Concrete** Technical Specifications, P-610-2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 2.9, 3.2, & 3.3		Prequalification Material Testing, Reactivity Testing, and Mix Design
15.	**P-620 Runway and Taxiway Marking** Technical Specifications, P-620-2.1, 2.2, & 2.3		Material Certification
16.	**F-162 Chain Link Fence** Technical Specifications, F-162-2.1, 2.2, 2.3, 2.5, & 2.6		Material Certification

Submittal No.	Description	Action*	Remarks
17.	**L-115 Pullbox** Technical Specifications, L-115-2.1, 2.2, 2.4, 2.6, 2.8, & 2.14		Material Certification
18.	**Record Drawings** Technical Specifications, A-001-1.6 FAA General Provisions, Section 90-11		Reviewed with each monthly pay request and submitted with Project Closeout

***NET= No Exceptions Taken; IEN=Implement Exceptions Noted; R/R = Revise and Resubmit; INC/R=Incomplete, Resubmit / Rejected**

Mead & Hunt's review is only for general conformance with the design concept of the Project, Specifications and Drawings. Corrections or comments made on the shop drawings during this review does not relieve the contractor from compliance with the requirements of the plans and specifications and applicable codes.

"No exception taken" for a specific item shall not mean acceptance or approval of an assembly of which the item is a component. Contractor is responsible for means, methods, techniques, sequences, materials, fabrication, and correctness of construction and for performing all Work and that of all other trades in a safe and satisfactory manner.

Appendix B
Geotechnical Report

Western Technologies Inc.

GEOTECHNICAL EVALUATION REPORT

SCOTTSDALE AIRPORT
PROPOSED DELTA APRON RECONSTRUCTION

WT Reference No. 2127JA202

PREPARED FOR:
Mead & Hunt
8777 East Via de Ventura, Suite 398
Scottsdale, Arizona 85258
Attn: Scott Van Gompel, P.E.

February 28, 2018

Registered Professional Engineer (Civil)
CERTIFICATE NO.
27947
RANDOLPH
MARWIG
Date Signed 2-28-18
ARIZONA, U.S.A.
Expires 06/30/18

for

Armando de la Rocha, P.E.
Senior Geotechnical Engineer

Randolph Marwig, P.E.
Senior Geotechnical Engineer

February 28, 2018

Mead & Hunt
8777 East Via de Ventura, Suite 398
Scottsdale, Arizona 85258

Attn: Mr. Scott Van Gompel, P.E.
Project Manager

Re: Geotechnical Evaluation Job. No. 2127JA202
Scottsdale Airport – Delta Apron Reconstruction
Scottsdale, Arizona

INTRODUCTION

Western Technologies Inc. (WT) has performed geotechnical engineering and pavement evaluation services at Scottsdale Airport for the proposed reconstruction of the Delta apron in accordance with our proposal (Ref. No. 2127PA250) dated November 2, 2017. A field exploration consisting of subsurface exploration/soil borings was conducted on December 26 and 29, 2017. The results of that work and subsequent laboratory testing of soils were used to develop this report.

PROJECT DESCRIPTION

Based on information provided by Client, the project will consist of the potential reconstruction of the Delta apron at the Scottsdale Municipal Airport located in Scottsdale, Arizona. Based on project information provided by Client and on Google Earth software, the approximate area of the Delta apron is about 344,000 sq. ft. The existing apron is currently paved with asphalt concrete (AC). It is considered that the replacing pavement section will be similar to pavement sections that have been used on other aprons at this airport in which a soil cement treatment has been applied to the existing subgrade. Pavement rehabilitation alternatives such as Full Depth Reclamation (FDR) might also be considered for reconstruction of the existing apron. The Client will notify WT should any of our information or assumptions not be correct.

The purpose of our geotechnical engineering services was to perform subsurface exploration consisting of coring existing asphalt concrete layer, drilling soil borings, and to perform laboratory testing on subgrade soils samples and asphalt concrete cores for development of pavement design recommendation.

It is understood that the design of the pavement section will be performed by Client based on the results of this field exploration and laboratory test results.

SUBSURFACE EXPLORATION

The subsurface exploration consisted on advancing a total of 17 soils borings to a depth of ten (10) feet below existing site grade. The approximate locations of the soil borings, are shown on Plate 2, entitled Boring Location Diagram. The logs of the borings are included in Appendix A of this report. Strata encountered during the subsurface exploration were identified and logged. Loose and relatively undisturbed samples were taken and submitted to the WT materials laboratory for testing. The borings were backfilled with native material at each boring and capped with non-shrink grout. Coring and saw cutting of the asphalt concrete pavement were performed before advancing the soil borings.

Soils encountered in the borings located throughout the apron area consisted predominantly of low to medium plastic, moist to wet, soft to very stiff Sandy CLAY (CL)/Sandy SILT and CLAY (CL-ML) and moist, very loose to medium Clayey SAND (SC)/Silty SAND (SM); at some boring locations a poorly graded SAND (SP) layer was encountered at a depth of about 8 ft below existing site grade. Soil strata and classifications are shown on the attached boring logs.

It should be noted that at the location of Boring No. 17, an asphalt layer of approximately 6-inch thick was encountered at a depth of about 3 ft below existing site grade indicating that this area might be a fill area. It should also be noted the relatively wide variability in terms of penetration blow count and in-situ moisture content encountered throughout the Delta apron area at the subgrade level; the penetration blow count ranged from about 2 to 24. The in-situ moisture content ranged from about 10.1 percent to 21.2 percent; at some locations the in-situ moisture content was higher than the plastic limit (PL) of the subgrade soil.

The pavement structural sections encountered at the borings are presented in the following table:

Location	AC (in.)	ABC (in.)	Total Thickness (in.)
B-1	4.5	10	14.5
B-2	4.0	10	14.0
B-3	4.5	11	15.5
B-4	4.5	9	13.5
B-5	4.5	10	14.5
B-6	4.5	11	15.5
B-7	4.0	10	14.0
B-8	4.0	9	13.0
B-9	4.0	10	14.0
B-10	3.5	10	13.5
B-11	3.5	10	13.5
B-12	4.5	8	12.5
B-13	4.5	10	14.5
B-14	4.0	10	14.0
B-15	4.0	12	16.0
B-16	4.5	6	10.5
B-17	5.0	10	15.0
Mean	**4.24**	**9.8**	**14.00**
St. Deviation	**0.400**	**1.30**	**1.287**

LABORATORY TESTING

Soil samples obtained during the subsurface exploration were tested in WT's materials laboratories. Laboratory testing on collected subgrade soil samples consisted of in-situ dry density and moisture content, maximum dry density/optimum moisture relationship (Proctor), California Bearing Ratio (CBR), and water soluble sulfate content. Testing was also performed on selected asphalt concrete cores; the testing on the asphalt concrete cores consisted of asphalt binder extraction and binder content, gradation on the recovered aggregates, absolute viscosity, penetration, and specific gravity of the recovered binder. Some of the collected cores were assigned to two different groups: 1) Cores 3, 9, and 12; 2) 8, 10, and 11. The cores show two distinct layers: a top lift of approximately 1-inch thick; and a bottom lift (see pictures of the cores in the appendices). The top lift from each of the cores was separated from the bottom lift and this portion of the cores was combined and tested as a group to determine its properties. The testing of the bottom lift portion was performed as the groups indicated above. All laboratory test results are presented in Appendix B, and are summarized herein.

Relatively undisturbed samples obtained from the borings indicated in-situ dry densities ranging from 96 to 121 pounds-per-cubic-foot (pcf). In-situ moisture contents ranged from 10.1 to 21.2 percent. The percent material passing the No. 200 sieve ranged from 42 to 75 percent. The tested materials were predominantly low to medium plasticity Sandy CLAY (CL) to Clayey SAND (SC) with liquid limit (LL) ranging from 21 to 31 and plasticity index (PI) ranging from 2 to 13.

Three maximum dry density/optimum moisture tests (Proctors) were performed on representative samples from borings No. 6, 9 and 13. The tests were performed in accordance with ASTM D-1557. The maximum dry density of the samples tested ranged from 124.6 to 129.5 pcf, with optimum moisture contents ranging from 7.7 to 9.1 percent.

Three 3-point California Bearing Ratio (CBR) test were performed on the same samples tested for Proctor tests. The samples were compacted to dry densities ranging from about 90 to 101 percent of their maximum dry density values and to percent moisture content relatively close or slightly above to the optimum moisture content values. The resulting CBR values for the test ranged from about 7 to about 17. The CBR values representing 95% of the modified Proctor density ranged from about **8** (extrapolated value to 95%) to **12.** CBR test results indicated that swell ranged from 0.1 to 1.7 percent under a surcharge weight of 25 pounds. Therefore, the subgrade soils will not require treatment for swell potential. Plates B-2 to B-7 present the results of the CBR test.

Sulfate content of the samples tested yielded results ranging from 6 to 17 parts-per-million (ppm). Plate B-8 presents the results for the water soluble sulfate content test. Results of the tests performed on the asphalt concrete samples obtained at the different locations are presented in the following table. The cores were assigned to three different groups: 1) Top lift (B3, B8, B9, B10, B11, and B12); 2) Bottom lift (B8, B10 and B11); and 3) Bottom lift (B3, B9, and B12). The tests performed were asphalt content, penetration, absolute viscosity, and specific gravity of recovered binder, gradation of recovered aggregate.

	TOP LIFT B3,B8,B9,B10,B11,B12	BOTTOM LIFT B8, B10,B11	BOTTOM LIFT B3,B9,B12
Asphalt Content (%)	7.4	6.2	5.5
Penetration, 77°F, dmm	8	6	(*)
Absolute Viscosity, 140°F, poise	$3.32x10^6$	$7.65x10^5$	(*)
Binder Specific Gravity	1.039	1.046	(*)
1"			100
¾"		100	98
½"	100	95	90
3/8"	90	83	81
¼"	64	69	66
#4	50	62	59
#8	32	52	48
#10	29	51	46
#16	23	45	39
#30	17	33	30
#40	15	27	24
#50	12	20	18
#100	8	11	9
#200	5.8	6.5	6.2

(*) Recovered binder was too brittle (glassy) for testing.

The above results indicate that the bitumen content of the samples ranges from 5.5 to 7.4 percent; the absolute viscosity of the recovered asphalt binder ranges from $7.65x10^5$ poises to non-measurable, penetration of the recovered asphalt binder was from 6 dmm to non-measureable, and the specific gravity of the recovered binder ranged from 1.039 to non-measurable. The results indicate that the asphalt binder has significantly aged due to exposure to the elements such as by oxidation and loss of volatile components; some of the absolute viscosity results – non-measurable ones – are indicating significant aging of the asphalt binder. The results indicate that the existing asphalt may be brittle and any milling action (if mill and overlay alternatives are being considered) might affect the layers supporting the newly placed asphalt concrete layers that would rehabilitate the apron surface. Results for the testing performed on the asphalt concrete are presented on Plates B-9 to B-11.

PAVEMENT DESIGN PARAMETER RECOMMENDATIONS

As mentioned above, the design of the pavement structural sections will be performed by Client. The subgrade soil strength design parameter needed for flexible pavement design using the FAA design procedure, FAARFIELD, is the CBR value or the modulus values, E (E = 1,500 x CBR; E in psi). The CBR values obtained at 95% Compaction of ASTM D1557 during the laboratory testing phase were 8, 11, and 12; the design CBR could be obtained by subtracting one standard deviation from the average value which in this particular case would correspond to a design value of **8.2** (average value of 10.3 minus one standard deviation of 2.1).

The field exploration shows areas with relatively high moisture content (moisture content higher than the plastic limit of the subgrade soil) and relatively soft condition (low penetration blow count). Because the CBR of the subgrade is lower than 20, a subbase material is required by the FAA. Either P-154 or P-301 may be used; however, based on our experience a P-154 subbase is the most common. Placement of the P-154 may be difficult with high moisture contents in the subgrade at the time of construction. Based on previous experience at Scottsdale Airport under similar conditions, it has been recommended to provide some form of stabilization to the supporting layers of the asphalt concrete either as a working platform or as part of the pavement structural section. If this alternative is pursued, conversion of the required aggregate base course to either cement treated base course or soil cement base course could be performed by using appropriate layer equivalency factors such as: 1) 1.5 between Soil Cement Base Course (P-301) and sub-base course (P-154), and 2) 1.5 between Cement Treated Base Course (P-304) and aggregate base course (P-209). For those pavement sections consisting of an asphalt concrete course overlying a cement treated base course, it would be necessary to provide a bond breaker between these two layers. A stress absorbing membrane interlayer (ADOT 410) would provide the bond breaking function. If the required thickness of the resulting pavement structural section relatively thick, an aggregate layer between the AC layer and the stabilized layer (Soil Cement Base Course) would provide the bond breaking function.

Based on the expected maximum weight of the aircraft to use the apron (99,750 lbs) the mix design for the apron reconstruction should be performed using the Marshall method with 75 blows per specimen face. Asphalt cement should comply with the requirements for PG 76-22 binder in accordance with AASHTO MP1-93, Specification for Performance Graded Asphalt Binder. A tack coat should be applied in accordance with FAA Item P-603 between lifts of asphalt concrete if more than one lift is anticipated for placing this layer.

EARTHWORK RECOMMENDATIONS

Earthwork to be performed should comply with the requirements of Item P-152 “Excavation and Embankment” of FAA AC No. 150/5370-10A. The subgrade compaction requirements for the apron, according to FAA AC No. 150/5320-6F, are computed by FAARFIELD after the thickness design is completed. It is understood that the Client will perform the FAARFIELD analysis and design for determining the required pavement structural section.

For earthwork design, excavation quantities are estimated to shrink 12 percent when compacted as embankment. Ground compaction of 0.1 foot is estimated when placing embankment on previously uncompacted soils.

CLOSURE

This report concludes our scope of services for the Scottsdale Airport Delta Apron reconstruction project. The boring logs and related information included in this report are indicators of subsurface conditions only at the specific locations and times noted. The recommendations presented are based in

part upon data derived from a limited number of samples obtained from widely spaced subsurface explorations. Variations from the field conditions represented by the borings may become evident during construction. If variations appear, we should be contacted to re-evaluate our recommendations.

We prepared this report as an aid to the designers of the proposed project. The comments, statement, recommendations and conclusions set forth in this report reflect the opinions of the authors. These opinions are based upon conditions at the location of specific tests, observations and data developed to satisfy the scope of services defined by the contract documents.
Work on your project was performed in accordance with generally accepted industry standards and practices by professionals providing similar services in this locality. No other warranty, express or implied, is made.

Sincerely,
WESTERN TECHNOLOGIES INC.

Armando de la Rocha, P.E.
Senior Geotechnical Engineer

Randolph H. Marwig, P.E.
Senior Geotechnical Engineer

Attachments: Boring/Coring Location Diagram
Boring Log Notes and Boring Logs, Appendix A
Laboratory Test Results, Appendix B
Pictures, Appendix C

Copies to: Addressee (electronic)

NORTH

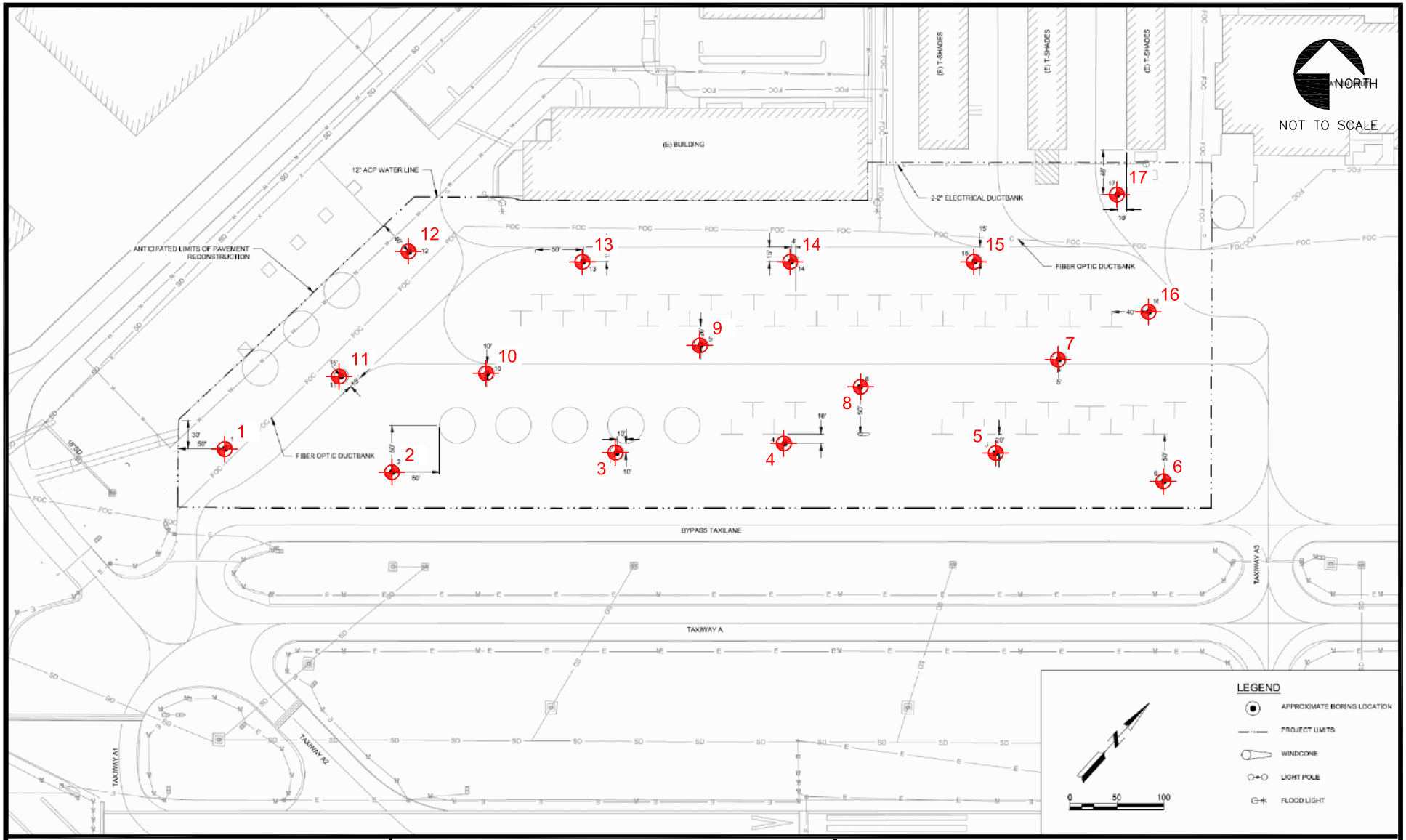
NOT TO SCALE

Geotechnical
Environmental
Inspections
Materials

Western Technologies Inc.
The Quality People
Since 1955

PLATE 1. **SITE VICINITY MAP**
Geotechnical Investigation
Scottsdale Airport
Delta Apron Reconstruction

WT Job No. 2127JA202



Mead & Hunt, Inc.

LEGEND

Approximate Boring Location

Geotechnical
Environmental
Inspections
Materials

Western Technologies Inc.
The Quality People
Since 1955

PLATE 2. **BORING LOCATION DIAGRAM**
Geotechnical Investigation
Scottsdale Airport
Delta Apron Reconstruction

WT Job No. 2127JA202

Allowable Soil Bearing Capacity	The recommended maximum contact stress developed at the interface of the foundation element and the supporting material.
Backfill	A specified material placed and compacted in a confined area.
Base Course	A layer of specified aggregate material placed on a subgrade or subbase.
Base Course Grade	Top of base course.
Bench	A horizontal surface in a sloped deposit.
Caisson/Drilled Shaft	A concrete foundation element cast in a circular excavation which may have an enlarged base (or belled caisson).
Concrete Slabs-On-Grade	A concrete surface layer cast directly upon base course, subbase or subgrade.
Crushed Rock Base Course	A base course composed of crushed rock of a specified gradation.
Differential Settlement	Unequal settlement between or within foundation elements of a structure.
Engineered Fill	Specified soil or aggregate material placed and compacted to specified density and/or moisture conditions under observations of a representative of a soil engineer.
Existing Fill	Materials deposited through the action of man prior to exploration of the site.
Existing Grade	The ground surface at the time of field exploration.
Expansive Potential	The potential of a soil to expand (increase in volume) due to absorption of moisture.
Fill	Materials deposited by the actions of man.
Finished Grade	The final grade created as a part of the project.
Gravel Base Course	A base course composed of naturally occurring gravel with a specified gradation.
Heave	Upward movement.
Native Grade	The naturally occurring ground surface.
Native Soil	Naturally occurring on-site soil.
Rock	A natural aggregate of mineral grains connected by strong and permanent cohesive forces. Usually requires drilling, wedging, blasting or other methods of extraordinary force for excavation.
Sand and Gravel Base Course	A base course of sand and gravel of a specified gradation.
Sand Base Course	A base course composed primarily of sand of a specified gradation.
Scarify	To mechanically loosen soil or break down existing soil structure.
Settlement	Downward movement.
Soil	Any unconsolidated material composed of discrete solid particles, derived from the physical and/or chemical disintegration of vegetable or mineral matter, which can be separated by gentle mechanical means such as agitation in water.
Strip	To remove from present location.
Subbase	A layer of specified material placed to form a layer between the subgrade and base course.
Subbase Grade	Top of subbase.
Subgrade	Prepared native soil surface.

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COARSE-GRAINED SOILS

LESS THAN 50% FINES

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
GW	WELL-GRADED GRAVEL OR WELL-GRADED GRAVEL WITH SAND, LESS THAN 5% FINES	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE
GP	POORLY-GRADED GRAVEL OR POORLY-GRADED GRAVEL WITH SAND, LESS THAN 5% FINES	
GM	SILTY GRAVEL OR SILTY GRAVEL WITH SAND, MORE THAN 12% FINES	
GC	CLAYEY GRAVEL OR CLAYEY GRAVEL WITH SAND, MORE THAN 12% FINES	
SW	WELL-GRADED SAND OR WELL-GRADED SAND WITH GRAVEL, LESS THAN 5% FINES	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE
SP	POORLY-GRADED SAND OR POORLY-GRADED SAND WITH GRAVEL, LESS THAN 5% FINES	
SM	SILTY SAND OR SILTY SAND WITH GRAVEL, MORE THAN 12% FINES	
SC	CLAYEY SAND OR CLAYEY SAND WITH GRAVEL, MORE THAN 12% FINES	

NOTE: Coarse-grained soils receive dual symbols if they contain 5% to 12% fines (e.g., SW-SM, GP-GC).

FINE-GRAINED SOILS

MORE THAN 50% FINES

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
ML	SILT, SILT WITH SAND OR GRAVEL, SANDY SILT, OR GRAVELLY SILT	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50
CL	LEAN CLAY OF LOW TO MEDIUM PLASTICITY, SANDY CLAY, OR GRAVELLY CLAY	
OL	ORGANIC SILT OR ORGANIC CLAY OF LOW TO MEDIUM PLASTICITY	
MH	ELASTIC SILT, SANDY ELASTIC SILT, OR GRAVELLY ELASTIC SILT	SILTS AND CLAYS LIQUID LIMIT MORE THAN 50
CH	FAT CLAY OF HIGH PLASTICITY, SANDY FAT CLAY, OR GRAVELLY FAT CLAY	
OH	ORGANIC SILT OR ORGANIC CLAY OF HIGH PLASTICITY	
PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	HIGHLY ORGANIC SOILS

NOTE: Fine-grained soils may receive dual classification based upon plasticity characteristics (e.g. CL-ML).

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	Above 12 in.
COBBLES	3 in. – 12 in.
GRAVEL	No. 4 – 3 in.
Coarse	¾ in. – 3 in.
Fine	No. 4 – ¾ in.
SAND	No. 200 – No. 4
Coarse	No. 10 – No. 4
Medium	No. 40 – No. 10
Fine	No. 200 – No. 40
Fines (Silt or Clay)	Below No. 200

NOTE: Only sizes smaller than three inches are used to classify soils

CONSISTENCY

CLAYS & SILTS	BLOWS PER FOOT
VERY SOFT	0 – 2
SOFT	3 – 4
FIRM	5 – 8
STIFF	9 – 15
VERY STIFF	16 – 30
HARD	OVER 30

RELATIVE DENSITY

SANDS & GRAVELS	BLOWS PER FOOT
VERY LOOSE	0 – 4
LOOSE	5 – 10
MEDIUM DENSE	11 – 30
DENSE	31 – 50
VERY DENSE	OVER 50

NOTE: Number of blows using 140-pound hammer falling 30 inches to drive a 2-inch-OD (1⅜-inch ID) split-barrel sampler (ASTM D1586).

PLASTICITY OF FINE GRAINED SOILS

PLASTICITY INDEX	TERM
0	NON-PLASTIC
1 – 7	LOW
8 – 20	MEDIUM
Over 20	HIGH

DEFINITION OF WATER CONTENT

DRY
SLIGHTLY DAMP
DAMP
MOIST
WET
SATURATED

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The number shown in **"BORING NO."** refers to the approximate location of the same number indicated on the "Boring Location Diagram" as positioned in the field by pacing or measurement from property lines and/or existing features, or through the use of Global Positioning System (GPS) devices. The accuracy of GPS devices is somewhat variable.

"DRILLING TYPE" refers to the exploratory equipment used in the boring wherein **HSA = hollow stem auger**, and the dimension presented is the outside diameter of the HSA used.

"N" in "BLOW COUNTS" refers to a 2-inch outside diameter split-barrel sampler driven into the ground with a 140 pound drop-hammer dropped 30 inches repeatedly until a penetration of 18 inches is achieved or until refusal. The number of blows, or "blow count", of the hammer is recorded for each of three 6-inch increments totaling 18 inches. The number of blows required for advancing the sampler for the last 12 inches (2nd and 3rd increments) is defined as the Standard Penetration Test (SPT) "**N**"-Value. Refusal to penetration is considered more than 50 blows per 6 inches. (Ref. ASTM D1586).

"R" in "BLOW COUNTS" refers to a 3-inch outside diameter ring-lined split barrel sampler driven into the ground with a 140 pound drop-hammer dropped 30 inches repeatedly until a penetration of 12 inch is achieved or until refusal. The number of blows required to advance the sampler 12 inches is defined as the "**R**" blow count. The "**R**" blow count requires an engineered conversion to an equivalent SPT N-Value. Refusal to penetration is considered more than 50 blows per foot. (Ref. ASTM D3550).

"CS" in "BLOWS/FT." refers to a 2½-in. outside diameter California style split-barrel sampler, lined with brass sleeves, driven into the ground with a 140-pound hammer dropped 30 inches repeatedly until a penetration of 18 inches is achieved or until refusal. The number of blows of the hammer is recorded for each of the three 6-inch increments totaling 18 inches. The number of blows required for advancing the sampler for the last 12 inches (2nd and 3rd increments) is defined as the "CS" blow count. The "CS" blow count requires an engineered conversion to an equivalent SPT N-Value. Refusal to penetration is considered more than 50 blows for a 6-inch increment. (Ref. ASTM D 3550)

"SAMPLE TYPE" refers to the form of sample recovery, in which **N** = Split-barrel sample, **R** = Ring-lined sample, **"CS"** = California style split-barrel sample, **G** = Grab sample, **B** = Bucket sample, **C** = Core sample (ex. diamond bit rock coring).

"DRY DENSITY (LBS/CU FT)" refers to the laboratory-determined dry density in pounds per cubic foot. The symbol **"NR"** indicates that no sample was recovered.

"WATER (MOISTURE) CONTENT" (% of Dry Wt.) refers to the laboratory-determined water content in percent using the standard test method ASTM D2216.

"USCS" refers to the "Unified Soil Classification System" Group Symbol for the soil type as defined by ASTM D2487 and D2488. The soils were classified visually in the field, and where appropriate, classifications were modified by visual examination of samples in the laboratory and/or by appropriate tests.

These notes and boring logs are intended for use in conjunction with the purposes of our services defined in the text. Boring log data should not be construed as part of the construction plans nor as defining construction conditions.

Boring logs depict our interpretations of subsurface conditions at the locations and on the date(s) noted. Variations in subsurface conditions and characteristics may occur between borings. Groundwater levels may fluctuate due to seasonal variations and other factors.

The stratification lines shown on the boring logs represent our interpretation of the approximate boundary between soil or rock types based upon visual field classification at the boring location. The transition between materials is approximate and may be more or less gradual than indicated.

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DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 1

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4.5" AC over 10" ABC
13.5	111	R G		11		CL-ML		Sandy SILT and CLAY; trace fine gravel, brown, moist, firm to stiff
					5	CL		Sandy CLAY; brown, moist
						SP		Poorly-graded SAND; trace clay, tan to light brown, damp
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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Environmental
Inspections
Materials

Western Technologies Inc.
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Since 1955

PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-4

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 2

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4" AC over 10" ABC
11.9	119	R G		16	5	CL		Sandy CLAY; trace gravel, brown, moist, stiff no gravel
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-5

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 3

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4.5" AC over 11" ABC
						CL		Sandy CLAY trace gravel; brown, wet, soft,
20.3	98	R G		6				
					5			increase in clay content
								fine gravel
						SP		Poorly-graded SAND; with fine gravel, trace clay, tan, damp
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE **A-6**

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 4

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4.5" AC over 9" ABC
16.7	104	R G		5	5	CL		Sandy CLAY; brown, wet, soft
					10	SP		Poorly-graded SAND; with fine gravel, trace clay, tan, damp
								End of Boring at 10 Feet

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

PLATE
A-7

BORING LOG

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 5

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4.5" AC over 10" ABC
11.8	120	R G		24	5	SC		Clayey SAND; with gravel, brown, moist, medium dense
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-8

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 6

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4.5" AC over 11" ABC
15.2	105	R B		6	5	SC-SM		Clayey Silty SAND; with gravel, light brown, moist, very loose
					10	SP		Poorly-graded SAND; trace clay and fine gravel, tan, damp
								End of Boring at 10 Feet

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-9

DATE DRILLED: **12-29-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 7

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4" AC over 10" ABC
12.3	121	R B		20	5	SC		Clayey SAND; trace gravel, brown, medium dense, moist
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-10

DATE DRILLED: **12-29-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 8

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4" AC over 9" ABC
13.5	120	R G		20	5	CL		Sandy CLAY; with gravel, brown, stiff, moist no gravel
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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BORING LOG

PLATE
A-11

DATE DRILLED: **12-29-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 9

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4" AC over 10" ABC
15.1	111	R B		14	5	CL		Sandy CLAY; trace gravel, brown, wet, stiff decrease in clay content
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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BORING LOG

PLATE
A-12

DATE DRILLED: **12-29-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 10

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								3.5" AC over 10" ABC
						SC		Clayey SAND; trace fine gravel, brown, medium dense, moist
13.7	114	R G		17				
					5			
								decrease in clay content, no gravel
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
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PLATE
A-13

BORING LOG

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 11

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								3.5" AC over 10" ABC
						SM		Silty SAND; with fine gravel, brown, moist, very loose
10.1	101	R G		2				decrease in silt content
					5			increase in silt content
								trace gravel
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE **A-14**

DATE DRILLED: **12-29-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 12

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4.5" AC over 8" ABC
13.3	118	R B		17	5	SC		Clayey SAND; with gravel, brown, moist, medium dense
						CL		Sandy CLAY; brown, moist
					10	SP		Poorly-graded SAND; with gravel, tan, damp
								End of Boring at 10 Feet

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-15

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 13

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4.5" AC over 10" ABC
14.5	114	R B		23		CL-ML		Sandy SILT and CLAY; brown, moist, stiff to very stiff
					5			
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-16

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 14

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4" AC over 10" ABC
						CL		Sandy CLAY; with gravel, brown, wet, firm
21.2	96	R B		8				
					5			
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
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BORING LOG

PLATE
A-17

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 15

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4" AC over 12" ABC
						CL		Sandy CLAY; with gravel, brown, moist, firm to stiff
11.3	110	R G		10				
								decrease in clay content
					5			
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-18

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 16

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								4.5" AC over 6" ABC
12.8	121	G R		18		CL		Sandy CLAY; with gravel, brown, moist, stiff
					5			decrease in gravel
								increase in fine sand, decrease in clay
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-19

DATE DRILLED: **12-26-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 17

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
								5" AC over 10" ABC
13.8	112	R B		19		SC		Clayey SAND; with gravel, brown, moist, medium dense
								approximately 6" asphalt layer below surface paving materials
						SC		Clayey SAND; trace gravel, brown, moist
					5			
					10			**End of Boring at 10 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
M- OPEN SAMPLER (NO RINGS)
G- GRAB SAMPLE
B- BUCKET SAMPLE

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **DELTA APRON RECONSTRUCTION**
PROJECT NO.: **2127JA202**

BORING LOG

PLATE
A-20

PHYSICAL PROPERTIES

Boring No.	Depth (ft)	Soil Class.	Particle Size Distribution (%) Passing by Weight						Atterberg Limits		Moisture-Density Relationship			CBR @ 95%	Remarks
			1"	¼"	#4	#10	#40	#200	LL	PI	Dry Density (pcf)	Optimum Moisture (%)	Method		
B-1	2 - 5	CL-ML	100	93	90	80	72	62	23	4					2
B-3	2 - 5	CL	100	97	95	86	75	65	31	13					2
B-4	2 - 5	CL	100	97	95	87	76	67	29	10					2
B-6	2 - 5	SC-SM	100	94	87	69	56	48	24	7	129.5	7.7	A	8(*)	2,5,6
B-7	2 - 5	SC	100	91	88	75	60	48	29	11					2
B-9	2 - 5	CL	100	98	97	91	86	71	25	8	124.6	8.5	A	11	2,5,6
B-11	2 - 5	SM	100	92	86	67	53	42	21	2					2
B-13	2 - 5	CL-ML	100	98	96	92	86	75	25	7	125.6	9.1	A	12	2,5
B-14	2 - 5	CL	100	97	95	89	82	73	28	9					2
B-16	2 - 5	CL	97	88	86	77	66	54	27	9					2
B-17	1 - 4	SC	98	79	76	68	56	46	25	8					2

NOTE: NP = Non-plastic

REMARKS

Classification / Particle Size / Moisture-Density Relationship

1. Visual
2. Laboratory Tested
3. Minus #200 Only
4. Test Method ASTM D698/AASHTO T99
5. Test Method ASTM D1557/AASHTO T180
6. CBR at 95% Compaction ASTM D1557; (*) Projected value at 95% Compaction ASTM D1557

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PROJECT: SCOTTSDALE AIRPORT – DELTA APRON RECONSTRUCTION

JOB NO.: 2127JA202

PHYSICAL PROPERTIES

PLATE

B-1

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CALIFORNIA BEARING RATIO (CBR)

Client **MEAD & HUNT**
8777 EAST VIA DE VENTURA, SUITE 398
SCOTTSDALE, AZ 85258

Date of Report **1/17/2018**
Job No. **2127JA202**
Event / Invoice No. Lab No.
Authorized By **S. VAN GOMPEL** Date
Sampled By **M. KLEINHOLZ** Date **12/29/17**
Submitted By **M. KLEINHOLZ** Date **12/29/17**

Project **SCOTTSDALE AIRPORT – DELTA APRON RECONSTRUCTION** Location **SCOTTSDALE AIRPORT**
Type / Use of Material **SUBGRADE** Supplier / Source **SUBGRADE**
Sample Source / Location **BORING NO. 6** Source / Location Desig. By **A. DE LA ROCHA** Date **12/29/17**
Testing Authorized **S. VAN GOMPEL**

TEST RESULTS

LABORATORY COMPACTION CHARACTERISTICS ☐ ASTM D698 ☐ AASHTO T99 ☒ ASTM D1557 ☐ AASHTO T180 METHOD

MAXIMUM DRY DENSITY, PCF	129.5
OPTIMUM MOISTURE, %	7.7

BEARING RATIO OF LABORATORY-COMPACTED SPECIMENS, ASTM D1883

COMPACTIVE EFFORT, BLOWS PER LAYER	7	25	56
DRY DENSITY AT COMPACTION, PCF	124.7	129.3	130.3
PERCENT OF MAXIMUM DRY DENSITY, %	96.3	99.9	100.6
MOISTURE BEFORE COMPACTION, %	8.7	9.2	8.7
MOISTURE AFTER COMPACTION, %	8.3	8.9	9.0
DRY DENSITY AFTER SOAKING, PCF	125.2	130.0	130.2
MOISTURE AFTER SOAKING (TOP ONE INCH), %	11.3	9.5	9.0
MOISTURE AFTER SOAKING (AVERAGE OF TOTAL SAMPLE), %	10.4	9.4	9.6
SWELL, %	0.9	0.2	0.1
CALIFORNIA BEARING RATIO AT 0.100 INCH PENETRATION	9	10	7
CALIFORNIA BEARING RATIO AT 0.200 INCH PENETRATION	9	11	9
SURCHARGE WEIGHT, LBS.	25	25	25
PERCENT OF PLUS 19 MM MATERIAL, %	0	0	0

Comments:

Copies To: **CLIENT – (1)**

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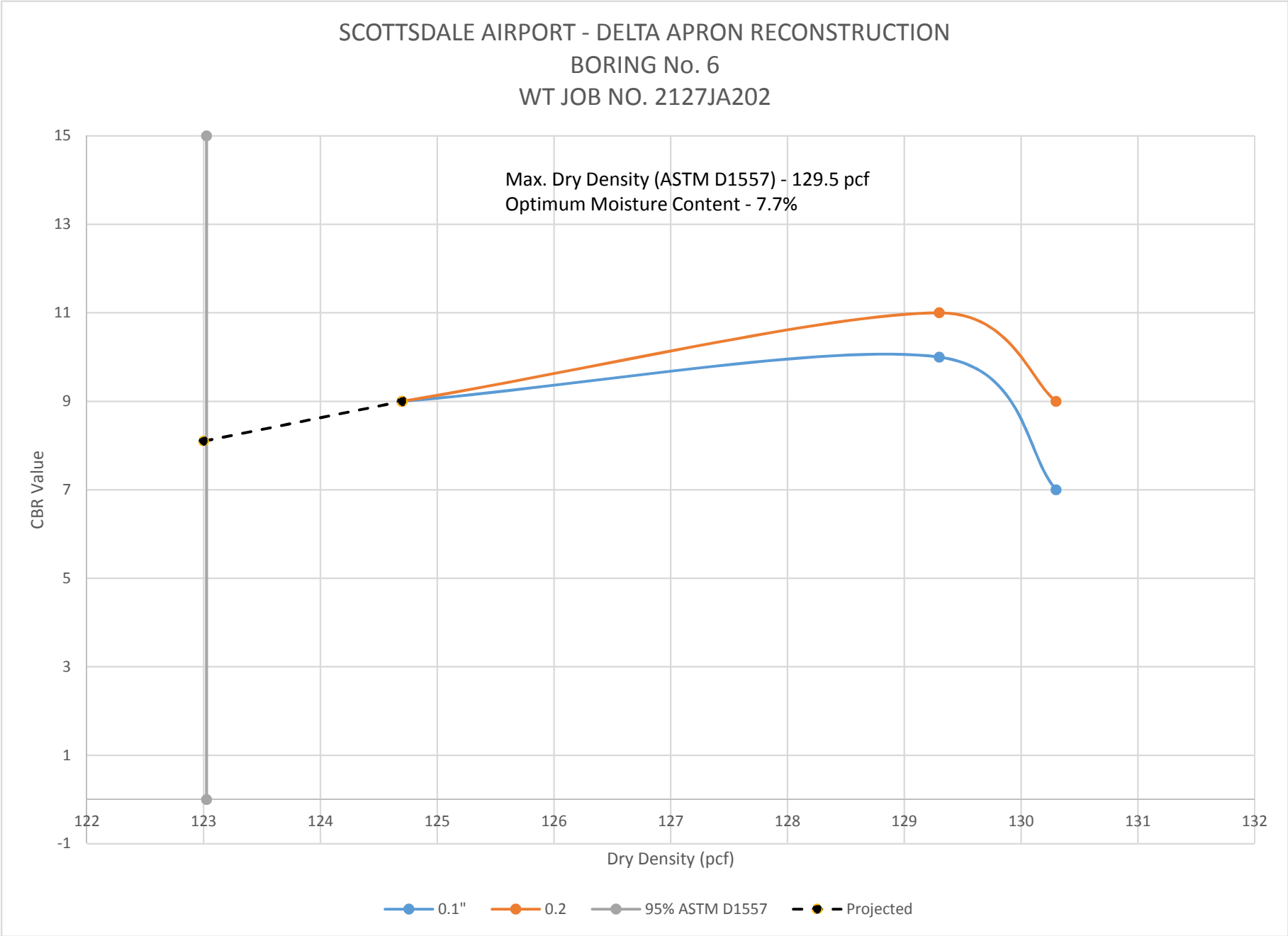
SCOTTSDALE AIRPORT - DELTA APRON RECONSTRUCTION
BORING No. 6
WT JOB NO. 2127JA202
Max. Dry Density (ASTM D1557) - 129.5 pcf
Optimum Moisture Content - 7.7%
CBR Value
15
13
11
9
7
5
3
1
-1
122
123
124
125
126
127
128
129
130
131
132
Dry Density (pcf)
0.1"
0.2
95% ASTM D1557
Projected

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CALIFORNIA BEARING RATIO (CBR)

Client MEAD & HUNT
8777 EAST VIA DE VENTURA, SUITE 398
SCOTTSDALE, AZ 85258

Date of Report 1/17/2018
Job No. 2127JA202
Event / Invoice No. Lab No.
Authorized By S. VAN GOMPEL Date
Sampled By M. KLEINHOLZ Date 12/29/17
Submitted By M. KLEINHOLZ Date 12/29/17

Project SCOTTSDALE AIRPORT – DELTA APRON RECONSTRUCTION
Location SCOTTSDALE AIRPORT
Type / Use of Material SUBGRADE
Supplier / Source SUBGRADE
Sample Source / Location BORING NO. 9
Source / Location Desig. By A. DE LA ROCHA Date 12/29/17
Testing Authorized S. VAN GOMPEL

TEST RESULTS

LABORATORY COMPACTION CHARACTERISTICS ☐ ASTM D698 ☐ AASHTO T99 ☒ ASTM D1557 ☐ AASHTO T180 METHOD

MAXIMUM DRY DENSITY, PCF	124.6
OPTIMUM MOISTURE, %	8.5

BEARING RATIO OF LABORATORY-COMPACTED SPECIMENS, ASTM D1883

COMPACTIVE EFFORT, BLOWS PER LAYER	10	25	56
DRY DENSITY AT COMPACTION, PCF	116.1	122.0	125.3
PERCENT OF MAXIMUM DRY DENSITY, %	93.2	97.9	100.5
MOISTURE BEFORE COMPACTION, %	9.8	10.0	10.5
MOISTURE AFTER COMPACTION, %	9.9	10.5	10.4
DRY DENSITY AFTER SOAKING, PCF	115.7	121.9	125.5
MOISTURE AFTER SOAKING (TOP ONE INCH), %	15.6	14.0	12.6
MOISTURE AFTER SOAKING (AVERAGE OF TOTAL SAMPLE), %	15.1	13.0	11.9
SWELL, %	0.7	0.9	0.1
CALIFORNIA BEARING RATIO AT 0.100 INCH PENETRATION	8	17	13
CALIFORNIA BEARING RATIO AT 0.200 INCH PENETRATION	8	16	16
SURCHARGE WEIGHT, LBS.	25	25	25
PERCENT OF PLUS 19 MM MATERIAL, %	0	0	0

Comments:

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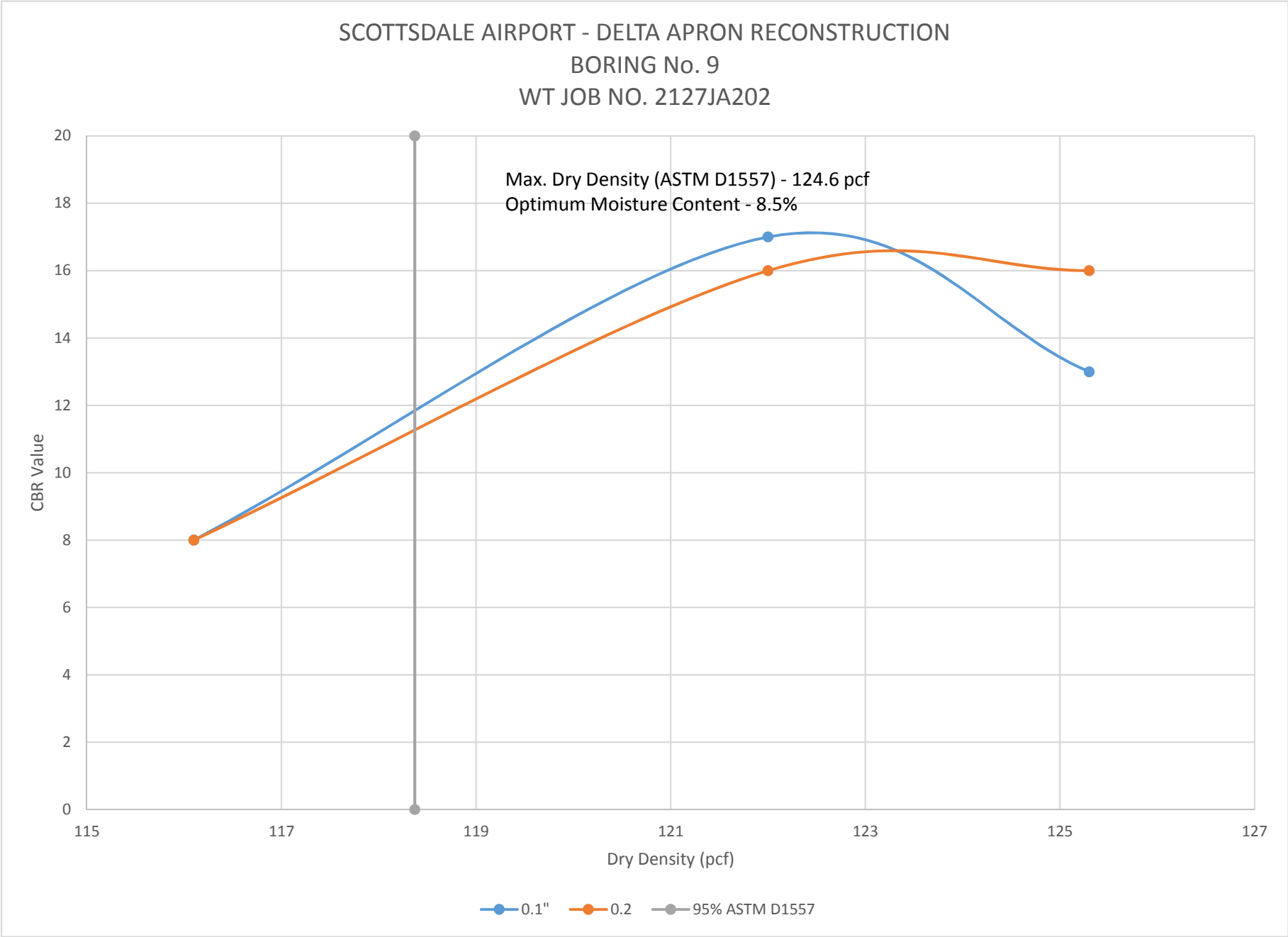
SCOTTSDALE AIRPORT - DELTA APRON RECONSTRUCTION
BORING No. 9
WT JOB NO. 2127JA202
Max. Dry Density (ASTM D1557) - 124.6 pcf
Optimum Moisture Content - 8.5%
CBR Value
Dry Density (pcf)
0
2
4
6
8
10
12
14
16
18
20
115
117
119
121
123
125
127
0.1"
0.2
95% ASTM D1557

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CALIFORNIA BEARING RATIO (CBR)

Client MEAD & HUNT
8777 EAST VIA DE VENTURA, SUITE 398
SCOTTSDALE, AZ 85258

Date of Report 1/24/2018
Job No. 2127JA202
Event / Invoice No. Lab No.
Authorized By S. VAN GOMPEL Date
Sampled By M. KLEINHOLZ Date 12/29/17
Submitted By M. KLEINHOLZ Date 12/29/17

Project SCOTTSDALE AIRPORT – DELTA APRON RECONSTRUCTION
Location SCOTTSDALE AIRPORT
Type / Use of Material SUBGRADE
Supplier / Source SUBGRADE
Sample Source / Location BORING NO. 13
Source / Location Desig. By A. DE LA ROCHA Date 12/29/17
Testing Authorized S. VAN GOMPEL

TEST RESULTS

LABORATORY COMPACTION CHARACTERISTICS ☐ ASTM D698 ☐ AASHTO T99 ☒ ASTM D1557 ☐ AASHTO T180 METHOD

MAXIMUM DRY DENSITY, PCF	125.6
OPTIMUM MOISTURE, %	9.1

BEARING RATIO OF LABORATORY-COMPACTED SPECIMENS, ASTM D1883

COMPACTIVE EFFORT, BLOWS PER LAYER	10	25	56
DRY DENSITY AT COMPACTION, PCF	113.3	119.8	121.6
PERCENT OF MAXIMUM DRY DENSITY, %	90.2	95.4	96.8
MOISTURE BEFORE COMPACTION, %	10.7	10.1	10.6
MOISTURE AFTER COMPACTION, %	11.2	11.3	11.0
DRY DENSITY AFTER SOAKING, PCF	113.3	119.6	121.4
MOISTURE AFTER SOAKING (TOP ONE INCH), %	17.4	15.1	14.9
MOISTURE AFTER SOAKING (AVERAGE OF TOTAL SAMPLE), %	16.4	14.2	13.4
SWELL, %	1.7	1.4	1.0
CALIFORNIA BEARING RATIO AT 0.100 INCH PENETRATION	8	14	13
CALIFORNIA BEARING RATIO AT 0.200 INCH PENETRATION	7	13	14
SURCHARGE WEIGHT, LBS.	25	25	25
PERCENT OF PLUS 19 MM MATERIAL, %	0	0	0

Comments:

Copies To: CLIENT – (1)

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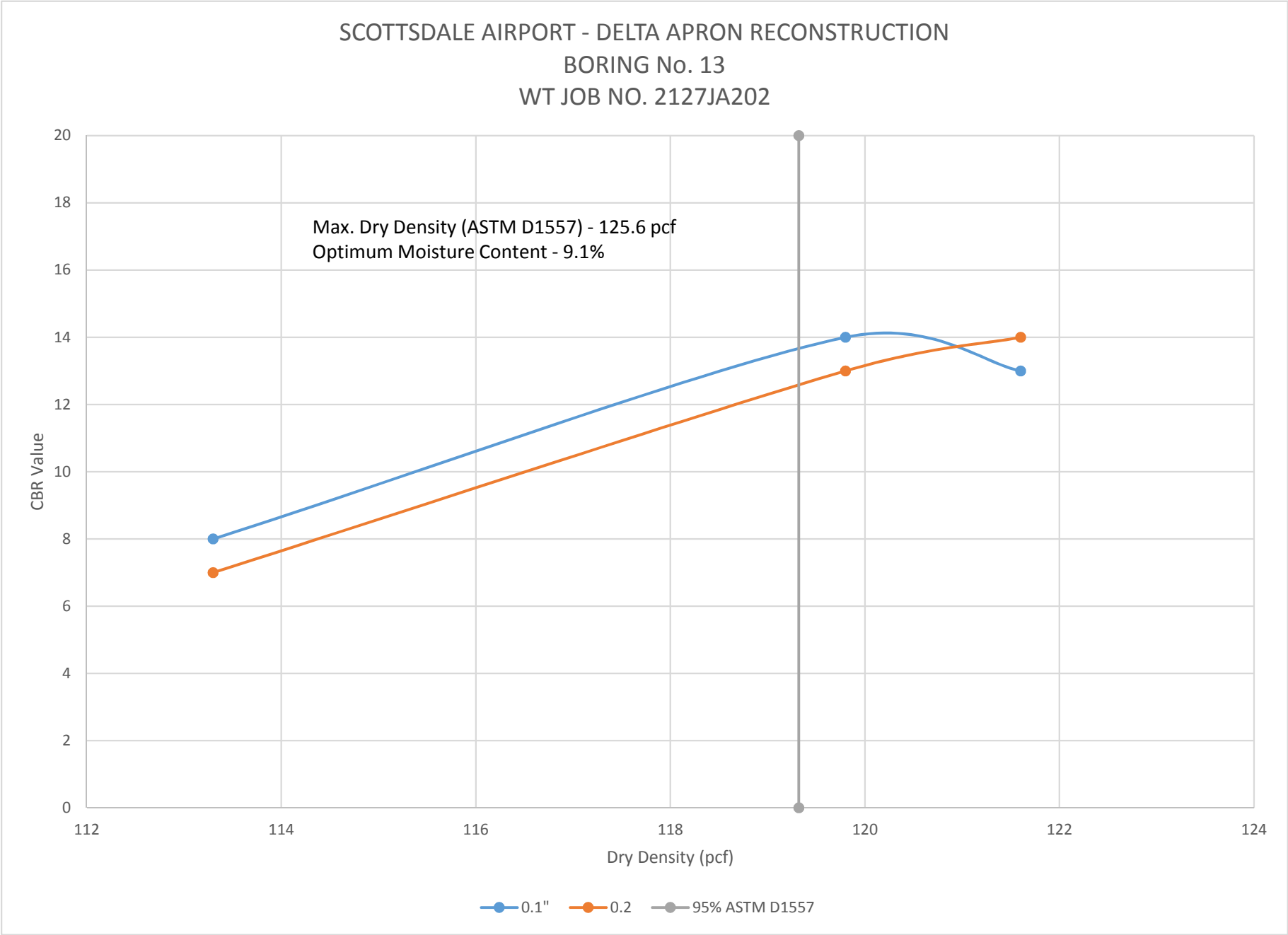
SCOTTSDALE AIRPORT - DELTA APRON RECONSTRUCTION
BORING No. 13
WT JOB NO. 2127JA202
Max. Dry Density (ASTM D1557) - 125.6 pcf
Optimum Moisture Content - 9.1%
CBR Value
Dry Density (pcf)
0
2
4
6
8
10
12
14
16
18
20
112
114
116
118
120
122
124
0.1"
0.2
95% ASTM D1557

Soil Analysis Report

Western Technologies
Mike Whitman
3737 E Broadway Road
Phoenix , AZ 85040

Project: 2127JA202
Date Received: 1/9/2018
Date Reported: 1/10/2018

PO Number: 2148P0017

Lab Number: 923596-1 **83417:B6(2-5')**

Sulfate (ARIZ 733)	Method	Result	Units	Levels
Sulfate, SO4	ARIZ 733	12	ppm	

Lab Number: 923596-2 **83420: B13(2-5')**

Sulfate (ARIZ 733)	Method	Result	Units	Levels
Sulfate, SO4	ARIZ 733	17	ppm	

Lab Number: 923596-3 **83419:B9(2-5')**

Sulfate (ARIZ 733)	Method	Result	Units	Levels
Sulfate, SO4	ARIZ 733	6	ppm	

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PHYSICAL PROPERTIES OF ASPHALT CONCRETE

CLIENT: **MEAD & HUNT**
8777 EAST VIA DE VENTURA
SUITE 398
SCOTTSDALE AZ 85258

ATTN: **SCOTT VAN GOMPEL**

DATE OF REPORT: **01-12-18**
JOB NO.: **2127JA202**
LAB NO.: **A**
AUTHORIZED BY: **CLIENT** DATE: **12-21-17**
SAMPLED BY: **MATT STEINHOFF** DATE: **12-26-17**
SUBMITTED BY: **MATT STEINHOFF** DATE: **12-26-17**

PROJECT: **SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION**
LOCATION: **SCOTTSDALE, ARIZONA**
MATERIAL: **EXISTING ASPHALT CONCRETE**
SUPPLIER **UNKNOWN**
SAMPLE SOURCE/LOCATION: **COMBINED 10-INCH DIAMETER CORES 3, 8, 9, 10, 11, & 12 FROM THE TOP LIFT**

Gradation After Extraction (AASHTO T30)

Sieve Size US	Sieve Size mm	% PASS	
1 1/2	37.5		
1 1/4	31.5		
1	25.0		
3/4	19.0		
1/2	12.5	100	
3/8	9.5	90	
1/4	6.3	64	
No. 4	4.75	50	
8	2.38	32	
10	2.00	29	
16	1.18	23	
30	0.60	17	
40	0.425	15	
50	0.300	12	
100	0.150	8	
200	0.075	5.8	

PHYSICAL PROPERTIES OF RECOVERED ASPHALT (T70)

Absolute Viscosity (140 F), p	AASHTO T202	3.32×10^6
Penetration (77°F), dmm	AASHTO T49	8
Specific Gravity (77°F)	AASHTO T228	1.039

Notes: Abson Recovery (AASHTO R 59)
***Corrected for mineral matter in extract, and moisture content.**

BITUMEN CONTENT BY SOLVENT EXTRACTION
AASHTO T164-A

	RESULT	
BITUMEN CONTENT, % (BY TOTAL WEIGHT)	*7.4	

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD (S) AND RELATE ONLY TO THE CONDITION (S) OR SAMPLE (S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

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PHYSICAL PROPERTIES OF ASPHALT CONCRETE

CLIENT: **MEAD & HUNT**
8777 EAST VIA DE VENTURA
SUITE 398
SCOTTSDALE AZ 85258

ATTN: **SCOTT VAN GOMPEL**

DATE OF REPORT: **01-12-18**
JOB NO.: **2127JA202**
LAB NO.: **B**
AUTHORIZED BY: **CLIENT** DATE: **12-21-17**
SAMPLED BY: **MATT STEINHOFF** DATE: **12-26-17**
SUBMITTED BY: **MATT STEINHOFF** DATE: **12-26-17**

PROJECT: **SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION**
LOCATION: **SCOTTSDALE, ARIZONA**
MATERIAL: **EXISTING ASPHALT CONCRETE**
SUPPLIER **UNKNOWN**
SAMPLE SOURCE/LOCATION: **COMBINED 10-INCH DIAMETER CORES 8, 10, & 11 FROM THE BOTTOM LIFT**

Gradation After Extraction (AASHTO T30)

Sieve Size US	Sieve Size mm	% PASS	
1 1/2	37.5		
1 1/4	31.5		
1	25.0		
3/4	19.0	**100**	
1/2	12.5	**95**	
3/8	9.5	**83**	
1/4	6.3	**69**	
No. 4	4.75	**62**	
8	2.38	**52**	
10	2.00	**51**	
16	1.18	**45**	
30	0.60	**33**	
40	0.425	**27**	
50	0.300	**20**	
100	0.150	**11**	
200	0.075	**6.5**	

PHYSICAL PROPERTIES OF RECOVERED ASPHALT (T70)

Absolute Viscosity (140 F), p	AASHTO T202	**7.65×10^5**
Penetration (77°F), dmm	AASHTO T49	**6**
Specific Gravity (77°F)	AASHTO T228	**1.046**

Notes: Abson Recovery (AASHTO R 59)
***Corrected for mineral matter in extract, and moisture content.**

BITUMEN CONTENT BY SOLVENT EXTRACTION
AASHTO T164-A

	RESULT	
BITUMEN CONTENT, %	***6.2**	
(BY TOTAL WEIGHT)		

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD (S) AND RELATE ONLY TO THE CONDITION (S) OR SAMPLE (S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

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PHYSICAL PROPERTIES OF ASPHALT CONCRETE

CLIENT: **MEAD & HUNT**
8777 EAST VIA DE VENTURA
SUITE 398
SCOTTSDALE AZ 85258

ATTN: **SCOTT VAN GOMPEL**

DATE OF REPORT: **01-12-18**
JOB NO.: **2127JA202**
LAB NO.: **C**
AUTHORIZED BY: **CLIENT** DATE: **12-21-17**
SAMPLED BY: **MATT STEINHOFF** DATE: **12-29-17**
SUBMITTED BY: **MATT STEINHOFF** DATE: **12-29-17**

PROJECT: **SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION**
LOCATION: **SCOTTSDALE, ARIZONA**
MATERIAL: **EXISTING ASPHALT CONCRETE**
SUPPLIER **UNKNOWN**
SAMPLE SOURCE/LOCATION: **COMBINED 10-INCH DIAMETER CORES 3, 9, & 12 FROM THE BOTTOM LIFT**

Gradation After Extraction (AASHTO T30)

Sieve Size US	Sieve Size mm	% PASS	
1 1/2	37.5		
1 1/4	31.5		
1	25.0	**100**	
3/4	19.0	**98**	
1/2	12.5	**90**	
3/8	9.5	**81**	
1/4	6.3	**66**	
No. 4	4.75	**59**	
8	2.38	**48**	
10	2.00	**46**	
16	1.18	**39**	
30	0.60	**30**	
40	0.425	**24**	
50	0.300	**18**	
100	0.150	**9**	
200	0.075	**6.2**	

PHYSICAL PROPERTIES OF RECOVERED ASPHALT (T70)

Absolute Viscosity (140 F), p	AASHTO T202	**
Penetration (77°F), dmm	AASHTO T49	**
Specific Gravity (77°F)	AASHTO T228	**

Notes: Abson Recovery (AASHTO R 59)
***Corrected for mineral matter in extract, and moisture content.**
****Recovered binder was too brittle for testing.**

BITUMEN CONTENT BY SOLVENT EXTRACTION
AASHTO T164-A

	RESULT	
BITUMEN CONTENT, %	***5.5**	
(BY TOTAL WEIGHT)		

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD (S) AND RELATE ONLY TO THE CONDITION (S) OR SAMPLE (S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

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Reviewed By: Philip D. T

SCOTTSDALE AIRPORT
DELTA APRON RECONSTRUCTION
ASPHALT CONCRETE CORES
JOB NO. 2127JA202

Picture No. 1 – Asphalt concrete cores at Borings No. 3, 9, and 12.

Picture No. 2 – Asphalt concrete cores at Borings No. 8, 10, and 11.

Appendix C
Construction Safety and Phasing Plan

SCOTTSDALE AIRPORT

Construction Safety and Phasing Plan

for

Delta Apron Reconstruction

FAA AIP No.: 3-04-0032-036-2018

ADOT No.: E9XXX

City Project No.: AC02A

Prepared by

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CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

1. OVERVIEW

The City of Scottsdale (hereinafter "City" "Owner" or "Sponsor") is required to adhere to the standards contained in the various Federal Aviation Administration (FAA) Advisory Circular (AC) 150 series as part of the airport's grant assurance obligations in return for accepting federal funds under the Airport Improvement Program for the design and construction of airport projects. The ultimate goal of this airport Construction Safety and Phasing Plan (CSPP) is to achieve and maintain a desirable level of operational safety during construction. This plan provides information, responsibilities and procedures to implement the requirements of the contract safety provisions and FAA AC 150/5370-2G.

Hazardous practices and marginal conditions created by construction activities can decrease or jeopardize operational safety on the airport. To minimize disruption of normal aircraft operations and to avoid situations that compromise the airport's operational safety, **ALL** construction activity that occurs within the boundaries of the Scottsdale Airport must be carefully planned, scheduled, and coordinated with the City of Scottsdale and the FAA.

This CSPP is intended to provide general information to all contractors, subcontractors or suppliers (hereinafter "contractor") on the requirements and procedures for accident prevention, safety, and security, at the Scottsdale Airport (hereinafter "airport") during the **'Delta Apron Reconstruction'** project. Contractors shall conduct their operations in a manner that will provide safe working conditions for all personnel and the protection of the airport tenants and users who may be affected by the project's construction activities.

Nothing contained in this CSPP is intended to relieve the contractor of the obligations assumed by the contractor under contract with the City or as required by law. Safety must be an integral part of each job. Full participation, cooperation, and support are necessary to ensure the safety and health of all persons and property involved in the project.

The purpose of marking, barricading, and lighting airside construction areas is to delineate potentially hazardous areas and prevent unauthorized incursions into the area by personnel, vehicles, and equipment during construction. Visible barricade lines will be established prior to construction activity within the Air Operations Area (AOA). All vehicles will be marked in accordance with FAA AC 150/5210-5D.

Requirements and procedures in this CSPP may be altered, on a case by case basis, if determined by the City of Scottsdale that safety is not compromised and the proposed alternative better meets operational or project needs. Any such alterations or deviations shall be at the sole discretion of the City.

The critical operational areas at Scottsdale Airport are defined as follows:

1.1 The AOA, for the purpose of this document is defined as any part of the airport utilized for aircraft operations and includes any area inside the perimeter fence. (See Attachment 1, plan sheets G-081, G-082, G-083, G-084, and G-085 and Attachment 2, plan sheet G-086 for barricade details.)

1.2 Runway Safety Area (RSA) and Taxiway (TOFA) / Taxilane Object Free Area (TLOFA) as described in FAA AC 150/5370-2G are restricted areas. The dimensions are described in FAA AC 150/5300-13A.

2. AIRPORT CONTACT NUMBERS

The following are the contact persons and numbers for this project.

TITLE	NAME	MOBILE PHONE
Airport Operations Manager	Chris Read	(480) 312-2674
Airport Operations	On Duty Personnel	(480) 312-8478
Project Manager\Engineer (Mead & Hunt)	Scott Van Gompel	(707) 318-2032
Construction Manager (Mead & Hunt)	Drew Seybold	(480) 273-7342
Construction Observer	TBD	TBD

Injuries are to be reported to City of Scottsdale and airport operations personnel immediately. Medical and Police assistance may be reached by calling 911. All phone numbers should be placed on the project phone list that shall be kept in all contractor supervisor's vehicles.

3. PROJECT SCOPE OF WORK

The project scope will consist of the reconstruction of apron pavement at Scottsdale Airport, from the approximate limits of Connector Taxiway A1 northeast to Connector Taxiway A3 and from the parallel bypass taxilane north to the Air Commerce Center and City T-Hangars/T-Shades. Other project features include removal of aircraft tie down anchors, fire hydrant vaults, wind cone, and pavement markings, and the installation of new aircraft tie down anchors and pavement markings .

The Air Commerce Center, flight schools, and private based aircraft currently utilize this apron area at Scottsdale Airport. Various piston, turboprop, and jet engine aircraft, and helicopters operate on Delta Apron and adjacent aprons. The project phasing has been staged to accommodate minimal disruption to this area and optimize construction sequencing. The location of these improvements are depicted on plan sheets G-081 through G-085 (see Attachment 1).

4. CONSTRUCTION SAFETY AND PHASING PLAN REQUIREMENTS

The requirements outlined below correspond with the subjects contained in AC 150/5370-2G, Chapter 2, Section 2.4. The FAA's Construction Safety and Phasing Plan Checklist was utilized in the preparation of this CSPP, and all items required on the checklist have been addressed.

4.1 Coordination

Scottsdale Airport staff will coordinate with the tenants and operators affected by this project in advance of the start of construction. The airport traffic control tower (ATCT) will be included in the coordination of airfield facility temporary closures. Additional information regarding notification of construction activities is contained in Section 12 of this CSPP. The locations of these facilities are depicted in Attachment 1.

Prior to the start of construction, the airport will host a mandatory preconstruction meeting with the general contractor and at least one representative from each of its subcontracting companies. The meeting will discuss all of the items listed on the Construction Safety and Phasing Plan Checklist and the items in this CSPP to include:

4.1.1 Submission of contractor's preliminary construction schedule, barricade plan, list of equipment, list of subcontractors and the contractor's emergency phone number list and items required by the project Safety Plan Compliance Document (SPCD).

4.1.2 Identification of the contractor's superintendent and a discussion of his authority and responsibilities.

4.1.3 Designation of Sponsor representative responsible for notifying the Flight Service Station serving the airport of the proposed start and completion dates of construction or any circumstances requiring a NOTAM.

4.1.4 Scheduling of work and the need to perform certain items at various stages of the project, including operational safety issues which might arise because of the proposed work.

4.1.5 Establish a desired date for issuance of a Notice to Proceed.

4.2 Contractor Progress Meetings

Progress meetings to discuss construction scheduling and safety issues will be held on a regular basis at the airport for the duration of the project. The agenda will include a standing item to discuss safety issues at these progress meetings.

4.3 Scope or Schedule Changes

After the initial approval of the contractor's schedule, the construction schedule will be a standing agenda item for discussion at the construction progress meetings. Any changes to the project scope or change of schedule will require approval by the City, FAA and ADOT.

4.4 FAA ATO Coordination

Scottsdale Airport staff will coordinate with Scottsdale Air Traffic Control Tower (SDL ATCT) before and during construction of this project to verify construction activities are on schedule and progressing according to plan. Submittal of the project CSPP will be in accordance with FAA requirements.

5. PHASING

This project has been phased to minimize operational impact to the apron and taxilane users on the north side of Runway 3-21. The scope of work for this project is described in Section 3 of this CSPP. The construction limits for each phase of work are shown on plan sheets G-081 and G-085 (see Attachment 1) of this CSPP. A general description of the construction work and special phasing requirements are as follows:

5.1 Phase 1

Location	89-foot wide by 495-foot long area of Delta Apron in front of the Air Commerce Center and north of the bypass taxilane.
Total Duration	35 calendar days.
Runway Closures	None.
Operational Impact	Three helicopter and nine aircraft parking locations on the Delta Apron and six aircraft hangars in the Air Commerce Center will be inaccessible during this phase. All other apron areas and hangar access will remain open. Temporary pavement will be required to be constructed on the south end of the apron to maintain access to the

fuel farm behind the Air Commerce Center as well as the two hangars.

Contractor Restrictions: None.

Work Elements: Description:

- Install low-profile barricades, portable traffic delineators, and inlet protection
- Construct temporary pavement structure
- Paint temporary taxilane centerline marking
- Install temporary fencing modifications
- Cold mill asphalt concrete pavement full depth and off-haul pulverized material
- Perform unclassified excavation and grading
- Replace slurry cap on existing ductbanks
- Construct soil-cement base course
- Construct crushed aggregate base course
- Pave hot mix asphalt surface course
- Apply new pavement markings

5.2 Phase 2

Location: 6,880 square yard middle area of Delta Apron north of the bypass taxilane and south of the City T-Hangars/T-Shades.

Total Duration: 39 calendar days.

Runway Closures: None.

Operational Impact: 19 aircraft parking locations on the Delta Apron will be inaccessible throughout the duration of this phase. The bypass taxilane will be closed to aircraft operations along the southeast edge of the phase limits. The bypass taxilane will remain open for vehicular traffic. All other sections of the bypass taxilane, apron areas, and hangar access will remain open.

Contractor Restrictions: None.

Work Elements: Description:

- Install low-profile barricades and portable traffic delineators
- Remove temporary pavement markings 100%
- Paint temporary taxilane centerline marking
- Remove concrete tie down anchors
- Remove wind cone
- Cold mill asphalt concrete pavement full depth and off-haul pulverized material
- Perform unclassified excavation and grading
- Construct soil-cement base course
- Construct crushed aggregate base course

- Pave hot mix asphalt surface course.
- Construct new concrete tie down anchors
- Apply new pavement markings

5.3 Phase 3

Location	7,400 square yard north area of Delta Apron north of the bypass taxilane and south of the City T-Hangars/T-Shades.
Total Duration	41 calendar days.
Runway Closures	None.
Operational Impact	18 aircraft parking locations on the Delta Apron will be inaccessible throughout the duration of this phase. The bypass taxilane will be closed to aircraft operations along the southeast edge of the phase limits including Apron Connector A3. The bypass taxilane and Apron Connector A3 will remain open for vehicular traffic. All other sections of the bypass taxilane, apron areas, and hangar access will remain open.
Contractor Restrictions	None.
Work Elements	Description:

- Install low-profile barricades and portable traffic delineators
- Remove pavement markings 100%
- Paint temporary taxilane centerline marking
- Remove concrete tie down anchors
- Cold mill asphalt concrete pavement full depth and off-haul pulverized material
- Perform unclassified excavation and grading
- Construct soil-cement base course
- Construct crushed aggregate base course
- Pave hot mix asphalt surface course
- Construct new concrete tie down anchors
- Apply new pavement markings

5.4 Phase 4

Location	16,810 square yard southern half of Delta Apron north of the bypass taxilane.
Total Duration	67 calendar days.
Runway Closures	None.
Operational Impact	10 helicopter parking locations and 15 aircraft parking locations on the Delta Apron will be inaccessible throughout the duration of this phase. The bypass taxilane will be closed to aircraft operations along the southeast edge of the phase limits including Apron Connector A1. The bypass taxilane and Apron Connector A1 will remain open for vehicular traffic. All other sections of the bypass taxilane, apron areas, and hangar access will remain open.

Contractor Restrictions	None.
Work Elements	Description:

- Install low-profile barricades, portable traffic delineators, traffic cones, and fiber rolls
- Remove temporary pavement
- Remove temporary fencing modifications
- Remove pavement markings 100%
- Remove concrete tie down anchors
- Cold mill asphalt concrete pavement full depth and off-haul pulverized material
- Perform unclassified excavation and grading
- Remove fire hydrant vaults and perform water line modifications
- Remove and replace pullbox
- Replace slurry cap on existing ductbanks
- Construct soil-cement base course
- Construct crushed aggregate base course
- Pave hot mix asphalt surface course
- Construct new concrete tie down anchors
- Apply new pavement markings
- Final inspection, clean up, and demobilization

Total contract time allowed for construction work shall be 182 consecutive calendar days.

6. AREAS AND OPERATIONS AFFECTED BY CONSTRUCTION

This CSPP presents possible safety problems that could occur during a typical airport construction project. Any of these safety problems could occur if this plan is not followed in any part of the project areas. The reconstruction of apron pavements will impact operations and facilities as described above. Closures of the bypass taxilane and Apron Connectors A1 and A3 will be required to accomplish the work. No work will be required within the Runway 3-21 safety area. The work is not expected to impede Fire Fighting access. Details depicting phasing limits, general barricade placement, access routes and other information are contained in Attachments 1 and 2.

7. PROTECTION OF NAVIGATIONAL AIDS (NAVAIDS)

The airport's Precision Approach Path Indicators (PAPIs) and Runway End Identifier Lights (REILs) are located outside of the project areas and will not be affected while construction work is taking place.

8. CONTRACTOR ACCESS

Maintaining control of construction personnel within the AOA is crucial for the safety of workers and aircraft. The contractor's personnel will only be permitted access to the airport at designated locations and will be restricted from entering all active Runway Object Free Areas (ROFA), Runway Object Free Zones (ROFZ), RSAs, and TOFAs. Contractor access and haul routes are depicted on the project plans and contained in Attachment 1. The contractor's personnel will not be allowed to leave the project area unless escorted by

Airport Operations staff. Cones and barricades will be used to keep the contractor's personnel from inadvertently entering active aircraft areas. The contractor will acknowledge and comply with the following requirements.

8.1 Location of Stockpiled Construction Materials

Stockpiled material must be stored in the staging yard or within the project limits until needed for placement. Stockpiled soils and aggregate materials shall be watered and consolidated as necessary to prevent airborne particulates. Material stockpile heights in excess of 15- feet will not be allowed.

8.2 Vehicle and Pedestrian Operations

No unauthorized entry to the AOA will be permitted. Workers and equipment will be restricted to the approved entry points and access routes to work areas. The contractor shall provide a trained gate guard at all times when the access gate is not secured. The gate guard shall prevent any unauthorized vehicles and pedestrians from entering the AOA. The gate guard shall also ensure that authorized construction and delivery vehicles are properly marked and lit prior to allowing them to enter the AOA.

8.2.1 Construction Equipment/Personnel Parking

Contractor employee parking shall only be allowed on the vacant lot 73rd Street and Thunderbird Road across from the construction access gate. No personal vehicles will be allowed in the AOA. Construction equipment will be parked at the designated staging areas when not in use. No construction equipment will be left unattended at the work locations.

8.2.2 Access and Haul Roads

The locations of construction traffic routing are depicted in the plans contained in Attachment 1, and the project plan set. Access to the work areas will be delineated with traffic cones or other approved traffic controlled devices.

8.2.3 Marking and Lighting of Vehicles

All contractor and airport operations vehicles involved with this project will comply with FAA AC 150/5210-5D (painting and marking of vehicles used on an airport) by mounting a 3-foot by 3-foot orange and white checked flag or an amber beacon on the highest part of the vehicle while on the airport. Vehicles operating at night are required to use an amber beacon.

8.2.4 Description of Proper Vehicle Operations

In the event that a contractor leaves the closed project area and gets disoriented, he/she shall remain in place and call Airport Operations.

8.2.5 Required Escorts

No escorts for the daily work crews will be required.

8.2.6 Requirement for Vehicle Drivers

The contractor will be required to train all personnel in ground vehicle operations. This will be done for all vehicle drivers who will be on the airport on a daily basis and not merely transitory such as delivery vehicles. These daily drivers will be required to watch the FAA Western Pacific Region's Ground Vehicle Operations video. The contractor will be required to secure the signatures of all of the employees who have watched the video prior to start of construction. All vehicle drivers must be aware of their environment at the

airport and confirm by personal observation that no aircraft are approaching their position (either in the air or on the ground) when crossing any area of the airport open to aircraft operations.

8.2.7 Situational Awareness

The contractor's forces will be restricted to the closed areas in which work is to be performed. The contractor shall train his personnel to recognize and avoid the hazards of jet blast when in proximity to active areas. The contractor shall train its personnel to be aware of all aircraft that are operating in the area.

8.2.8 Two Way Communication Procedure

This section is not applicable for this project. Airport Operations staff will communicate with ATCT during all construction operations.

8.2.9 Maintaining the Secured Area of the Airport Security

The access points and haul routes identified on the project phasing and barricading plans contained in Attachments 1 and 2 are the only access points approved for use by the contractor, subcontractors and suppliers. When not actively in use, the gates will be kept closed and locked. During periods of operation, the gate must be closed after each vehicle enters or departs or a gate guard shall be posted at the access gates so that an inadvertent entry onto the airport by an unauthorized vehicle and/or pedestrian is prevented.

9. WILDLIFE MANAGEMENT

The contractor shall be required to remove any/all food or construction related trash after each shift. The contractor shall also ensure that their water supply tankers and lines are not leaking so as to prevent the attraction of birds or other animals to the site as a result of standing water.

10. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

FOD will be controlled by only allowing the contractor's personnel to travel on the established haul routes. They will not be allowed to travel freely on the runway and taxiway system. The contractor shall have a power vacuum sweeper available at all times when working on this project. The contractor shall continuously monitor and clean all haul routes and surrounding apron areas during their work shifts. Airport operations personnel will conduct inspections at the conclusion of each working day.

11. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

With the exception of fuel and other fluids for vehicles, there is no hazardous material associated with this project. If the contractor does spill a small amount of fuel or other fluid, they shall immediately contain and remove it from the airport and legally dispose of it.

If the contractor spills any fuel or other fluid in excess of 5 gallons, the airport operations personnel shall be immediately notified so that the airport's spill procedures can be followed.

The Contractor shall assume the existing water distribution line crossing the apron is asbestos cement pipe. The Contractor shall perform all pipe modifications in accordance with federal, state, and local regulations. All waste materials shall be removed and disposed off Airport property in accordance with federal, state, and local environmental protection regulations.

12. NOTIFICATION OF CONSTRUCTION ACTIVITIES

In order to maintain the desired levels of operational safety on airports during construction activities, Scottsdale Airport Operations personnel will follow the procedures listed below for the immediate notification of ARFF personnel, airport users, and the FAA of any condition adversely affecting operational safety during this project.

12.1 List of Responsible Representatives (Project Directory)

Prior to the start of construction activities and after receipt of the contractor's list of personnel, the airport engineer will compile a list of all stakeholders for the project to include applicable points of contact for the airport, the engineer and the contractor and his sub-contractors and material suppliers who will be permitted access to the work areas.

This project directory will include office contact phone numbers and email addresses and 24 hour emergency point of contact cell phone numbers. This list of critical phone numbers must be kept in all contractor supervisor's vehicles at all times. Airport Operations personnel shall also keep this list in their vehicles during the project.

12.2 Notice to Airmen (NOTAM) issuance

Scottsdale Airport personnel will issue all NOTAMS associated with this project in accordance with FAA AC 150/5200-28F as amended.

12.3 Emergency Notification Procedures

The City of Scottsdale provides fire and police response for the airport. Contacting these services for an emergency shall be done by calling 911.

12.4 Coordination with Fire Department Personnel

Scottsdale Fire Department personnel will be advised of the construction activity via email or face to face meetings. Fire services will be minimally affected.

12.5 Notifications to the FAA (Filing of Form 7460-1)

FAA Form 7460-1, Notice of Proposed Construction or Alteration, will be prepared and submitted by the engineer.

13. INSPECTION REQUIREMENTS

The contractor's personnel and Sponsor representatives will be responsible for conducting inspections of work areas to ensure that those areas are safe for aircraft operations.

13.1 Daily Inspections

Airport Operations personnel shall conduct a post-construction inspection at the end of each shift. The daily inspection form is included as Attachment 3.

The contractor will be advised that Airport Operations will have the final authority as to determining whether or not the airport is safe for aircraft operations. Significant penalties have been established to ensure that the contractor understands the seriousness of this issue.

Temporarily closed areas will only open after the project area is complete. These areas will remain closed to all aircraft traffic from the time that construction in the project area is started until it is completed and suitable for opening as determined by Airport Operations personnel.

13.2 Final Inspections

The project does not include the construction of a new runway or alteration of the existing runway therefore, this section is not applicable.

14. UNDERGROUND UTILITIES

Known utilities are shown on the construction plans. The contractor must comply with Arizona Blue Stake requirements. There are fiber optic, airfield electrical, and water utilities crossing the apron and the contractor will be required to pothole at locations for existing utility conflicts. If in the unlikely event a utility is disrupted, the contractor is responsible for contacting that utility company and requesting the repair. The bigger threat for this project is to existing airfield fiber optic communication circuits. The contractor shall have an airfield electrician on duty while excavation is taking place near any existing airfield lighting circuits. Repair of any existing circuits must be expedited.

15. PENALTIES

If the contractor's personnel fail to comply with any airport rule or the provisions of this safety plan, the project will be immediately stopped by airport personnel. Violations of the rules and regulations are subject to the airport's enforcement policies, which includes civil penalties of up to $250.00 per occurrence. The penalties also include the assessment of liquidated damages, in accordance with the contract, for failure to complete the project on time.

16. SPECIAL CONDITIONS

Airport Operations personnel will be required to monitor the ATCT frequency while on the construction site. If an aircraft alert is issued by an inbound aircraft, the Airport Operations personnel will contact the construction site supervisor and advise them to stop construction and immediately move all personnel off to the airport perimeter fence line that is closest to them. The contractor's personnel cannot resume work until the airport personnel has issued the all clear.

17. RUNWAY AND TAXIWAY VISUAL AIDS

Runway and taxiway visual aids and NAVAIDs as discussed in Section 7 of this CSPP will not be impacted by the project.

18. MARKINGS AND SIGNS FOR ACCESS ROUTES

The contractor will be required to submit a traffic control plan for his operations, on and off the airport, to the City for approval prior to the start of the work. The contractors approved traffic control plan will be distributed to all vehicle drivers working in the AOA.

Routing will include the airport ramp areas. Routes will be marked by traffic cones or other devices as approved by the Airport. See Attachments 1 and 2 for additional information.

19. HAZARD MARKING AND LIGHTING

The Construction Safety and Phasing Plan contained in Attachment 1 depict general locations of anticipated construction barricade locations to identify work limits during each phase of the project and provide pilots with recognizable limits of potential hazards. A detail depicting the barricade devices to be used is included in Attachment 2.

Airport Operations personnel will direct placement of all barricades and hazard markings to be used for the project. Contractor must prominently mark open trenches and excavations at the construction site and light them with red omni-directional lights during hours of restricted visibility or darkness. Contractor shall check lighting on the barricades for proper operation at least once per day, preferably at dusk.

20. PROTECTION OF SAFETY AREAS, OBJECT FREE AREAS AND APPROACH AND DEPARTURE SURFACES

Runway and taxiway safety areas, Obstacle Free Zones (OFZ), Object Free Areas (OFA), and Approach/Departure Surfaces are described in FAA AC 150/5300-13A. When working in these areas, construction will be limited in accordance with the project specifications.

20.1 Runway Safety Area (RSA)

This project does not require work within the RSA. The RSA has an established setback limit of 200 feet from Runway 3-21 centerline and 1,000 feet from the runway threshold. The contractor shall remain clear of the RSA at all times.

20.2 Runway Object Free Area (ROFA)

The ROFA has an established setback limit of 400 feet from Runway 3-21 centerline and 1,000 feet from the runway threshold.

20.3 Taxiway Safety Area (TSA)

The TSA has an established setback limit of 39.5 feet from the taxiway centerline. No construction will be permitted within the TSA of any taxiway open for aircraft operations.

20.4 Taxiway Object Free Area (TOFA)

The TOFA has an established setback limit of 65.5 feet from the taxiway centerline. No construction will be permitted within the TOFA of any taxiway open for aircraft operations.

20.5 Obstacle Free Zones (OFZ)

This project does not require work within the OFZ. The OFZ has an established setback limit of 200 feet from Runway 3-21 centerline.

20.6 Construction Activity in a Runway Approach/Departure Area

During this project there is no requirement to partially close the runway or displace the existing runway threshold, therefore this section does not apply.

20.7 Coordination of RSA/TSA Adjustments

This project does not require RSA/TSA adjustments.

20.8 Blasting Operations

This project does not require blasting operations.

20.9 Open Trenches or Excavations

No open trenches, excavations or stockpiled materials will be permitted within the taxiway or taxilane safety areas while the associated taxiways or taxilanes are open to aircraft operations, in accordance with project specifications.

20.10 Covering of Excavations

Excavations within the taxiway or taxilane safety areas that cannot be backfilled before the associated taxiway or taxilane is reopened must be covered with steel plates capable of supporting a 100,000 pound dual wheel aircraft load.

20.11 Marking of Open Trenches or Excavation

At the end of each working shift, the contractor shall clearly mark open trenches or excavation areas with barricades in accordance with project specifications.

20.12 Removal of Equipment

Construction equipment may remain on the project site at the end of each work shift, therefore this section does not apply.

20.13 Other Limitations on Construction

20.13.1 The contractor must, at all times, conduct the work in conformance with requirements of the City and the FAA.

20.13.2 Tall equipment such as cranes and pump trucks will not be used on this project.

20.13.3 The use of open flame welding or torches is prohibited unless approved by the airport.

20.13.4 The use of blasting caps is not applicable to this project.

20.13.5 The use of flare pots is not applicable to this project.

20.13.6 The contractor shall at all times conduct their work in a manner that does not create any hindrance, hazard, or obstacle to aircraft using the airport.

20.13.7 The airport environment requires a high degree of care to control debris and dust. Spilled material on active roadways and aircraft parking aprons shall be swept up immediately.

20.13.8 Sanitary facilities must be provided by the contractor for use by the contractor's employees. Public facilities at the airport are not to be used. Sanitary facilities must be located at the contractor's staging area unless otherwise approved by the City.

20.13.9 Contractor vehicles will obey all posted speed limits on airport roadways. The maximum speed when operating inside the airport perimeter fence is 15 mph maximum consistent with safety.

20.13.10 All personnel operating a motor vehicle on airport property shall have a valid state-issued driver's license.

20.13.11 Use of audio earphones and headsets are prohibited on the airport unless directly related to job requirements.

20.13.12 Beacons and flags must be maintained in good working condition, and flags shall be replaced if they become faded, discolored, or ragged.

20.13.13 Lighted barricades shall be maintained and kept in good working order and replaced if they are not operating properly.

21. SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) OVERVIEW

The construction contractor is required to read, acknowledge and abide by this CSPP. Additionally, all required information for compliance will not be available until a construction award for the project has been made by the City. The following section provides for supplemental information and acknowledgement of the requirements of this CSPP. The contractor should not duplicate information in the subject requirements as contained in this CSPP, and if no supplemental information is required should enter, "No Supplemental Information". The contractor shall provide the information and execute the acknowledgement statement as part of his project submittals. Additional guidance is contained in FAA AC 150/5370-2G.

22. CONTRACTOR CONTACT NUMBERS AND SUPPLEMENTAL INFORMATION

General Contractor: _____
Address: _____
_____
Office Phone: _____
Fax: _____

Contractor Personnel

TITLE	NAME	MOBILE PHONE
Project Manager:	_____	_____
Project Superintendent:	_____	_____
Safety Officer:	_____	_____

Construction Schedule

The Notice to Proceed (NTP) date is: _____

The Official Start Date for this project is: _____

The Project Duration is for: 182 Calendar Days

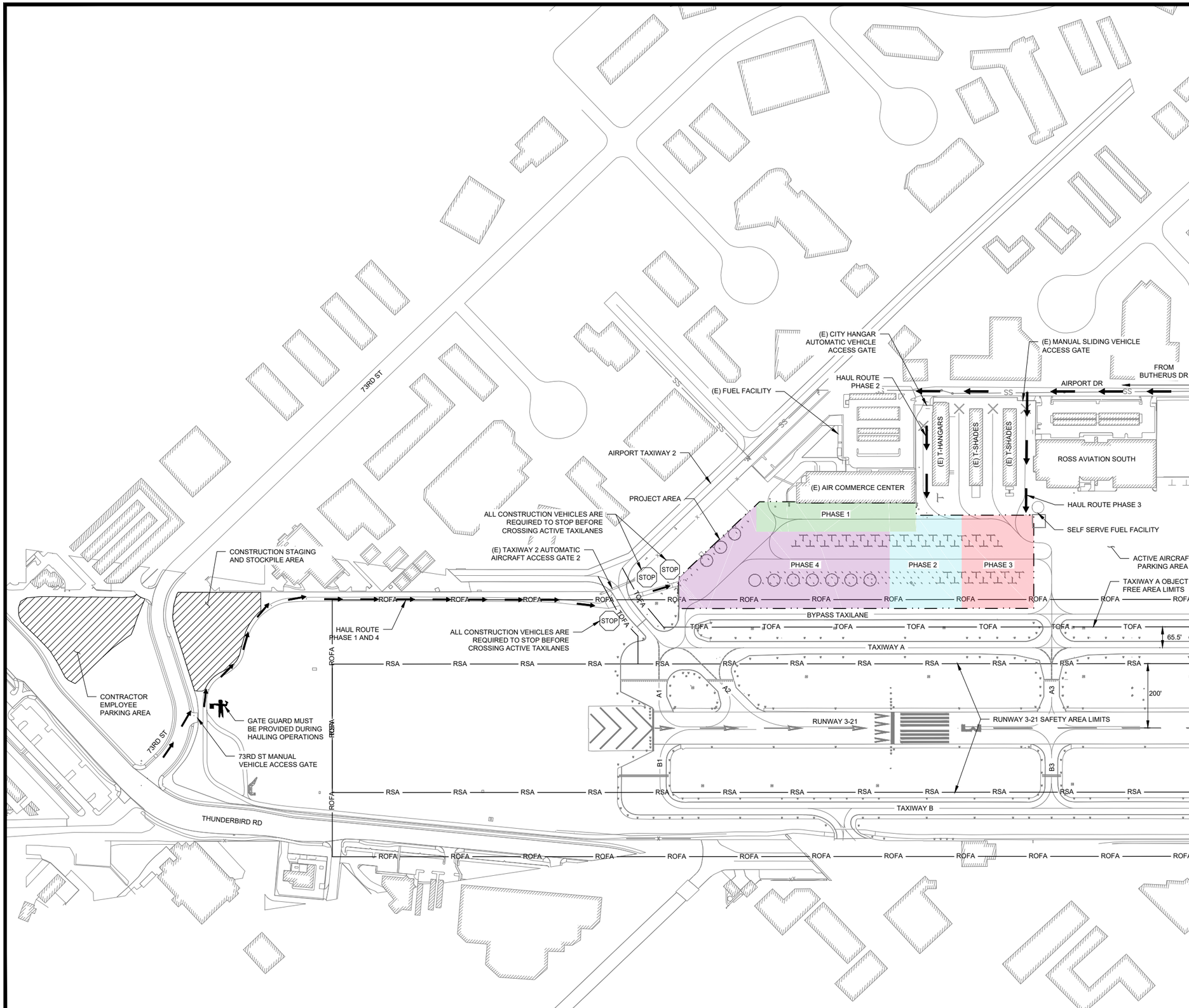
The Project Completion Date is: _____

Acknowledgement: I, _____ have read the ***Delta Apron Reconstruction Project*** Construction Safety and Phasing Plan, approved on _____, and will abide by it as written and with the following additions as noted.

Supplemental Information: (Insert "No Supplemental Information" if none is needed)

1. Coordination:
2. Phasing:
3. Areas and Operations Affected By Construction:
4. Protection of NAVAIDS:
5. Contractor Access:
6. Wildlife Management:
7. Foreign Object Debris (FOD) Management:
8. Hazardous Material (HAZMAT) Management:
9. Notification of Construction Activities:
10. Inspection Requirements:
11. Underground Utilities:
12. Penalties:
13. Special Conditions:
14. Runway and Taxiway Visual Aids:
15. Marking and Signs for Access Routes:
16. Hazard Marking and Lighting:
17. Protection of Runway and Taxiway Safety Areas, Object Free Areas Obstacle Free Areas:
18. Other Limitations on Construction:

ATTACHMENT 1 – CONSTRUCTION SAFETY AND PHASING PLAN SHEETS



GENERAL PHASING NOTES:

1. ALL WORK ELEMENTS WILL BE COMPLETED IN FOUR PHASES. SEE SHEETS G-082 AND G-085 FOR INDIVIDUAL PHASING PLAN REQUIREMENTS.
2. A VACUUM SWEEPER MUST BE MAINTAINED AND AVAILABLE ONSITE FOR THE PROJECT DURATION.
3. ALL PAVEMENT SURFACES USED FOR HAULING SHALL BE SWEPT AND VACUUMED DAILY.
4. THE EXACT LOCATIONS FOR FINAL PLACEMENT OF BARRICADES SHALL BE APPROVED BY AIRPORT OPERATIONS.
5. PARKING FOR CONSTRUCTION PERSONNEL SHALL BE AT THE DESIGNATED PARKING AREA SHOWN ON THE PLAN.
6. REVIEW STANDALONE CSPP DOCUMENT IN THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LEGEND

- PROPOSED HAUL ROUTE
- PHASE 1 WORK LIMITS
- PHASE 2 WORK LIMITS
- PHASE 3 WORK LIMITS
- PHASE 4 WORK LIMITS

0 150 300

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SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION

15255 N. AIRPORT DRIVE
SCOTTSDALE, AZ 85260

ISSUED

BID SET

AIP NO.:	3-04-0032-036-2018
M&H NO.:	2886300-172363.01
DATE:	MARCH 19, 2018
DESIGNED BY:	DPS
DRAWN BY:	BJM
CHECKED BY:	SVG

SHEET CONTENTS

CONSTRUCTION SAFETY & PHASING PLAN - OVERVIEW

SHEET NO. 6 of 36

G-081

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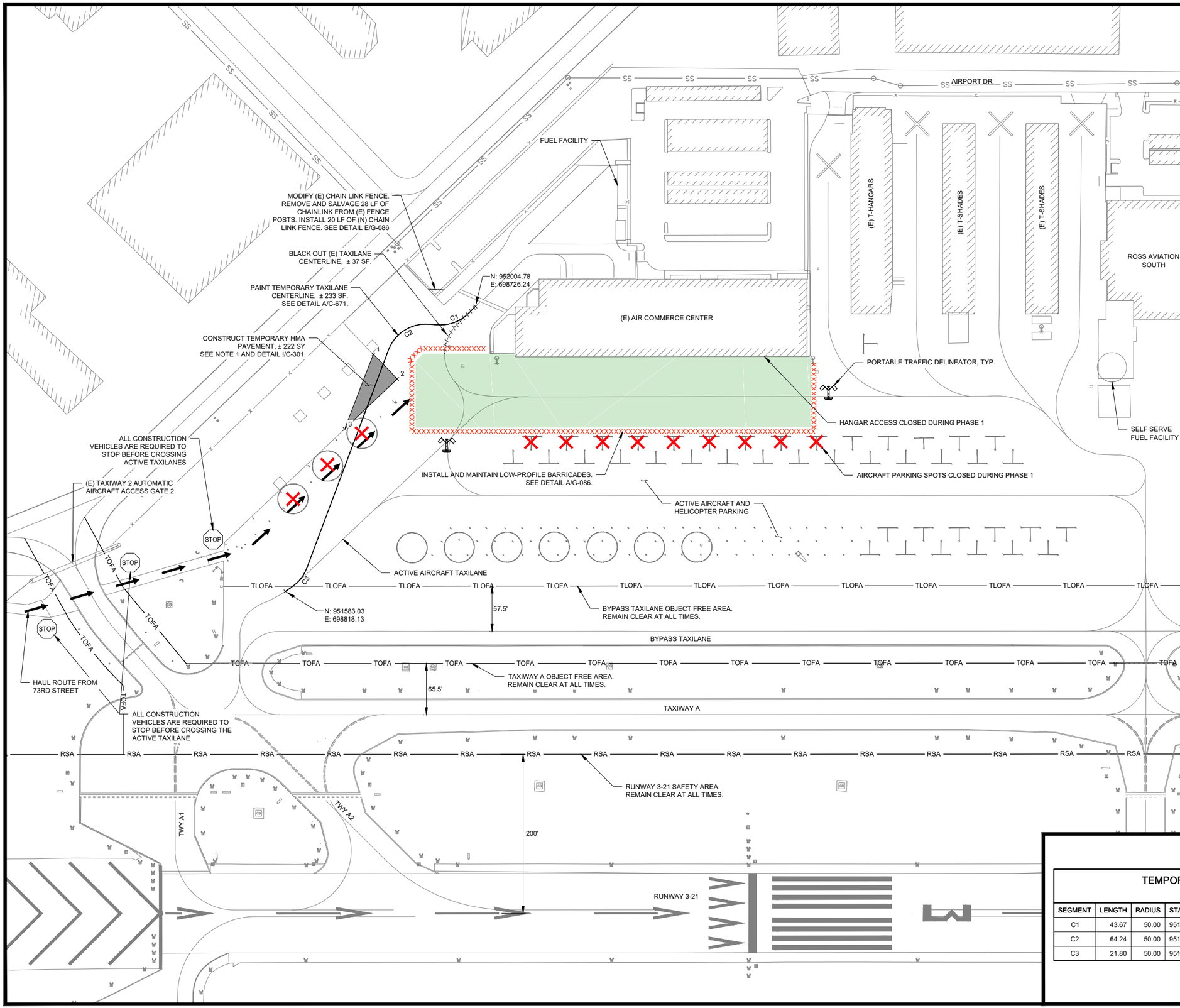

PHASE 1 NOTES:

DESCRIPTION:

- CONSTRUCT TEMPORARY HOT MIX ASPHALT PAVEMENT
- PAINT TEMPORARY TAXILANE CENTERLINE MARKING
- INSTALL TEMPORARY FENCING
- INSTALL LOW-PROFILE BARRICADES, PORTABLE TRAFFIC DELINEATORS, AND INLET PROTECTION
- COLD MILL ASPHALT CONCRETE PAVEMENT FULL DEPTH AND OFF-HAUL PULVERIZED MATERIAL
- PERFORM UNCLASSIFIED EXCAVATION AND GRADING
- REPLACE SLURRY CAP FOR EXISTING DUCTBANKS
- CONSTRUCT SOIL-CEMENT BASE COURSE
- CONSTRUCT CRUSHED AGGREGATE BASE COURSE
- PAVE HOT MIX ASPHALT SURFACE COURSE
- PAINT NEW PAVEMENT MARKINGS

PROJECT DURATION

- THIRTY-FIVE (35) CALENDAR DAYS

IMPACTS TO AIRFIELD OPERATIONS

- AIR COMMERCE CENTER TENANTS WILL BE TEMPORARILY RELOCATED DURING CONSTRUCTION OF PHASE 1.
- TIE DOWN AND HELICOPTER PARKING SPOTS CLOSED AS SHOWN.

LEGEND

- PROPOSED HAUL ROUTE
- XXXXXXXX LOW PROFILE BARRICADES
- PORTABLE TRAFFIC DELINEATORS (AIRPORT PROVIDED)
- PARKING SPOT CLOSED
- PHASE 1 WORK AREA

0 60 120

TEMPORARY HMA POINT TABLE

POINT	NORTHING	EASTING
1	951870.221	698680.332
2	951870.229	698723.418
3	951778.858	698722.777

TEMPORARY CENTERLINE MARKING CURVE TABLE

SEGMENT	LENGTH	RADIUS	START NORTHING	START EASTING	END NORTHING	END EASTING
C1	43.67	50.00	951993.213	698726.398	951954.324	698709.765
C2	64.24	50.00	951946.731	698701.278	951887.993	698689.465
C3	21.80	50.00	951622.766	698815.611	951601.685	698820.456

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SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION

15255 N. AIRPORT DRIVE
SCOTTSDALE, AZ 85260

ISSUED

BID SET

AIP NO.: 3-04-0032-036-2018
M&H NO.: 2886300-172363.01
DATE: MARCH 19, 2018
DESIGNED BY: DPS
DRAWN BY: BJM
CHECKED BY: SVG

SHEET CONTENTS
CONSTRUCTION SAFETY & PHASING PLAN - PHASE 1

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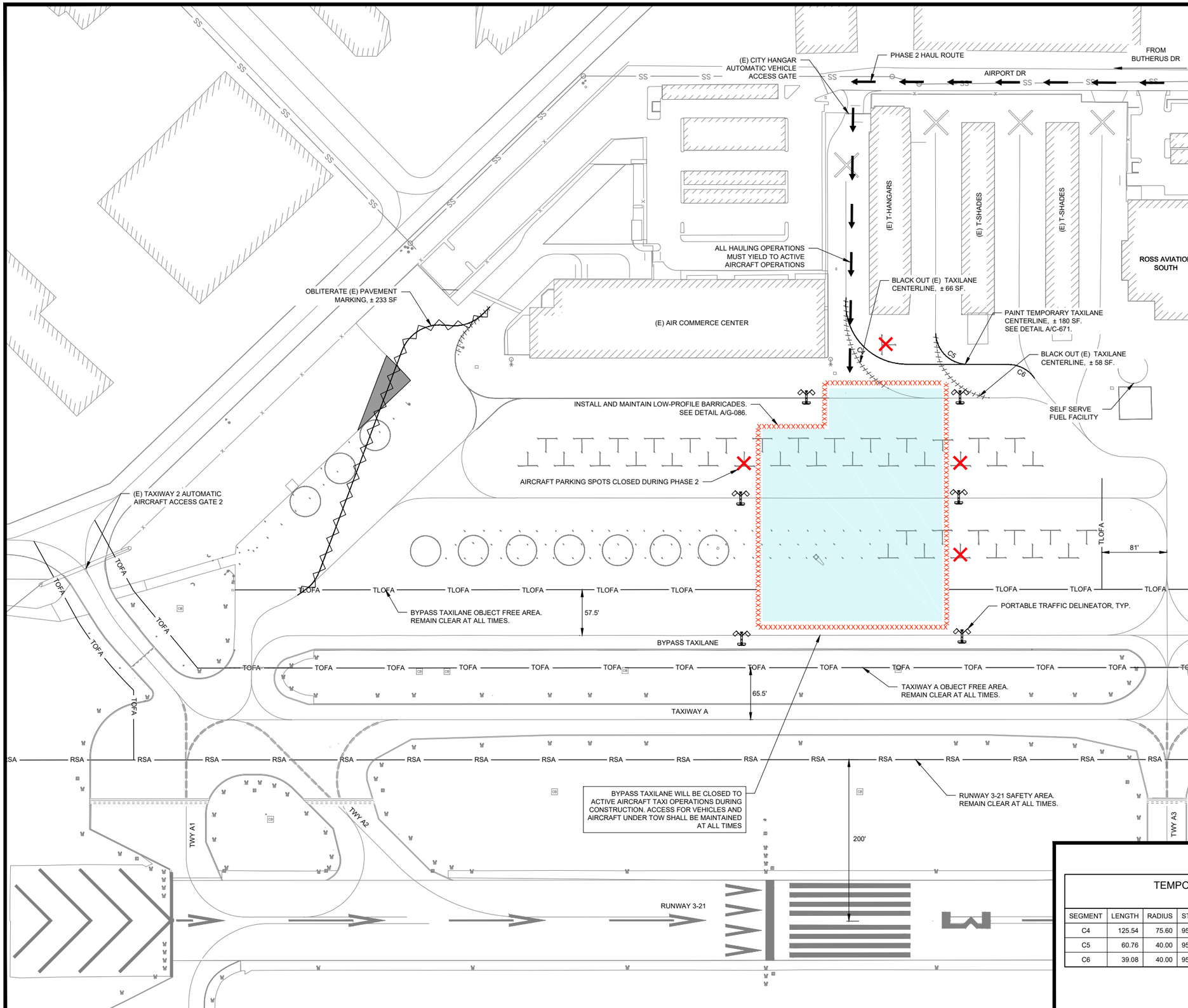

PHASE 2 NOTES:

DESCRIPTION:

- PAVEMENT MARKING REMOVAL, 100%
- PAVEMENT MARKING REMOVAL, BLACK OUT
- PAINT TEMPORARY TAXILANE CENTERLINE MARKING
- INSTALL LOW-PROFILE BARRICADES, AND PORTABLE TRAFFIC DELINEATORS,
- REMOVE CONCRETE TIE DOWN ANCHORS
- REMOVE WIND CONE
- COLD MILL ASPHALT CONCRETE PAVEMENT FULL DEPTH AND OFF-HAUL PULVERIZED MATERIAL
- PERFORM UNCLASSIFIED EXCAVATION AND GRADING
- CONSTRUCT SOIL-CEMENT BASE COURSE
- CONSTRUCT CRUSHED AGGREGATE BASE COURSE
- PAVE HOT MIX ASPHALT SURFACE COURSE
- CONSTRUCT AIRCRAFT TIE-DOWN ANCHORS+
- REMOVE TEMPORARY PAVEMENT MARKINGS
- PAINT NEW PAVEMENT MARKINGS

PROJECT DURATION

- THIRTY-NINE (39) CALENDAR DAYS

IMPACTS TO AIRFIELD OPERATIONS

- BYPASS TAXILANE WILL BE CLOSED TO ACTIVE AIRCRAFT OPERATIONS DURING CONSTRUCTION. ACCESS FOR VEHICLES SHALL BE MAINTAINED AT ALL TIMES.
- TIE DOWN PARKING SPOTS CLOSED AS SHOWN.

LEGEND

- PROPOSED HAUL ROUTE
- LOW PROFILE BARRICADES
- PORTABLE TRAFFIC DELINEATOR (AIRPORT PROVIDED)
- MARKING REMOVAL, BLACK OUT
- MARKING REMOVAL, 100%
- PARKING SPOT CLOSED
- PHASE 2 WORK AREA

0 60 120

TEMPORARY CENTERLINE MARKING CURVE TABLE

SEGMENT	LENGTH	RADIUS	START NORTHING	START EASTING	END NORTHING	END EASTING
C4	125.54	75.60	952328.818	699138.250	952332.298	699026.698
C5	60.76	40.00	952381.597	699136.653	952383.803	699191.696
C6	39.08	40.00	952431.800	699262.305	952419.827	699226.717

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SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION

15255 N. AIRPORT DRIVE
SCOTTSDALE, AZ 85260

ISSUED

BID SET

AIP NO.: 3-04-0032-036-2018
M&H NO.: 2886300-172363.01
DATE: MARCH 19, 2018
DESIGNED BY: DPS
DRAWN BY: BJM
CHECKED BY: SVG

SHEET CONTENTS
CONSTRUCTION SAFETY & PHASING PLAN - PHASE 2

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G-083

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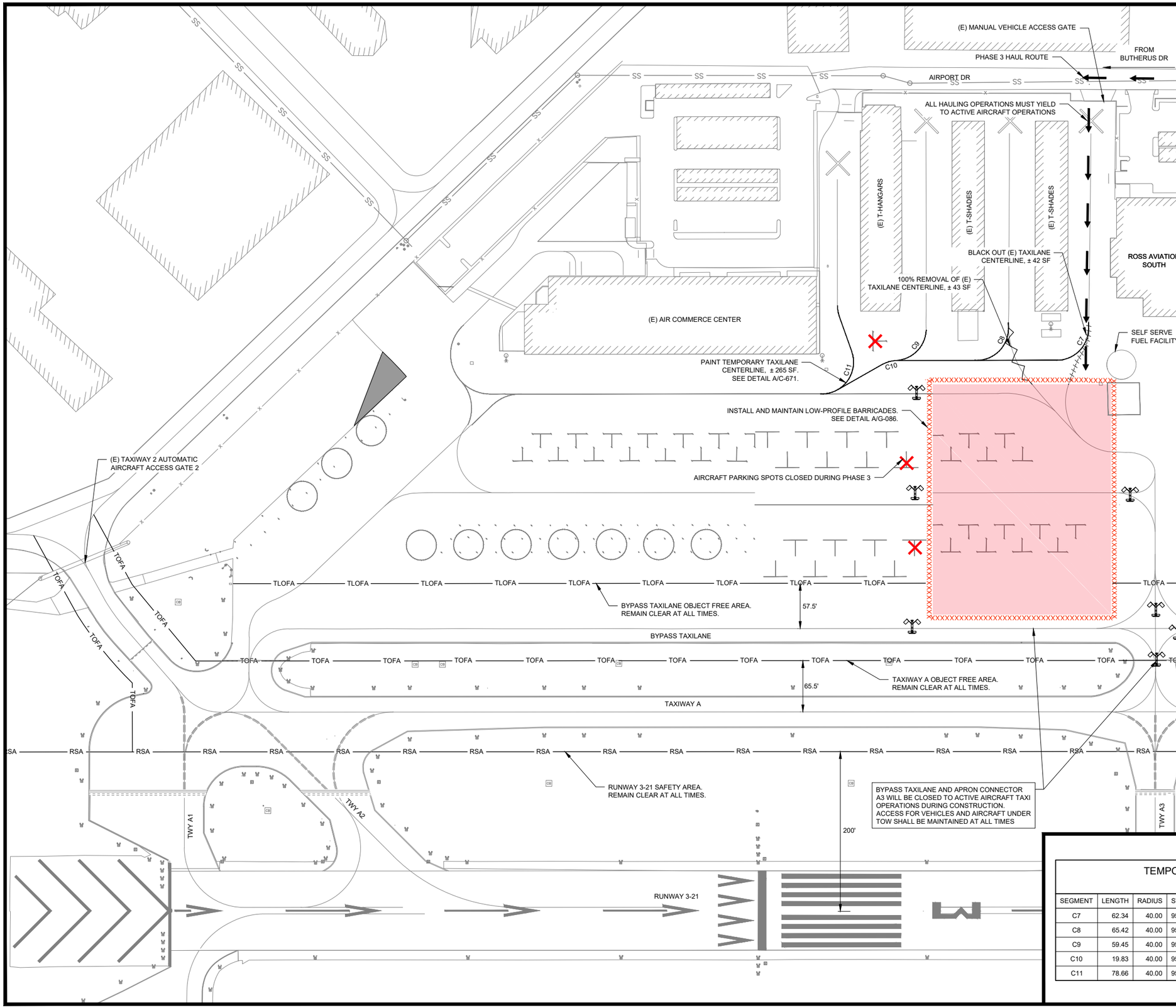

PHASE 3 NOTES:

DESCRIPTION:

- INSTALL LOW-PROFILE BARRICADES,AND PORTABLE AND TRAFFIC DELINEATORS
- PAVEMENT MARKING REMOVAL, 100%
- PAVEMENT MARKING REMOVAL, BLACK OUT
- PAINT TEMPORARY TAXILANE CENTERLINE
- REMOVE CONCRETE TIE DOWN ANCHORS
- COLD MILL ASPHALT CONCRETE PAVEMENT FULL DEPTH AND OFF-HAUL PULVERIZED MATERIAL
- PERFORM UNCLASSIFIED EXCAVATION AND GRADING
- REPLACE CONCRETE CAP FOR EXISTING FIBER OPTIC DUCTBANK
- CONSTRUCT SOIL-CEMENT BASE COURSE
- CONSTRUCT CRUSHED AGGREGATE BASE COURSE
- PAVE HOT MIX ASPHALT SURFACE COURSE
- CONSTRUCT AIRCRAFT TIE-DOWN ANCHORS
- REMOVE TEMPORARY PAVEMENT MARKINGS
- PAINT PAVEMENT MARKINGS

PROJECT DURATION

- FORTY-ONE (41) CALENDAR DAYS

IMPACTS TO AIRFIELD OPERATIONS

- BYPASS TAXILANE AND APRON CONNECTOR A3 WILL BE CLOSED TO ACTIVE AIRCRAFT OPERATIONS DURING CONSTRUCTION. ACCESS FOR VEHICLES SHALL BE MAINTAINED AT ALL TIMES.
- TIE DOWN PARKING SPOTS CLOSED AS SHOWN

LEGEND

- PROPOSED HAUL ROUTE
- XXXXXXXX LOW PROFILE BARRICADES
- PORTABLE TRAFFIC DELINEATOR (AIRPORT PROVIDED)
- MARKING REMOVAL, BLACK OUT
- MARKING REMOVAL, 100%
- PARKING SPOT CLOSED
- PHASE 3 WORK AREA

0 60 120

TEMPORARY CENTERLINE MARKING CURVE TABLE

SEGMENT	LENGTH	RADIUS	START NORTHING	START EASTING	END NORTHING	END EASTING
C7	62.34	40.00	952529.881	699277.477	952473.667	699278.147
C8	65.42	40.00	952457.599	699207.079	952399.238	699206.250
C9	59.45	40.00	952327.744	699137.505	952381.857	699136.357
C10	19.83	40.00	952329.437	699139.047	952312.402	699129.306
C11	78.66	40.00	952229.998	699101.615	952295.626	699090.372

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SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION

15255 N. AIRPORT DRIVE
SCOTTSDALE, AZ 85260

ISSUED

BID SET

AIP NO.: 3-04-0032-036-2018
M&H NO.: 2886300-172363.01
DATE: MARCH 19, 2018
DESIGNED BY: DPS
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SHEET CONTENTS
CONSTRUCTION SAFETY & PHASING PLAN - PHASE 3

SHEET NO. 9 of 36

G-084

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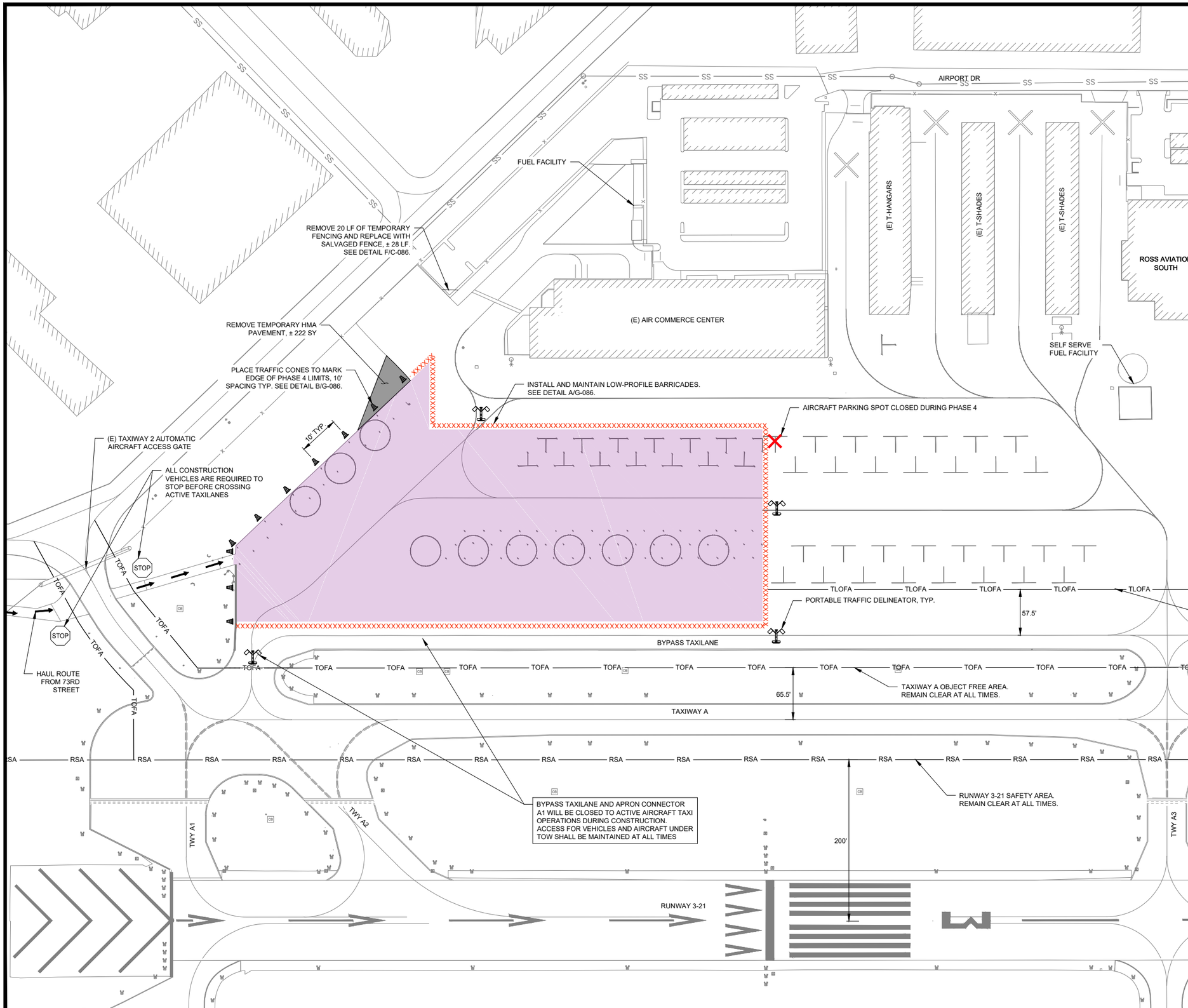

PHASE 4 NOTES:

DESCRIPTION:

- INSTALL LOW-PROFILE BARRICADES, PORTABLE TRAFFIC DELINEATORS, AND TRAFFIC CONES
- REMOVE TEMPORARY HOT MIX ASPHALT PAVEMENT
- REMOVE TEMPORARY FENCING
- PAVEMENT MARKING REMOVAL, 100%
- REMOVE CONCRETE TIE DOWN ANCHORS
- REMOVE FIRE HYDRANT VAULTS AND PERFORM WATER LINE MODIFICATIONS
- COLD MILL ASPHALT CONCRETE PAVEMENT FULL DEPTH AND OFF-HAUL PULVERIZED MATERIAL
- REPLACE SLURRY CAP ON EXISTING DUCTBANKS
- PERFORM UNCLASSIFIED EXCAVATION AND GRADING
- CONSTRUCT SOIL-CEMENT BASE COURSE
- CONSTRUCT CRUSHED AGGREGATE BASE COURSE
- PAVE HOT MIX ASPHALT SURFACE COURSE
- CONSTRUCT AIRCRAFT TIE-DOWN ANCHORS
- PAINT NEW PAVEMENT MARKINGS
- FINAL INSPECTION, CLEAN UP, AND DEMOBILIZATION

PROJECT DURATION

- SIXTY-SEVEN (67) CALENDAR DAYS

IMPACTS TO AIRFIELD OPERATIONS

- BYPASS TAXILANE AND APRON CONNECTOR A1 WILL BE CLOSED TO ACTIVE AIRCRAFT OPERATIONS DURING CONSTRUCTION. ACCESS FOR VEHICLES SHALL BE MAINTAINED AT ALL TIMES.
- TIE DOWN AND HELICOPTER PARKING SPOTS CLOSED AS SHOWN.

LEGEND

- PROPOSED HAUL ROUTE
- XXXXXXXX LOW PROFILE BARRICADES
- PORTABLE TRAFFIC DELINEATOR (AIRPORT PROVIDED)
- PARKING SPOT CLOSED
- TRAFFIC CONE
- PHASE 4 WORK AREA

0 60 120

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SCOTTSDALE AIRPORT DELTA APRON RECONSTRUCTION

15255 N. AIRPORT DRIVE
SCOTTSDALE, AZ 85260

ISSUED

BID SET

AIP NO.:	3-04-0032-036-2018
M&H NO.:	2886300-172363.01
DATE:	MARCH 19, 2018
DESIGNED BY:	DPS
DRAWN BY:	BJM
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SHEET CONTENTS

CONSTRUCTION SAFETY & PHASING PLAN - PHASE 4

SHEET NO. 10 of 36

G-085

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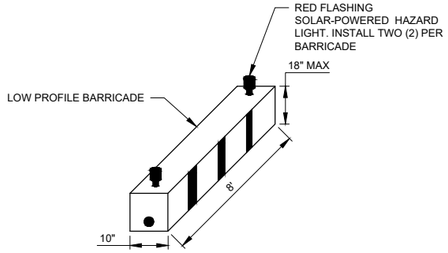
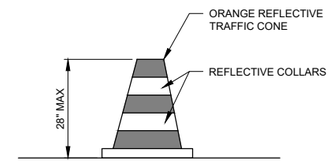
ATTACHMENT 2 – BARRICADE DETAILS



LOW PROFILE BARRICADE NOTES:

1. BARRICADES SHALL BE SAFETY ORANGE IN COLOR WITH ORANGE AND WHITE REFLECTIVE STRIPING ON BOTH SIDES.
2. BARRICADES SHALL BE HIGH IMPACT, UV-RESISTANT, HIGH DENSITY POLYETHYLENE.
3. BARRICADES SHALL BE CONTINUOUSLY LINKED AND PLACED WHERE INDICATED ON THE CONSTRUCTION SAFETY AND PHASING PLAN AND AS DIRECTED BY AIRPORT OPERATIONS AND THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, PLACING, MOVING, LIGHTING, FILLING WITH WATER AND MAINTAINING THE BARRICADES DURING CONSTRUCTION OF THE ENTIRE PROJECT.

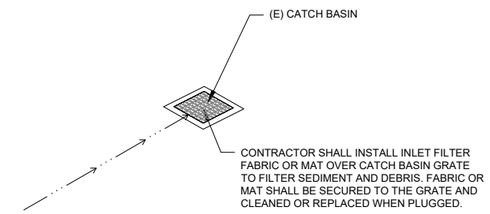
A **LOW PROFILE BARRICADE**
NO SCALE



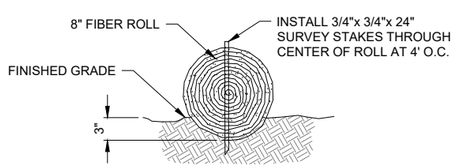
NOTE:

1. CONTRACTOR SHALL PROVIDE AND PLACE TRAFFIC CONES AS SHOWN ON THE PLANS AND/OR AS DIRECTED BY AIRPORT OPERATIONS AND THE ENGINEER.

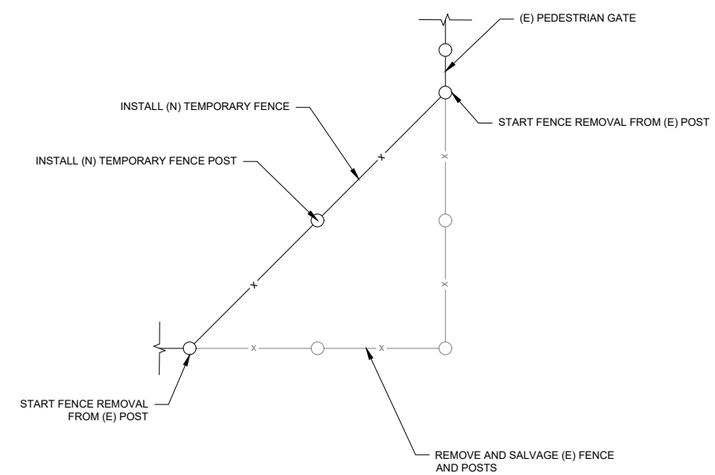
B **TRAFFIC CONE**
NO SCALE



C **INLET PROTECTION**
NO SCALE



D **FIBER ROLL**
NO SCALE



E **CHAIN-LINK FENCE MODIFICATIONS**
NO SCALE

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SCOTTSDALE AIRPORT
DELTA APRON RECONSTRUCTION

15255 N. AIRPORT DRIVE
SCOTTSDALE, AZ 85260

ISSUED

BID SET

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M&H NO.:	2886300-172363.01
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SHEET CONTENTS

CONSTRUCTION SAFETY & PHASING PLAN - DETAILS

SHEET NO. 11 of 36

G-086

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ATTACHMENT 3 – DAILY SAFETY INSPECTION CHECKLIST

(for Contractor's use)

CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project.

Potentially Hazardous Conditions

Item	Action Required	or	None
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.			☐
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.			☐
Runway resurfacing projects resulting in lips exceeding 3 in (7.6 cm) from pavement edges and ends.			☐
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.			☐
Equipment or material near NAV AIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.			☐
Tall and especially relatively low visibility units (that is, equipment with slim profiles) – cranes, drills, and similar objects – located in critical areas, such as OFZ and approach zones.			☐
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.			☐
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.			☐

Item	Action Required	or	None
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.			☐
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.			☐
Wildlife attractants – such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water – on or near airports.			☐
Obliterated or faded temporary markings on active operational areas.			☐
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.			☐
Failure to issue, update, or cancel NOT AMs about airport or runway closures or other construction related airport conditions.			☐
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.			☐
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport building.			☐
Lack of radio communications with construction vehicles in airport movement areas.			☐
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.			☐
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.			☐
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.			☐

Item	Action Required	or	None
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).			☐
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.			☐
Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.			☐
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.			☐
Site burning, which can cause possible obscuration.			☐
Construction work taking place outside designated work areas and out of phase.			☐

ATTACHMENT 4 – AIRPORT SPECIAL INSPECTION SHEET

(for Airport's use)

Log Entered	3/28/2016 15:08 PM	Entered By	Chris Read
Event Date/Time	3/28/2016 15:08 PM	Days Open	0

SDL SPECIAL INSPECTION - POST CONSTRUCTION

SPECIAL INSPECTION - POST CONSTRUCTION

(complete prior to reopening a portion of the air operations area)

Date of Inspection:

Time of Inspection: 00:00

Enter Satisfactory, Unsatisfactory, Corrected or Not Applicable

Pavement

F.O.D.

Markings

Retroreflectivity

Daytime Visibilty

Safety Areas

Ruts/Humps

Pavement Edges

Sign/Light Base Edges

Stockpiles

Barricades (removed)

Other Deficiencies

Other

Location of Deficiency/Actions Taken:

Appendix D
Western Burrowing Owl Flyer

Western Burrowing Owl Awareness

ADOT Environmental Planning Group

1611 W. Jackson St- Mail Drop EM02

Phoenix, AZ 85007

The purpose of this flyer is to provide ADOT employees and contractors, working on roadside projects, with basic knowledge to reduce the risk of incidental take of Western Burrowing Owls.

Legal Status:

Western Burrowing Owls (*Athene cunicularia*) are protected under the Federal Migratory Bird Treaty Act of 1918. All migratory birds and their parts are fully protected. They are also protected under Arizona State Law in Title 17-101, Title 17-235, and Title 17-236.

What to look for:

- Description– small, ground-dwelling owl.
- Length– 19.5-25.0 cm (7.68-9.85 inches)
- Wingspan– 58.42 cm (23.0 inches)
- Mass– about 150 grams
- Males are typically slightly larger than females.
- Round head, lacks ear tufts.
- Distinct oval facial ruff, framed by a broad, puffy white eyebrow.
- Eyes contain a bright yellow iris.

Where are owls found?

- Dry, open, short grass, treeless plains.
- Dependent on fossorial mammals. (ground squirrels, prairie dogs, badgers, etc.) to construct burrows.
- Human dominated landscapes: golf courses, airports, agricultural fields.

Identifying an active burrow:

- Owls use burrows constructed by ground squirrels, badgers, coyotes and tortoises. They can also use pipes, culverts, and ditches.
- Presence of excrement (whitewash) near entrance to burrow.
- Burrowing owls frequently decorate entrance of burrows with cow or horse manure, feathers, vegetation and trash items.

How to avoid them:

- Scan ahead prior to arriving at a sign location.
- If burrowing owls are observed within the project area, stop and move at least 100 feet beyond the owl or occupied burrow before resuming work.

If you think your work may potentially impact a Burrowing Owl or active burrow, please stop.
Move at least 100 feet from the animal or burrow before resuming work.

If you have any questions or think you have a borrowing owl or active burrow on your work site please contact:

Joshua Fife, Biologist, ADOT Environmental Planning Group, jfife@azdot.gov

Office: (602)712-6819, Mobile: (602) 622-9622, EPG General: (602)712-7767

Source: Arizona Game and Fish Department Animal Abstract: Western Burrowing Owl. Heritage Data Management System

(revised November 25, 2013)

Appendix E
Federal Wage Rates

General Decision Number: AZ180008 01/05/2018 AZ8

Superseded General Decision Number: AZ20170008

State: Arizona

Construction Type: Highway

Counties: Coconino, Maricopa, Mohave, Pima, Pinal, Yavapai and Yuma Counties in Arizona.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018

CARP0408-005 07/01/2016

	Rates	Fringes
CARPENTER (Including Cement Form Work)	$ 25.48	11.54

ENGI0428-001 06/01/2017

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Group 1	$ 24.09	10.52
Group 2	$ 27.36	10.52
Group 3	$ 28.44	10.52
Group 4	$ 29.47	10.52

POWER EQUIPMENT OPERATORS CLASSIFICATIONS:

GROUP 1: A-frame boom truck, air compressor, Beltcrete, boring bridge and texture, brakeman, concrete mixer (skip type), conductor, conveyor, cross timing and pipe float,

curing machine, dinky (under 20 tons), elevator hoist (Husky and similar), firemen, forklift, generator (all), handler, highline cableway signalman, hydrographic mulcher, joint inserter, jumbo finishing machine, Kolman belt loader, machine conveyor, multiple power concrete saw, pavement breaker, power grizzly, pressure grout machine, pump, self-propelled chip spreading machine, slurry seal machine (Moto paver driver), small self-propelled compactor (with blade-backfill, ditch operation), straw blower, tractor (wheel type), tripper, tugger (single drum), welding machine, winch truck

GROUP 2:
ALL COUNTIES INCLUDING MARICOPA: Aggregate Plant, Asphalt plant Mixer, Bee Gee, Boring Machine, Concrete Pump, Concrete Mechanical Tamping-Spreading Finishing Machine, Concrete Batch Plant, Concrete Mixer (paving & mobile), Elevating Grader (except as otherwise classified), Field Equipment Serviceman, Locomotive Engineer (including Dinky 20 tons & over), Moto-Paver, Oiler-Driver, Operating Engineer Rigger, Power Jumbo Form Setter, Road Oil Mixing Machine, Self-Propelled Compactor (with blade-grade operation), Slip Form (power driven lifting device for concrete forms), Soil Cement Road Mixing Machine, Pipe-Wrapping & Cleaning Machine (stationary or traveling), Surface Heater & Planer, Trenching Machine, Tugger (2 or more drums).

MARICOPA COUNTY ONLY: Backhoe < 1 cu yd, Motor Grader (rough), Scraper (pneumatic tired), Roller (all types asphalt), Screed, Skip Loader (all types 3<6 cu yd), Tractor (dozer, pusher-all).

GROUP 3:
ALL COUNTIES INCLUDING MARICOPA: Auto Grade Machine, Barge, Boring Machine (including Mole, Badger & similar type directional/horizontal), Crane (crawler & pneumatic 15>100 tons), Crawler type Tractor with boom attachment & slope bar, Derrick, Gradall, Heavy Duty Mechanic-Welder, Helicopter Hoist or Pilot, Highline Cableway, Mechanical Hoist, Mucking Machine, Overhead Crane, Pile Driver Engineer (portable, stationary or skid), Power Driven Ditch Lining or Ditch Trimming Machine, Remote Control Earth Moving Machine, Slip Form Paving Machine (including Gunnert, Zimmerman & similar types), Tower Crane or similar type.

MARICOPA COUNTY ONLY: Backhoe<10 cu yd, Clamshell < 10 cu yd, Concrete Pump (truck mounted with boom only), Dragline <10 cu yd, Grade Checker, Motor Grader (finish-any type power blade), Shovel < 10 cu yd.

GROUP 4: Backhoe 10 cu yd and over, Clamshell 10 cu yd and over, Crane (pneumatic or crawler 100 tons & over), Dragline 10 cu yd and over, Shovel 10 cu yd and over.

All Operators, Oilers, and Motor Crane Drivers on equipment with Booms, except concrete pumping truck booms, including Jibs, shall receive $0.01 per hour per foot over 80 ft in addition to regular rate of pay

Premium pay for performing hazardous waste removal $0.50 per hour over base rate.

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* IRON0075-004 08/01/2017

COCONINO, MARICOPA, MOHAVE, YAVAPAI & YUMA COUNTIES

	Rates	Fringes
Ironworker, Rebar	$ 26.00	18.85

Zone 1: 0 to 50 miles from City Hall in Phoenix or Tucson
Zone 2: 050 to 100 miles - Add $4.00
Zone 3: 100 to 150 miles - Add $5.00
Zone 4: 150 miles & over - Add $6.50

LABO0383-002 06/01/2017

	Rates	Fringes
Laborers:		
Group 1	$ 17.93	5.01
Group 2	$ 18.83	5.01
Group 3	$ 19.53	5.01
Group 4	$ 20.47	5.01
Group 5	$ 21.33	5.01

LABORERS CLASSIFICATIONS:

GROUP 1: All Counties: Chipper, Rip Rap Stoneman. Pinal County Only: General/Cleanup Laborer. Maricopa County Only: Flagger.

GROUP 2: Asphalt Laborer (Shoveling-excluding Asphalt Raker or Ironer), Bander, Cement Mason Tender, Concrete Mucker, Cutting Torch Operator, Fine Grader, Guinea Chaser, Power Type Concrete Buggy

GROUP 3: Chain Saw, Concrete Small Tools, Concrete Vibrating Machine, Cribber & Shorer (except tunnel), Hydraulic Jacks and similar tools, Operator and Tender of Pneumatic and Electric Tools (not herein separately classified), Pipe Caulker and Back-Up Man-Pipeline, Pipe Wrapper, Pneumatic Gopher, Pre-Cast Manhole Erector, Rigger and Signal Man-Pipeline

GROUP 4: Air and Water Washout Nozzleman; Bio-Filter, Pressman, Installer, Operator; Scaffold Laborer; Chuck Tender; Concrete Cutting Torch; Gunite; Hand-Guided Trencher; Jackhammer and/or Pavement Breaker; Scaler (using boson's chair or safety belt); Tamper (mechanical all types).

GROUP 5: AC Dumpman, Asbestos Abatement, Asphalt Raker II, Drill Doctor/Air Tool Repairman, Hazardous Waste Removal, Lead Abatement, Lead Pipeman, Process Piping Installer, Scaler (Driller), Pest Technician/Weed Control, Scissor

Lift, Hydro Mobile Scaffold Builder.

PAIN0086-001 04/01/2014

	Rates	Fringes
PAINTER		
PAINTER (Yavapai County only), SAND BLASTER/WATER BLASTER (all Counties)	$ 19.50	4.85

ZONE PAY: More than 100 miles from Old Phoenix Courthouse $3.50 additional per hour.

SUAZ2009-001 04/20/2009

	Rates	Fringes
CEMENT MASON	$ 19.28	3.99
ELECTRICIAN	$ 22.84	6.48
IRONWORKER (Rebar)		
Pima County	$ 23.17	14.83
Pinal County	$ 20.27	8.35
LABORER		
Asphalt Raker	$ 15.49	3.49
Compaction Tool Operator	$ 14.59	2.91
Concrete Worker	$ 13.55	3.20
Concrete/Asphalt Saw	$ 13.95	2.58
Driller-Core, diamond, wagon, air track	$ 16.94	3.12
Dumpman Spotter	$ 14.99	3.16
Fence Builder	$ 13.28	2.99
Flagger Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 12.35	1.59
Formsetter	$ 16.09	3.97
General/Cleanup Laborer Coconino, Maricopa, Mohave, Pima, Yavapai & Yuma	$ 14.54	3.49
Grade Setter (Pipeline)	$ 17.83	5.45
Guard Rail Installer	$ 13.28	2.99
Landscape Laborer	$ 11.39	
Landscape Sprinkler Installer	$ 15.27	
Pipelayer	$ 14.81	2.96
Powderman, Hydrasonic	$ 16.39	2.58
OPERATOR: Power Equipment		
Asphalt Laydown Machine	$ 21.19	6.05
Backhoe < 1 cu yd Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 17.37	3.85
Backhoe < 10 cu yd Coconino, Mohave, Pima,		

Pinal, Yavapai & Yuma.....$ 18.72 3.59
Clamshell < 10 cu yd
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 18.72 3.59
Concrete Pump (Truck
Mounted with boom only)
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 19.92 7.10
Crane (under 15 tons).....$ 21.35 7.36
Dragline (up to 10 cu yd)
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 18.72 3.59
Drilling Machine
(including Water Wells).....$ 20.58 5.65
Grade Checker
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 16.04 3.68
Hydrographic Seeder.....$ 15.88 7.67
Mass Excavator.....$ 20.97 4.28
Milling Machine/Rotomill....$ 21.42 7.45
Motor Grader (Finish-any
type power blade)
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 21.92 4.66
Motor Grader (Rough)
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 20.07 4.13
Oiler.....$ 18.15 8.24
Power Sweeper.....$ 16.76 4.44
Roller (all types Asphalt)
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 18.27 3.99
Roller (excluding asphalt)..$ 15.65 3.32
Scraper (pneumatic tired)
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 17.69 3.45
Screed
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 17.54 3.72
Shovel < 10 cu yd
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 18.72 3.59
Skip Loader (all types <3
cu yd).....$ 18.28 5.30
Skip Loader (all types 3 <
6 cu yd)
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 18.64 4.86
Skip Loader (all types 6 <
10 cu yd).....$ 20.15 4.52
Tractor (dozer, pusher -
all)
Coconino, Mohave, Pima,
Pinal, Yavapai & Yuma.....$ 17.26 2.65

PAINTER
Coconino, Maricopa,
Mohave, Pima, Pinal & Yuma..$ 15.57 3.92

TRUCK DRIVER

2 or 3 Axle Dump or Flatrack	$ 16.27	3.30
5 Axle Dump or Flatrack	$ 13.97	2.89
6 Axle Dump or Flatrack (< 16 cu yd)	$ 17.79	6.42
Belly Dump	$ 14.67	
Oil Tanker Bootman	$ 22.03	
Self-Propelled Street Sweeper	$ 13.11	5.48
Water Truck 2500 < 3900 gallons	$ 18.14	4.55
Water Truck 3900 gallons and over	$ 15.92	3.33
Water Truck under 2500 gallons	$ 15.94	4.16

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

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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 a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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.

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END OF GENERAL DECISION