

NOTE:
Pre-Bid: 6/4/15
Quest Due: 6/18/15
Bid Open: 6/30/15

PINAL COUNTY

INVITATION FOR BIDS PACKET



P I N A L ♦ C O U N T Y

Wide open opportunity

VOLUME II – SPECIAL PROVISIONS AND TECHNICAL SPECIFICATIONS

PROJECT TITLE: Pinal Airpark Runway 12-30 Rehabilitation and Repair

PROJECT NUMBER: #61790016

BIDDER'S NAME: _____

Pinal County Department of Finance / Procurement Division
P. O. Box 1348
Administration Building - A
31 North Pinal Street
Florence, Arizona 85132

SPECIAL PROVISIONS AND SPECIFICATIONS:

Pinal Airpark Runway 12-30 Rehabilitation and Repair Project #61790016

1. Scope of Work/Work. As set forth in document entitled “Invitation for Bids”.
2. Intent of Specifications and Plans. The specifications and plans are intended to supplement, but not necessarily duplicate each other, and together constitute one complete set of construction documents. Work exhibited in the one and not in the other shall be executed just as if it had been set forth in both, in order that the Work shall be completed according to the complete design or designs as decided and determined by the Engineer.
3. Discrepancy Procedure. Should anything be omitted from the specifications and plans which is necessary to a clear understanding of the Work, or should it appear that various specifications and/or instructions are in conflict, or in the event of a recognized ambiguity by Contractor or any Subcontractor, it shall be brought to the attention of the contact person named in the Invitation for Bids, if discovered prior to the opening of bids, or to the attention of the Engineer, if discovered after the award of contract, and written instructions secured from the Engineer before proceeding with the Work affected by such omission or discrepancy.
4. Requests for Information. The Architect/Engineer shall respond to all written Contractor's Requests for Information (RFI) within seven (7) calendar days. All RFI's shall be copied to the Engineer.
5. Pre-construction Conference. The Engineer shall call a pre-construction conference prior to beginning the Work to go over the proposed Work with Contractor. The following is a list of submittals due from the Contractor at or by the pre-construction conference:
 - Airfield Safety and Security Plan;
 - Airfield Safety and Security Barricade and Traffic Control Plan;
 - Contractor’s Emergency Contact List (with subcontractors);
 - Contractor’s CPM Construction Schedule;
 - Material submittal/shop drawing list and schedule;
 - Schedule of Values;
 - Storm Water Pollution Prevention Plan Notice of Intent and Certification of Compliance Forms;
 - Dust Control Plan;

The Contractor shall submit the following with regards to the Construction Schedule:

- Arrange schedule to indicate required sequencing of work as outlined below and in the Contract Documents, and to indicate time allowances for submittals, inspections, and similar time margins.
- Schedule shall reflect Contractor's modifications and suggested revisions to work sequencing indicated in the Contract Documents. The Engineer and/or Pinal County reserve the right to approve or disapprove such modifications or revisions.
- Review and recognition of this schedule shall not relieve the Contractor of responsibility for scheduling of the work and maintaining progress in accordance with the Contract Documents. Schedule shall be submitted and reviewed for comment by Engineer and Owner for conformance to Critical Milestone Completion Dates and overall project completion time criteria. Lack of this information shall be cause for rejection of schedule. Partial payment requests will not be processed without a revised Critical Path Method (CPM) schedule.
- In addition to the construction related work items, the following shall be included:
 - Critical submittal dates related to each activity or prepare separate coordinated listing of critical submittal dates.
 - Sequences of work within each activity that involves purchase lead-time, mock-ups, testing, or similar phases, as well as installation.
 - The CPM Construction Schedule shall relate to the entire project to the extent required by the Contract Documents and shall provide for expeditious and practicable execution of the work.
- The following items define the term "activities" as it pertains to the Trades in the Contractor's CPM network.
 - Each activity shall be a unit of work that requires an amount of time for its performance.
 - Each activity shall be a logically separate part of the work, defined by an observable start and an observable finish.
 - To establish the scope of an activity for CPM purposes, Trade Contractor shall form a single activity from the largest grouping of related operations which permit a continuous and measurable flow of work and which can proceed without affecting or being affected by work of another Trade Contractor.
 - The scope of an activity shall be small enough to permit a reasonable appraisal of its status or as directed by the Engineer.
 - Activities of other Contractors or other contractors that must be completed prior to the start of the Trade Contractor's work or portion of work shall be included in the Trade Contractor's schedule as milestones and identified with a designation approved by the Construction Manager.

6. Contract Administrator's Responsibilities. Review and make recommendations on Contracts, Change Orders, and pay estimates to the Board of Supervisors.
7. Work Hours. The work schedule shall be coordinated between Contractor and Engineer. Time is of the essence in completion of the work, therefore work will be allowed at all hours of the day and night through the contract duration except days noted for no work per the construction phasing plan/schedule. Work may not be performed on County Holidays, pursuant to A.R.S. 1-301, unless otherwise approved by Engineer.
8. Protection of Finished or Partially Finished Work. Contractor shall properly guard and protect all finished or partially finished Work, and shall be responsible for same until the entire Project is completed and accepted by Pinal.
9. Site Investigation. Contractor hereby acknowledges they have investigated the construction site and is fully cognizant of the features and Scope of Work to be completed under the Contract Documents. Contractor agrees any failure to fully investigate, inspect, take proper measurements or have full knowledge of Scope of Work and the site conditions for the project and to satisfy Contractor of the Scope of Work for the Project shall not be grounds for additional compensation under this Contract.
10. Differing Site Conditions.
 - 10.1 During the performance of the Work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the Contract documents or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered in performing the Work are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions.
 - 10.2 Upon written notification, the Engineer shall investigate the conditions and if it is determined that the conditions materially differ and cause an increase or decrease in the Work to be performed, including the quantity and cost of the materials to be furnished and delivered, or in the time required for performing the Work, the Contract may be cancelled or an adjustment, excluding anticipated profits, may be made and the Contract modified in writing accordingly with the approval of the Pinal County Board of Supervisors. The Engineer shall notify Contractor of the determination whether to cancel the Contract or whether or not an adjustment of the Contract is warranted.
 - 10.3 No contract adjustment, which results in a benefit to Contractor, shall be allowed unless contractor has provided the required written notice.
11. Dust Control. Contractor shall be responsible for dust control on the Project Site during the term of this Contract.
12. Cooperation by Contractor. Contractor shall be supplied with a minimum of two sets of approved plans and Contract assemblies including special provisions, one set of which Contractor shall keep available at the Project Site at all times. Contractor shall give the Work the constant attention necessary to facilitate the progress thereof and shall cooperate

with the Engineer, the Quality Assurance Inspectors and other contractors in every way possible. Contractor shall have at the project site at all times, as Contractor's agent, a competent superintendent capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the type of Work being performed, who shall receive instructions from the Engineer. The superintendent shall have full authority to execute orders or directions of the Engineer without delay and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. A superintendent shall be furnished irrespective of the amount of Work subcontracted.

13. Blue Stake Notification. Contractor shall contact the appropriate utility companies for Blue Staking of underground utility locations at least three working days prior to commencement of construction of the Work.
14. Cooperation with Utility Companies. The Contractor shall notify all utility companies, all pipeline owners or other parties affected and endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines and other appurtenances within or adjacent to the limits of construction, made as soon as practicable. Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted shall be moved by the Contractor, unless otherwise provided for in the special provisions or noted on the project plans.
15. Authority of the Engineer. The Engineer shall decide any and all questions that may arise as to the Work, including the quantity, quality and acceptability of materials furnished and rate of delivery. The Engineer shall decide all questions that may arise as to the interpretation of the specifications or plans. The Engineer with the consent of the Director of the Pinal County Department of Public Works shall have the authority to suspend the Work, wholly or in part, due to the failure of Contractor to correct conditions unsafe for the workers or the general public; for failure to carry out provisions of the Contract Documents and to carry out orders. The Engineer may suspend the Work for such period as the Engineer may deem necessary due to adverse weather conditions, for conditions considered adverse to the prosecution of the Work or for any other condition or reason deemed to be in the public interest. The Engineer's decision, in case any questions may arise, shall be a condition precedent to the right of Contractor to receive any money or compensation for the Work under the Contract Documents. The Engineer shall have full power to reject or condemn all or part of the Work performed under the Contract Documents, which do not conform to the specifications, terms and conditions herein expressed. All Work shall be performed, including the furnishing of materials, strictly to and in conformity with the plans specifications made part of the Contract Documents and according to the directions of the Engineer. The Engineer's failure to discover or reject Work, including materials, not in accordance with the plans, specifications and contract documents during performance of the Work, shall not be considered an acceptance of the Work, or a waiver of defects. Neither the failure to properly perform inspections, tests or approvals required by the Contract Documents nor the activities or duties of the Engineer in the administration of the Contract Documents shall relieve Contractor from Contractor's obligation to perform the Work strictly to and in conformity with the plans, specifications, terms, provisions and of the Contract Documents.

16. Duties of Quality Assurance Inspector. QA Inspectors shall be authorized to inspect all Work done and materials 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. The QA Inspector shall not be authorized to alter or waive the provisions of the Contract. The QA Inspector shall not be authorized to issue instructions contrary to the plans and specifications or to act as foreman for Contractor; however, QA inspector shall have the authority to reject Work or materials until any questions at issue can be referred to and decided by the Engineer.
17. Quality of Construction. All Work shall be done and completed in a thorough workmanlike manner, notwithstanding any omission from these specifications or the drawings. Contractor shall be responsible for Quality Control on the entire job, including but not limited to any tests required to prove the quality of the product.
- 17.1 Contractor Quality Control. This item shall consist of all work necessary to ensure quality control of the Contractor's work during Construction in accordance the requirements of Technical Specifications P-100, *Contractor Quality Control Program*.
- 17.1.1 Contractor Quality Control, CQC, is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. The controls shall be adequate to cover all construction operations, including both onsite and offsite fabrication.
- 17.1.2 The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Contractor Inspection Requirements." The CQC system shall consist of plans, procedures, and an organization necessary to produce an end product, which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project superintendent shall be held responsible for the quality of work on the job and is subject to removal by the County Engineer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.
- 17.2 Contractor Inspection Requirements. The Contractor is responsible performing or having performed all inspections and tests necessary to substantiate that all materials or services furnished under this contract conform to contract requirements, including any applicable technical requirements for specified materials. Any testing performed by the Owner does not diminish the Contractors responsibilities set forth in this paragraph.
- 17.2.1 Inspection of Materials. The Contractor shall provide and maintain inspection system covering materials under this contract and shall tender to the County for acceptance only materials that have been inspected and been found by the contractor to be in conformity with contract requirements. The Contractor shall prepare records evidencing all inspections made and the outcome. The records shall be kept complete and made available to the County during the contact performance and for as long afterwards as the contract requires. The County may

perform reviews and evaluations as reasonably necessary to ascertain compliance with this paragraph. These reviews and evaluations shall be conducted in a manner that shall not unduly delay the contract work. The right to review, whether exercised or not, does not relieve the Contractor of the obligations under the contract.

- 17.2.2 The County may inspect and test all materials called for by the Contract, to the extent practicable, at all places and times, including the period of manufacture, and in any event before acceptance. The Engineer shall perform inspections and tests in a manner that shall not unduly delay the work. The County assumes no contractual obligation to perform any inspection and test for the benefit of the Contractor unless specifically set forth elsewhere in the contract.
- 17.2.3 When materials are not ready at the time specified by the Contractor for inspection or test, the Engineer may charge to the Contractor the additional of inspection or test.
- 17.2.4 The Engineer may also charge the Contractor for additional cost of inspection or test when prior rejection makes re-inspection or retest necessary.
- 17.2.5 The Engineer has the right to either reject or to require correction of non-conforming materials. Materials are nonconforming when they are defective in quality or workmanship or are otherwise not in conformity with requirements. The Engineer may reject non-conforming materials with or without disposition instructions.
- 17.2.6 The Contractor shall remove materials rejected or required to be corrected. However, the Engineer may require or permit correction in place, promptly notice, by and at expense of the Contractor. If the Contractor fails to promptly remove, replace, or correct rejected materials that are required to be removed or to be replaced or corrected, the Engineer may either (1) by contract or otherwise, remove, replace, or correct the materials and charge the cost to the Contractor or (2) terminate the contract for default. Unless the Contractor corrects or replaces the materials within the delivery schedule, the Engineer may require their delivery and make an equitable price reduction.
- 17.2.7 The Contractor shall furnish advance notification to the Quality Assurance Inspector of the time when Contractor inspections or tests shall be performed accordance with the terms and conditions of the contract; and when shall be ready for Engineer inspection.
- 17.2.8 The Engineer's failure to inspect and accept or reject the materials shall not relieve the Contractor from responsibility, nor impose liability on the County, for non-conforming materials. Inspections and tests by the County do not relieve the Contractor of responsibility for defects or other failures to meet contract requirements.

- 17.3 Inspection of Construction: The Contractor shall maintain an adequate inspection system and perform such inspections as shall ensure that the work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Architect/Engineer and Engineer. All work shall be conducted under the general direction of the County Engineer and is subject to County inspections and tests at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
- 17.3.1 County inspections and tests are for the sole benefit of the County and do not: (1) relieve the Contractor of the responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for damage to or loss of the work and material before acceptance; (3) constitute or imply acceptance; (4) or affect the continuing rights of the County after acceptance of completed work.
- 17.3.2 The presence or absence of a County QA inspector does not relieve the Contractor from any contract requirement, nor is the QA inspector authorized to change any term or condition of the contract specification without the Engineer's written authorization.
- 17.3.3 The Contractor shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspection and tests as may be required by the Engineer. The County shall charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes re-inspection or retest necessary. The Engineer shall perform all inspections and tests in a manner that shall not unnecessarily delay the work due to any additional testing it deems necessary.
- 17.3.4 The Contractor shall, without charge, replace or correct work found by the County not to conform to contract specifications, unless in the public interest the Engineer consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected from the premises.
- 17.3.5 If the Contractor does not promptly replace or correct rejected work, the Engineer may: (1) by contract or otherwise, replace or correct the work and charge the cost to the contractor or (2) terminate for default the Contractor's right to proceed.
- 17.3.6 If, before acceptance of the entire work, the Engineer decides to examine completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, county shall for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

18. Inspection of Materials and Work. The Engineer may reject or condemn, in whole or in part, materials not in good condition or not in compliance with the specifications of the Bid/Contract Documents. All materials and each part or detail of the Work shall be subject to inspection by the Engineer's representatives. The Engineer or the Engineer's representatives shall be allowed access to all parts of the Work, including materials used, and shall be furnished with such information and assistance by Contractor as is required to make a complete and detailed inspection.
- 18.1 Contractor shall schedule its operations to allow a reasonable amount of time for engineering inspection of the Work, including materials used. In most cases, inspection shall be completed in eight work hours or less. Contractor shall not be entitled to additional compensation or an extension of Contract time for delay resulting from such inspections. The Engineer's representative shall perform the inspection as expeditiously as possible in order that the Work might progress in an orderly and continuous manner. Additional inspection costs incurred due to Contractor errors shall be at Contractor's expense.
- 18.2 Any Work done or materials used without inspection by the Engineer may be ordered removed and replaced at Contractor's expense unless the failed to inspect after having been given a minimum of 48 hours' notice in writing that the Work was to be performed. Failure to reject any defective Work, including materials, shall not in any way prevent later rejection when such defect is discovered nor obligate the Engineer to final acceptance.
19. Removal of Unacceptable and Unauthorized Work. All work, including materials used, which does not conform to the requirements of the Contract Documents shall be considered unacceptable. Unacceptable and/or defective Work, including materials used, found to exist prior to the final acceptance of the Work, shall be removed immediately and replaced by acceptable Work, including materials. Upon failure on the part of Contractor to comply with any order of the Engineer made under the provisions of this subsection, the Engineer shall have authority to cause unacceptable and/or unauthorized Work, including materials, to be remedied or removed and replaced and to deduct the costs from any monies due Contractor.
20. Load Restrictions. Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the project. A special permit shall not relieve Contractor of liability for damage, which may result from hauling of materials or moving of equipment. Contractor shall comply with all weight restrictions on lifting equipment.
21. Maintenance During Construction. Contractor shall maintain the Work during construction and until the Project is accepted. This maintenance shall constitute continuous and effective Work prosecuted day by day with adequate equipment and forces to the end that the Work is kept in satisfactory condition at all times. All costs of maintenance work during construction and before the project is accepted shall be considered as included in the Bid/Contract Price. If at any time Contractor fails to comply with the provisions of this subsection, Pinal shall immediately notify Contractor of such noncompliance. If Contractor fails to remedy unsatisfactory maintenance within 24 hours after receipt of such notice, Pinal may immediately proceed to maintain the Work and the entire cost of this maintenance may be deducted from

monies due and/or to become due Contractor under this contract and/or any other contract that Contractor is performing for Pinal and/or collect from Contractor and/or from Contractor's surety by any remedy allowed by law.

22. Cleanup. Prior to the final inspection of Work under this Contract, Contractor shall remove all loose debris, unused material and other materials caused as a result of his operations, from the site of the Work.
23. Final Inspection. Upon due notice from Contractor that the entire Work under the Contract Documents are completed, the Engineer's representatives shall make an inspection. If all Work, including materials, provided for and contemplated by the Contract Documents are approved to the Engineer's Representative's satisfaction, that inspection shall constitute the final inspection and the Engineer shall notify Contractor in writing of completion of final inspection. If, however, the inspection discloses any Work, including materials, as unacceptable and/or defective, the Engineer shall give Contractor written notice of the unacceptable and/or defective Work, including materials, and Contractor shall immediately remove said Work, including materials, and replace it with acceptable Work, including materials. Upon remediation of the unacceptable and/or defective Work, including materials, as called for by the Engineer's notice, the above procedures shall be repeated until the Engineer gives notice of completion.
24. Care of Desert Vegetation at Structure Sites. All desert vegetation at structure sites, except plants expressly tagged for removal shall be protected by Contractor from injury during construction. Contractor shall be responsible for any damage to non-tagged plants caused by operations and shall replace damaged plants to the satisfaction of Pinal.
25. Protection of Adjacent Property. Contractor shall take all necessary precautions to avoid harming and/or damaging any adjacent person, structure, property or vegetation.
26. Safety Measures. Contractor shall take care at all times to protect the Work and equipment. Contractor shall take all necessary precautions for the safety and protection of all persons, including workmen and the general public, and shall comply with all applicable provisions of federal, state and municipal safety laws to prevent accidents or injury to persons on, about or adjacent to the property where the work is being performed.
27. Liquidated Damages. Time is the essence of this Contract. In the event Contractor shall fail to perform the Work as described in the Bid/Contract Documents within the time set in the Contract Documents, Contractor shall be liable to Pinal, as liquidated damages and not as a penalty, for:

One Thousand Five Hundred Dollars (\$1,500.00) per day for each and every calendar day that the Contractor fails to meet the contract duration; and

Five Hundred Dollars (\$500.00) per day for each and every calendar day that the Contractor fails to meet the construction phase durations for Phases A, B, C, and D as indicated in the Project Plans.

Pinal Airpark Runway 12-30 Rehabilitation & Repair (Base Bid, Schedule I): A total of 31 Calendar Days.

- Phase A – 11 calendar days from the day of commencing construction of this Phase
- Phase B – 7 calendar days from the day of commencing construction of this Phase
- Phase C – 11 calendar days from the day of commencing construction of this Phase

One Thousand and Five Hundred Dollars (\$1,500) per day for each and every day's delay in Substantial Completion and Acceptance of the work required to be done by the Contractor within the total specified Contract time (**31 Calendar Days**).

One Thousand and Five Hundred Dollars (\$1,500) per day for each and every day's delay in Final Completion and Acceptance of the work required to be done by the Contractor within the total specified Contract time (**30 Calendar Days**).

Pinal shall have the right to deduct said liquidated damages from any amount due and/or that may become due Contractor under this contract and/or any other contract that Contractor is performing for Pinal and/or to collect such liquidated damages for Contractor and/or its surety by any remedy allowed by law.

28. Loss or Damage during Construction. All loss or damage arising out of nature of work to be done, or from action of elements, or from unforeseen circumstances in prosecution of same, or from unusual obstructions or difficulties which may be encountered in prosecution of work shall be sustained and borne by Contractor at its own cost and expense.
29. Contractor's Guarantee and Warranty. The Contractor shall guarantee that the work shall remain in good order and repair and guarantee the material furnished under this Contract for a one-year period. Any defect in workmanship or materials arising during that period shall be repaired or removed and replaced, as determined necessary by the Engineer, at Contractor's expense. If within ten (10) days after the mailing of a written notice to Contractor, or his agent, requesting such repair or removal and replacement, Contractor shall neglect to perform the same with due diligence weather permitting, the Engineer shall direct the repair or removal and replacement at Contractor's expense; provided, however, that in the case of emergency where, in the judgment of Pinal, delay would cause serious loss or damage, the repair or removal and replacement may be made without notice being sent to Contractor, and Contractor shall pay the cost thereof. Failure to satisfactorily complete warranty repairs shall be cause for rejection of bid for future contracts.
30. Manufacturers' Guarantees and Warranties. All manufacturers' guarantees and warranties shall be delivered to the Engineer before final payment on the Contract is made.
31. Surveying. The Contractor shall set all construction stakes establishing lines, grades, and elevations to include necessary utilities and appurtenances and shall be responsible for their conformance with plans and specifications. The Engineer will establish or designate a control line or benchmark of known location and elevation for use as a reference. The Contractor shall furnish all materials, personnel and equipment necessary to perform all surveying, staking and verification of the accuracy of all existing control points, which have been provided by the Engineer and/or Pinal County. Included in this work shall be all

calculations required for the satisfactory completion of the project in conformance with the plans and specifications.

The work shall include establishing and marking "Record Drawings" coordinates and elevations on survey monuments and other designated locations. The work shall be done under the direction of a registered land surveyor employed by the Contractor. All survey crew chiefs shall be one of the following: a registered Civil Engineer, a registered Land Surveyor, an Engineer-in-Training, or a NICET Level III (or a higher NICET level) certified technician.

Materials and equipment shall include, but shall not necessarily be limited to, vehicles for transporting personnel and equipment, properly adjusted and accurate survey equipment, straightedges, stakes, flagging and all other devices necessary for checking, marking, establishing and maintaining lines, grades and layout to perform the work called for in the contract. The Contractor shall furnish a sufficient quantity of competent personnel to perform the survey work and layout.

The Contractor shall not employ nor engage the services of any person or persons in the employ of the Engineer or Pinal County for the performance of any work as described herein.

32. DBE Goal. The Contractor is required to make a good faith effort, as defined in Appendix A of 49 CFR Part 26, Regulations of the Office of the Secretary of Transportation, to subcontract a minimum of 7.45 percent (7.45%) of the dollar value of the prime contract to small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE). In the event that the bidder for this project qualifies as a DBE, the contract goal shall be deemed to have been met. The Contractor is further directed to the Contract Documents for additional DBE information and requirements.
33. Minor errors or omissions in the Proposal Form, Plans, or Specifications shall not relieve the Contractor from fulfilling the general intent of the Contract or from completing any item or items called for in the Plans, Specifications, or Proposal Form.
34. Underground Utility Allowance. The underground utility allowance item is provided for the purpose of encumbering funds to cover the costs of possible additional work due to unforeseen conditions such as existing underground utilities or obstructions not known at the time of design. The amount of the allowance item is determined by the Engineer and is not subject to individual bid pricing. All bidders shall incorporate the amount pre-entered in the bid proposal and shall reflect the same in the total amount bid for this project. This allowance item provides an estimated funding to cover unforeseen changes that may be encountered and corresponding extra work needed to complete the contract per plan. The Engineer shall approve unforeseen extra work, if any, for example, negotiated price, or time and material.

All conduits shown on plans within airfield pavements shall be considered concrete encased.

Payment will be made under:

Item SP 34-1 Underground Utility Allowance – per Allowance

35. Fences. The Contractor shall maintain all existing and temporary fences and gates affected by the work until completion of the work. Fences and gates that interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the Owner, and the period the fence may be left relocated or dismantled as has been agreed upon. On completion of the work, the Contractor shall restore all fences to their original or to a better condition and to their original location or as indicated on the drawings.
36. Parking. The Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic, Owner's operations, or construction activities. The Contractor's parking area will be located at the staging area upon approval of Airport Operations for security access. Vehicles with access into the Airport property require insurance.
37. Drainage Provisions. The Contractor shall provide for the drainage of storm water and such water as may be applied or discharged on the site in performance of the work. Drainage facilities shall be adequate to prevent damage to the work, the site, and adjacent property. Existing drainage channels and conduits shall be cleaned, enlarged or supplemented as necessary to carry all increased runoff attributable to Contractor's operations. Dikes shall be constructed as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect Owner's facilities and the work, and to direct water to drainage channels or conduits.
38. Excess Material. Unsuitable material, broken asphaltic concrete, construction debris, and broken Portland Cement Concrete resulting from the construction shall be removed from the project and disposed of at an offsite location (landfill) by the Contractor at the Contractor's expense.
- Stockpiling and placement of excess pavement millings and excess suitable excavated materials shall be approved by the Engineer and be subjected to the following limitations:
- Stockpiling of suitable excavated materials shall not exceed a height of eight (8) feet above the natural ground elevation.
 - The slopes on all sides of the stockpiled material shall not exceed a 6 to 1 ratio of length to height.
 - Placed outside of primary surfaces, safety areas and the Part 77 surfaces.
39. Construction Debris. The Contractor shall use his own forces and equipment to dispose of site refuse or construction debris at an offsite location (landfill).
40. Clean-Up. The Contractor shall upon completion of the work remove all temporary construction facilities, debris, and unused materials provided for in the work, and restore the site of the work and public right-of-way in a neat and clean condition.
41. Weekly Progress Meetings. The Engineer will conduct weekly Progress Meetings at regularly scheduled times convenient for all parties involved. A two (2) week look-ahead

schedule will be developed by the Contractor prior to the start of the meeting and will be discussed by the Contractor during a portion of the agenda. Additionally, discussions will address administrative and technical issues of concern, determining resolutions and development of deadlines for resolution within allowable time frames.

As may be required by the Engineer, in addition to representatives of the Airport and the Contractor, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities may be represented at these meetings by individuals directly involved with the Contract and authorized to conclude matters relating to progress.

During the weekly construction meeting, there will be a review held and corrections made (if any) and approval of the meeting minutes of the previous progress meeting prepared by the Engineer. The meeting minutes may be tape recorded and will document issues of significance including submittals, schedules, quality control, issues encountered, and the assignment of responsibilities for future action. Other items of significance that could affect progress may be discussed, and the meeting will include topics for discussion as appropriate to the current status of the project.

Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

Review the present and future needs of each entity present, including such items as:

- Work Schedule and Hours of Work
- Quality and Work Standards
- Access and Limitation
- Submittal Status
- Requests for Information
- Non-Compliance Notices
- Status on Certified Payroll Reports
- Change Orders and/or Extra Work
- Housekeeping

The Engineer may tape record the meeting and the Engineer will distribute a copy to the Owner and Prime Contractor. The Prime Contractor shall be responsible to distribute the meeting minutes to subcontractors, suppliers, and others affected by decisions or actions resulting from each meeting.

42. Record Drawings. The Contractor shall keep one or more copy of all specifications, plans, addenda, modifications, working drawings and shop drawings at the site, and in good order. One of the plans shall be annotated by the Contractor to show all changes made during the construction process as they occurred. Upon completion of the project and prior to submittal of the final application for payment, the annotated set of plans showing the “as-built” work

together with any annotated working and shop drawings of significance shall be delivered to the Engineer for the Owner's record. As a minimum, the Contractor shall provide as-built elevations for each spot grade that is shown on the plans for finished pavement, storm drain inverts and rim elevations. The Contractor shall provide stations and offsets for each handhole, manhole, light base, catch basin or other similar structure on the annotated set of record drawings.

43. Utilities and Existing Facilities. This item shall govern the field location of all existing utilities in areas to be improved, to avoid conflicts with proposed surface or underground improvement. Work under this section shall include, but not be limited to, the location of all at-grade, above-ground and underground facilities. Underground facilities means any item that is buried or placed below ground for use in connection with the storage or conveyance of water, sewage, electronic, telephone or telegraphic communications, electric energy, oil, gas or other substances, and shall include, but not be limited to pipes, sewers, conduits, cables, valves, lines, wires, manholes, attachments and those portions of poles and their attachments below ground, including electrical and communication ducts, airfield lighting and control cables, fiber optic lines, storm drains, electrical and telephone lines. The Contractor shall employ a private utility location service to locate the existing Owner and non-Owner utilities prior to starting the work. The Contractor shall pot hole and use prudent care when excavating and locating said utilities.

The Contractor shall, after October 1, 1988, comply with the State requirements regarding excavation and underground utilities per A.R.S., Chapter 2, Article 6.3. and Sections 40.360.31 and other pertinent Sections of the Blue Stake Law. The Contractor shall be responsible for locating all Owner and non-Owner utilities.

The Contractor's attention is directed to the following Arizona Revised Statutes:

- ARS 40-360.22. Excavations, determining location of underground facilities; providing information. This statute requires that no person shall begin excavation before the location and marking are complete or the excavator is notified that marking is unnecessary and requires that upon notification, the Owner of the facility shall respond as promptly as practical, but in no event later than two (2) working days. This section is not applicable to an excavation made during an emergency that involves danger to life, health or property if reasonable precautions are taken to protect underground facilities.
- ARS 40-360.23. Making excavations in careful, prudent manner; liability for negligence. This statute states that obtaining information as required does not excuse any person making any excavation from doing so in a careful and prudent manner no shall it excuse such persons from liability for any damage or injury resulting from his negligence.
- ARS 40-360.28. Civil penalty; liability. If the Owner or operator fails to locate, or incorrectly locates the underground facility, pursuant to this article, the Owner or operator becomes liable for resulting damages, costs and expenses to the injured party.

Measurement and Payment for location of existing underground utilities is covered within Technical Specification U-200, and the Contractor is directed to that specification for further requirements.

44. Water for Construction Purposes. The Contractor at his expense shall provide all water required for and in connection with the work to be performed. The Contractor shall remove all temporary waterlines installed by him, after completion of the work, if directed to do so by the Engineer.

It is the Contractor's responsibility to identify the water source, its compatibility, storage, and costs for all water requirements for this project. The Contractor must submit a water source and its intended use to the Engineer for approval. No direct payment will be made for construction water. The cost thereof shall be included in other items for which direct payment is made.

45. Electrical Power. All power for lighting, operation of Contractor's plant or equipment, or for any other use as may be required in the execution of the work to be performed under the provision of these Contract Documents shall be provided by the Contractor at his expense. The Contractor shall remove all temporary electrical facilities installed by him, after completion of the work, if ordered to do so by the Engineer.

46. Telephone Service. If required by the Owner, the Contractor shall make all necessary arrangements with the telephone utility for telephones in his offices at the site and separate telephones, fax and a direct service line in the office of the Engineer and shall pay all monthly charges therefore including long distance calls from the office of the Engineer. All contractors and others performing work or furnishing services at the site shall be permitted to use the Contractor's telephone without charge for calls pertaining to the work.

47. Sanitary Facilities. Contractor shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and other performing work or furnishing services on the Project. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 men. Contractor shall enforce the use of such sanitary facilities by all personnel at the site.

48. Operations, Safety and Security.

48.1 Definitions

48.1.1 Air Carrier Aircraft - An aircraft with a seating capacity of more than 30 passengers that is being operated by an air carrier.

48.1.2 Air Carrier Operation - The takeoff and landing of an air carrier aircraft and includes the period of time from 15 minutes before and until 15 minutes after the takeoff or landing.

- 48.1.3 Air Operations Area (AOA) - Air operations area, paved or unpaved, is any area of the airport used for or intended for landing, takeoff, or surface maneuvering of aircraft including its associated runway, taxiway, or apron.
- 48.1.4 Airport Marking Aids - Marking used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as: visual, non-precision instrument, precision instrument.
- 48.1.5 Construction - The presence and movement of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.
- 48.1.6 Escort - person authorized by Pinal County to accompany contractor personnel within the Airport property. The escort shall accompany or monitor the activities of an individual(s) in a manner sufficient to take responsive action in a sized area approved by the Engineer. A proper escort is defined as maintaining visual monitoring, within reasonable voice range and being able to react to the actions of those under escort.
- 48.1.7 FAA - The Federal Aviation Administration, a branch of the U.S. Department of Transportation that regulates aviation and airport safety and certification.
- 48.1.8 FOD - Foreign Object Debris/Damage, meaning any object that is potentially hazardous to aircraft.
- 48.1.9 General Aviation - That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of public convenience and necessity from a Civil Aeronautics Board and Large aircraft commercial operators.
- 48.1.10 Haul Route - A specified path created for vehicles to maneuver within the Airport to/from a work site. Haul routes are subject to the approval of the Engineer in accordance with the contract documents.
- 48.1.11 Instrument Landing System (ILS) – An electronic visual approach guidance system used by aircraft during landing operations.
- 48.1.12 Movement Area - The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking areas (reference 14 CFR part 139).
- 48.1.13 Navigational Aid (NAVAID) - An apparatus generally located within the AOA, serving as a guide to aircraft.

- 48.1.14Obstruction - Any object/obstacle exceeding the obstruction standards specified by 14 CFR part 77, subpart C.
- 48.1.15Object Free Area (OFA) - An area on the ground centered on the runway, taxiway, or taxilane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes (see AC 150/5300-13, Airport Design, for additional guidance on OFA standards and wingtip clearance criteria).
- 48.1.16Obstacle Free Zone (OFZ) - The airspace below 150 feet (45m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches (refer to AC 150/5300-13 for guidance on OFZs).
- 48.1.17Precision Approach Path Indicator (PAPI) - An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is "on path" if he sees red/white, "above path" if white/white, and "below path" if red/red.
- 48.1.18Runway - A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees; e.g., runway 16 and runway 34.
- 48.1.19Runway End Identifier Lights (REIL) - Two synchronized flashing lights, one on each side of the runway threshold, which provides rapid and positive identification of the approach end of a particular runway.
- 48.1.20Runway Lights/Runway Edge Lights - Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway lights are uniformly spaced and the intensity may be controlled or preset.
- 48.1.21Runway Safety Area (RSA) - A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with AC 150/5300-13.
- 48.1.22Safety Area - A designated area abutting the edges of a runway or taxiway intended to reduce the risk of damage to an aircraft inadvertently leaving the runway or taxiway.
- 48.1.23Taxi - The movement of an airplane under its own power on the surface of an airport.

- 48.1.24 Taxiway - A defined surface used by aircraft for transition/movement to and from aircraft parking areas/aprons to runways.
- 48.1.25 Taxiway Lights/Taxiway Edge Lights - Lights having a prescribed angle of emission used to define the lateral limits of a taxiway and are blue in color.
- 48.1.26 Threshold Lights - Fixed green lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold.
- 48.1.27 TSA – The Transportation Security Administration, a branch of the U.S. Department of Homeland Security that oversees aviation security.
- 48.1.28 Visual Flight Rules (VFR) - Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements.
- 48.1.29 Worksite - Area in which work under contract is being performed, generally starting at the contractor on-site trailer. Airport ID badges must be displayed within the worksite at all times.

48.2 Airport Security Requirements.

The Contractor shall be responsible for the protection of the construction site, and all work, materials, equipment, and existing facilities thereon, against vandals and other unauthorized persons. Security measures shall include such additional security fencing, barricades, lighting, and other measures as the Contractor may deem necessary to protect the site.

The Contractor's responsibilities for work areas are as follows:

- 48.2.1 The Contractor shall be held responsible for controlling his employees, subcontractors, and their employees with regard to traffic movement.
- 48.2.2 The Contractor shall rebuild, repair, restore, and make good at his own expense all injuries or damages to any portion of the work occasioned by his use of these facilities before completion and acceptance of his work.
- 48.2.3 The Contractor shall submit to the Engineer in writing a detailed work plan for each construction phase. The work plan shall include, but not be limited to, temporary electrical facilities, installation sequence of underground electrical and storm sewer systems, paving sequence, and installation sequence of electrical items. This plan shall be submitted 14 calendar days prior to the start of each construction phase. No work within the construction phase may commence until the phase work plan is approved.

48.2.4 The Contractor shall submit to the Engineer in writing a plan, by construction phase, for controlling construction equipment and vehicular movements in the Air Operations Area (AOA). This plan shall be submitted at the Pre-Construction Meeting. No work may commence until this plan is approved. The Plan must include material haul roads.

48.3 Access Control.

Any time access is required to the Airport, the Contractor shall be responsible for assuring that no breeches of airport security occur. The Airport is fenced and must remain fenced at all times. The gates will remain closed and locked or a guard will be provided at the Contractor's expense. The Contractor will furnish the guard with a roster of his personnel and ensure that each individual has adequate identification. The duplicate keys for each lock will be turned over to the airport authorities.

No person shall enter the contractor worksite without authorization. Any person found within the worksite without proper identification as described herein shall be considered unauthorized and shall be removed from the worksite.

48.4 Challenge Procedures. All Contractor personnel are responsible for challenging and reporting anyone in their work areas that are suspicious. Personnel shall contact the Airport Manager or the Pinal County Sheriff's Office.

48.5 Airport Safety Requirements.

48.5.1 Operating Construction Vehicles on the Airport. No vehicle shall enter the Contractor worksite unless the following conditions are met:

- The driver is authorized to access the worksite.
- The driver possesses a valid driver's license.
- The vehicle is properly marked with the company name.
- Vehicle is marked with beacon or checkered flag or under escort.

48.5.2 Prohibited Vehicles. The use of motorcycles, bicycles, two-wheeled motor scooters and privately owned vehicles within the worksite is strictly prohibited.

48.5.3 Vehicle Condition. Vehicles must be in good mechanical condition with operational lights, horn, brakes, and clear visibility from the driver's seat. Trailers and semi-trailers must be equipped with proper brakes so that when disengaged from a towing vehicle, neither aircraft engine blast nor wind will cause them to become free rolling.

48.5.4 Compliance. All traffic within the Airport and/or contractor worksite must comply with any lawful order, signal or direction of any County employee. When such traffic is controlled by signs or pavement markings, such symbols shall be obeyed, unless otherwise directed by an officer or agent of the County.

48.5.5 Night or Low Visibility Operations. All vehicle headlights, taillights, and running or clearance lights shall be in operational condition. Headlights shall be used at all times.

48.5.6 Construction Vehicle and Equipment Markings. All construction equipment and vehicles shall have flashing amber lights, mounted at the highest point, during the nighttime and a 3' x 3' orange and white checkered flag or a flashing amber beacon during the daytime. All vehicles and equipment on the construction site shall have company designations visibly displayed. No personal vehicles will be allowed in the work area. All construction vehicles and equipment must have the company name and/or logo and vehicle number at least four (4) inches in height on each side of the vehicle.

48.5.7 Operation of Vehicles. No vehicle shall operate within the Airport:

- In a careless or negligent manner.
- With disregard of the rights and safety of others.
- At a speed or in a way which endangers persons or property.
- While the driver is under the influence of drugs or alcohol.
- If such vehicle is loaded or maintained as to endanger persons or property.

48.5.8 Speed Limits. The speed limit on the haul route is 15 miles per hour.

48.5.9 Vehicle Accidents. Each operator of a motor vehicle involved in an accident on the airport that results in damage to property or personal injury shall first contact 9-1-1 and then report it fully to the Airport Manager as soon as possible after the accident. The report must include the name and address of the person reporting.

48.5.10 Use of Crossing Guards. For construction that requires personnel, vehicles, and equipment to cross active taxiways/runways, a crossing guard shall be provided by the Contractor.

48.5.11 Hearing Protection. Contractor personnel working on or adjacent to the AOA are encouraged to wear hearing protection.

48.5.12 Worker Injuries. In the event of a serious injury requiring medical attention, call 911 and notify the operator you are at the Airport. All injuries must also be reported the Airport Manager as soon as possible.

48.5.13 After Hours Contacts. The Contractor shall submit to the Engineer a list of personnel who can be contacted 24 hours a day, seven (7) days a week and can respond in a reasonable time frame regarding any possible emergency on the work site. The list must include names, job title and phone numbers.

48.5.14 Daily Site Inspections. Prior to the Contractor leaving the worksite for the day, an inspection of the site shall be completed. All discrepancies noted in the inspection must be corrected to the satisfaction of the Engineer prior to the Contractor leaving the worksite.

48.5.15 Deliveries. All deliveries for the Contractor shall be received by the Contractor. Deliveries will not be accepted by anyone other than the contractor. Pinal County / Airport users will not accept nor be responsible for deliveries.

48.5.16 Taxiway and Runway Closures. Taxiway and runway closures require a minimum of:

- Prior notification and coordination in accordance with the contract documents.
- Closure requests shall factor in time for unanticipated events such as weather and equipment malfunction.
- Movement area closure schedules must be met. The Contractor shall advise the Engineer immediately of any need to extend a closure.
- Barricade lights must be red in color and either steady burn or flashing.
- Strict adherence and coordination with the phasing plans found within the Construction Plans.

48.5.17 Haul Routes. Contractor shall maintain access in the vicinity of the haul routes so that the passing of the general public and airport users/operations staff is not hindered.

48.5.18 Cranes or Mobilized Equipment. All activities involving cranes or mobilized vehicles exceeding 20 feet in height on or near the AOA require 48-hour advance coordination with the Airport Manager. The following information is required:

- Location of equipment
- Maximum extendable height
- Duration of use
- Daily hours of operation
- Whether or not the crane can be lowered when not in use

Equipment must be lowered to its stowed height when not in use or as otherwise directed. The highest point of each piece of equipment shall be marked by a 3' x 3' orange and white checkered flag. At night and during periods of low visibility, the highest point of the crane must be marked by a red obstruction light. Crews must be prepared to remove equipment promptly if so directed.

48.5.19 Runway Safety Areas. Construction within the following areas is prohibited, unless required by the contract documents and is subject to approval of the Engineer.

- Within 250 feet parallel to an active Runway centerline
- Within 107 feet parallel to an active Taxiway (Group V) centerline
- Within 1,000 feet of the end of an active runway

48.5.20 Staging and Storage Areas. All contractor materials, equipment and supplies shall be within the Contractor's designated staging & storage area. All staging & storage areas shall be marked, debris boxes covered and area kept neat and clean of debris.

For equipment that must remain in the work area, the following conditions must be met:

- Be located outside of the runway/taxiway safety and obstruction free areas, (unless noted otherwise on the plans).
- Be marked with lighted barricades around the equipment perimeter with a spacing of no more than 10 feet.
- Be coordinated at least 48 hours in advance with the Engineer.
- The highest point of the equipment marked and lit with a red flashing/steady burning omni-directional obstruction light.

48.5.21 Barricades and Lighting. The perimeters of the actual work areas, all uneven surfaces, mounds and excavations shall be adequately barricaded with vertical panel barricades, low profile barricades and/or Type II barricades, as shown in the plans and/or as directed by the Engineer, and lighted with omni-directional flashing red lights to prevent intrusion by taxiing aircraft, equipment and vehicles. Low profile barricades shall be used adjacent to all aircraft pavement areas and shall include flashing high intensity red lights. Low profile barricades shall be orange and white in color and shall be a minimum of six (6) feet in length and a maximum of ten (10) inches in height.

All cones and other marking devices must be lighted or equipped with reflectors during periods of darkness as directed by Airport Operations. It shall also be the responsibility of the Contractor to maintain (day and night) all barricades and lights.

The Contractor will be responsible for placing and maintaining the low profile barricades. The Contractor will provide a 24/7 point of contact capable of responding within two (2) hours to address issues with the barricades.

All barricades and cones must be maintained and kept in proper working order by the Contractor day and night. All burnt out lights or inoperative

batteries must be replaced immediately. Barricades and cones must remain upright at all times.

The placement of sandbags on barricades may be required in situations of adverse weather. In addition, the Contractor must keep an adequate supply of extra barricades, lights and batteries on site.

Only red, battery powered or approved solar powered, omni-directional lights are acceptable within the Restricted Area of the airport.

48.5.22 Trenches and Excavations. Contractors shall close trenches located within active safety areas at the end of each workday. No open trenches or excavations will be allowed within the following active safety areas without prior coordination and approval with the Engineer:

- Within 250 feet parallel to a runway centerline.
- Within 107 feet parallel to a taxiway centerline (Group V).
- Within 1,000 feet of the end of a runway.
- Spoils from excavations are to be placed on the runway/taxiway side that is closest to the trench.
- Spoil height is not to exceed 4 feet or any height that would cause a visual obstruction.
- Spoils not returned to the trench or removed from the worksite are to be properly marked with lighted barricades with a spacing of no more than 10' or that to properly delineate the trench.

48.5.23 Stockpiled Material. Stockpiled materials are allowed only within the contractor's designated staging & storage areas.

- Remove daily all stockpiled material from within aircraft movement areas, unless otherwise directed by the Engineer.
- No excavated or stored materials may remain within active runway or taxiway safety areas and object free areas.
- Stockpiled material may be located within the Air Operations Area only upon prior coordination and approval of the Engineer.

48.5.24 Deliveries and Haul Trucks. Delivery and haul trucks are required to remain on the designated Contractor Haul Routes.

48.5.25 Weapons. No person, except a peace officer, County employee or a member of an armed force of the United States on official duty, shall carry any weapon, explosive, or inflammable material on or about his person, openly or concealed, in the Restricted Area of the airport without the written permission of the Airport Manager. A weapon includes all those listed in Section 13-301, Arizona Revised Statutes. No person shall furnish, give, sell, or trade a weapon on airport property.

48.5.26 Contractor Responsibilities.

- The Contractor must maintain and provide to the Engineer a log detailing the contract number; the airfield access point used, and all authorized and anticipated subcontractors and suppliers that will be requiring entry.
- The Contractor must furnish guards with a sufficient number of flags for transient vehicles such as concrete or asphalt trucks entering the Airport.
- The Contractor must furnish guards a means of securing the access point should the guard have to leave the area in an emergency.

48.6 Traffic Control, Barricading and Cleanup.

General Requirements:

The Contractor shall submit a Cleanup Plan for approval by the Owner to be followed at the close of each day's work. At a minimum, the Plan shall include an itemized, detailed list of tasks and equipment to be used to properly clear all areas within Runway and Taxiway Safety Areas in accordance with FAA AC 150/5370-2 (latest revision). The Plan shall specifically identify all work to be performed on a daily basis for each Phase of construction identified on the plans. The Plan shall also include the requirement of the Contractor and Engineer to perform a site walk of the entire effected area of construction a minimum of 2-hours before that area is scheduled to be re-opened to aircraft traffic to assure that it has be cleaned and cleared of all equipment and debris in accordance with FAA AC 150/5370-2 (latest revision).

The Contractor shall also be responsible for delineating the limits of construction operations consistent with the approved Phasing and Barricading Plan(s) and/or as directed by the Airport Manager. The Contractor shall submit a Phasing and Barricading and Safety Plan(s) as required in this project's Construction Safety and Phasing Plan.

The Contractor shall be responsible for providing, the installation of, and the maintenance of barricades and traffic control devices necessary for the control of aircraft, vehicular, and pedestrian traffic. Any requests to modify the approved barricading and phasing plans must be submitted to the County for review and approval.

The Airfield Safety and Security and Barricade and Traffic Control Plans must be submitted by the Contractor at the Pre-Construction Conference.

Measurement and payment for the Airfield Safety and Security Plans identified above shall be considered incidental to the Airfield Safety and Security Payment Line Item (SP 48-1) and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to the complete the work to the satisfaction of the Owner, as shown on the plans or as directed by the Engineer.

Barricade Requirements:

All construction areas shall be delineated with low-profile barricades that meet FAA standards to prevent intrusion by taxiing aircraft, vehicles, or pedestrians, (FAA AC 150/5370-2, latest edition) as mentioned above.

All barricades must be equipped with RED omni-directional lights, either flashing or steady burning, to provide additional visual warning whether during normal daytime and night-time operations or during periods of reduced visibility due to weather conditions. Lights may be either battery powered or solar powered, however, the intensity of the lights must be sufficient to adequately and without ambiguity delineate the construction areas. The Contractor is responsible to maintain all barricades and lights (day and night) in working conditions to the approval of Pinal County.

The barricades shall be installed so that they are always in the extended position and oriented and spaced as shown on the approved plans, or as directed by Pinal County.

The use of frangible hazard markings, such as concrete barriers, railroad ties and/or metal-drum-type barricades is prohibited. For certain non-movement areas, the County may consider the use of Type II or other similar barricades with prior approval.

48.6.1 Non-Movement Areas. In addition to the general barricade requirements above, for projects that may impact airport business and facilities, it will be necessary to coordinate ingress and egress routes with the County. The Contractor shall coordinate and make provisions, including barricading, to accommodate aircraft movements to and from existing businesses and facilities within the construction area.

48.6.2 Movement Areas. In addition to the general barricade requirements above, all barricades, temporary markers, and other objects placed and left in safety areas associated with any runway, taxiway, or taxilane must be as low as possible to the ground; of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted to prevent displacement from prop wash, jet blast, rotor wash, or surface wind.

48.7 Special Requirements.

48.7.1 The Contractor shall be allowed to have a maximum of two (2) red flashing lights out of service at a single time.

48.7.2 The Contractor shall employ a “designated” person who will be responsible for ensuring that all barricades, signs, barricade lights, and any other traffic control devices are established and maintained in strict compliance with the contract requirements. The designated person shall:

- Inspect all barricading and traffic control devices on a regular, recurring basis to ensure functionality and compliance with FAA standards.
- Ensure that existing airport signage and lighting does not conflict or create any confusion with the barricades and traffic control devices and shall immediately bring any conflicting conditions to the attention of the Airport Manager.
- Be available 24 hours a day to maintain all barricades including lights and flags used to delineate construction and hazardous areas in fully operational condition.
- Ensure that flagmen, when employed, are sufficiently trained to operate safely on the airport.

48.8 Aircraft Movement Area.

48.8.1 Vehicle Equipment – Daytime Operations: All Contractor vehicles and equipment operating in the AOA during daylight hours must be equipped with either a 3-foot by 3-foot international orange and white checker patterned flag mounted on a staff and secured to the vehicle in such a location as to be visible from all directions or a flashing amber beacon, light bar or similar warning light device mounted on the vehicle in such a location as to be visible from any direction.

48.8.2 Airport Construction Restrictions and Requirements: The Contractor is responsible for compliance at all times with the policies and guidelines specified in this project’s Construction Safety and Phasing Plan, and with the draft FAA Advisory Circular (AC) 150/5370-2 (latest revision), “Operational Safety on Airports During Construction”. These documents may be made available to the Contractor upon request.

48.8.3 Temporary Airfield Closures: Temporary closures to specific portions of the airport will be required for construction of this project; however, aircraft traffic will continue to use the open portions of the airport’s taxiways and aircraft parking aprons. The Contractor shall at all times conduct his work as to create no hindrance, hazard, or obstacle to aircraft using the Airport and must, at all times, conduct the work in conformance with requirements of the Airport.

48.8.4 Runway Closures. A temporary full runway closure is anticipated for this project. The Contractor is required to provide the lighted X’s (24 hours/day) at the locations shown on the project plans. The contractor will be responsible for providing fuel and light bulbs for the lighted X’s while they are required by the project. The Contractor must have excess fuel and light bulbs available at all times while the lighted X’s are required by the project. The Contractor shall maintain the lighted X’s day and night.

48.8.5 Taxiway Closures. The Contractor shall schedule and organize his work to minimize the number of partial or full taxiway closures during the performance of the entire Construction Contract. The Contractor must coordinate with the County at least two (2) weeks prior to any taxiway closure. The Contractor must specifically indicate his daily work plan justifying the need for any requested partial or full taxiway closures including the duration and barricading plan.

48.8.6 Active Taxiway Crossings. The Contractor shall schedule and organize his work so that a minimum number of active taxiway crossings are required during performance of the contract.

48.8.7 Haul Route and Adjacent Airfield Pavement. The Contractor must follow the haul route(s) provided on the Approved Plans, or as directed by the County and/or Engineer. The Contractor must provide one (1) of either a power vacuum or non-metallic broom sweeper to be used to continuously keep all pavement adjacent to or impacted by the project limits clean of any debris that could potentially damage an aircraft or aircraft engine, tire, or propeller. The Contractor shall be fully liable for any damages that occur to an aircraft caused by construction debris. The Contractor shall be responsible to restore any damages to any pavement used as haul routes incurred during construction to the original state at no additional cost to the owner. All cost associated with the restoration of the haul routes shall be considered incidental to other appropriate bid items and no separate payments will be made.

48.9 Measurement and Payment. Measurement and payment for Airside Traffic Control shall be by lump sum, and shall be considered full compensation for furnishing and maintaining all labor, materials, lighted X's (day and night), excess fuel and bulbs, crossing guards, escorts, power vacuum sweepers, furnishing, placing, repositioning, and removal of temporary airside traffic control, providing and maintaining all barricades and lights day and night, all vehicle and equipment markings, tools, equipment, flagmen, cell phones, radios, the Construction Safety and Phasing Compliance Plan(s), and all other incidentals required to safely control traffic as identified in these Special Provisions and in the plans to provide the proper safety and security for Pinal Airpark, (unless already separately identified as another bid item). Partial payments of the lump sum item(s) will be made uniformly over the contract time, provided that the airside traffic control and security is maintained and satisfactory to Pinal County and the Airport Manager.

Payment shall be made at the lump sum prices shown in the Bid Schedule for:

SP 48-1 Airfield Safety and Security – per Lump Sum

49. Arizona Pollutant Discharge Elimination System (AZPDES) Permit Coverage and Storm Water Pollution Prevention Plan (SWPPP) Requirements.

This project is subject to the Arizona Department of Environmental Quality (ADEQ) Arizona Pollutant Discharge Elimination System (AZPDES) General Permit for Discharge from

Construction Activities to Waters of the United States (commonly referred to as the Construction General Permit, and herein referred to as the CGP). AZPDES General Permit No. AZG2013-001 was issued by the Arizona Department of Environmental Quality (ADEQ) in May of 2013.

The Contractor shall prepare a SWPPP that addresses all the requirements set forth in the CGP and all required attachments. The SWPPP shall be maintained and updated, and any deficiencies identified by the Airport or other regulatory agency shall be adequately addressed. The Contractor shall comply with posting requirements and shall make the SWPPP and all associated reports available to Airport inspectors or other regulatory agencies. The Contractor shall ensure that the post-construction BMPs specified on the project plans are identified on the SWPPP as required in the CGP.

The Contractor shall be responsible for properly selecting, installing, and maintaining all structural BMPs; including, but not limited to, sediment and erosion control, and shall use good engineering practices to ensure these BMPs remain functional and effective in order to prevent the discharge of pollutants from the project area, as well as preventing such pollutants from mixing with storm water.

The ADEQ does not accept “soil crusting” as an acceptable BMP for erosion control/stabilization for compliance with the CGP; as such, this method can only be utilized in conjunction with other BMPs that meet the regulatory requirements. The CGP requires the implementation of sediment control BMPs at storm drain inlets. The Airport requires that all storm drain inlets within the project area and the first set of down-gradient inlets located outside of the project area have sediment control protection. These areas and BMPs must be detailed in the SWPPP.

The Contractor shall detail in the SWPPP, and install and maintain, BMPs to control sediment around all soil stockpiles. In projects involving excavations in streets, soil stockpiles shall be stored up-gradient of the excavation, when possible, such that any discharge of sediment from a rain event would flow into the excavation itself and not to the curb and gutter system.

It is the responsibility of the Contractor to perform inspections of all the BMPs implemented to meet the requirements of the CGP for this project. The Contractor is also responsible for maintaining those devices in proper working order including cleaning, repair, and removal.

- Measurement for “AZPDES Permit Compliance” listed in the bid proposal shall include all material, labor, and other incidental costs related to:
- The preparation of the SWPPP, changes to the SWPPP required by the Airport or other outside regulatory agency, or updates/amendments to the SWPPP as detailed in Part III (E);
- The implementation and maintenance of activities associated with the SWPPP and required by the CGP (e.g. inspections or recordkeeping);

- The preparation of NOI and NOT forms.
- The installation and maintenance of all structural BMPs and implementation of non-structural BMPs either required in the CGP, identified in the SWPPP, or specified by the Airport or other outside regulatory agency as a result of a storm water compliance inspection;
- The clean-up and disposal costs associated with the cleaning and repair of BMPs following storm events and other runoff or releases on the project;
- The removal of BMPs upon final stabilization

No additional payments outside of that provided in the lump sum bid will be made for the items listed above.

An allowance for the Contractor's participation in the preparation of the Storm Water Pollution Prevention Plan (SWPPP), the implementation of the SWPPP, and the modification of the SWPPP, any additional permits and plans including Dust Control as necessary for compliance with AZPDES General Permit for the duration of this construction project is included in these contract documents. Payment shall be made monthly with equal payment during the entire construction period with any retention required by the terms and conditions of the construction contract to be paid after filing of the Notice of Termination (NOT).

No separate measurement or direct payment will be made for preparing the Notice of Intent (NOI), the Notice of Termination (NOT), Inspection and Maintenance Reports, or other documentation required to perform the work including additional permitting and plans such as Dust Control, the cost being considered as included in the allowance.

Payment will be made under:

SP 49-1 SWPPP/Erosion Control – per Lump Sum

50. Seeding. This item shall consist of furnishing all materials, preparing the soil and applying a seed mixture to the areas disturbed by the Contractor's construction activities or as directed by the Engineer.

50.1 Materials. The seed mixture to be applied shall be of a type that is commonly or has been recently used in construction of roadways, highways and/or airport facilities with similar elevations and/or weather constraints at the Airport. The proposed seed mixture shall be submitted to the Engineer for review at least two (2) weeks prior to application, and shall contain the variety of strain of seed, the percentage of germination, purity, and weed content. The mixture shall also indicate the locations, dates, and project names for which the seed has been applied.

50.2 Application. Seed shall be applied evenly over the areas disturbed by the Contractor's construction operations.

The seeding shall be applied at the manufacturer's specified rate. Seed can be applied in the form of hydroseeding, controlled broadcasting or by means of a cultipacker. If the broadcast method is used, the seeded area shall be rolled in place to form the seed bed.

Seeding operations shall not be performed when wind would prevent uniform application of materials or would carry the seeding material in areas not be seeded or onto adjacent airfield pavements.

The Contractor shall protect seeded areas from damage by traffic or construction equipment. Surfaces which are eroded or otherwise damaged following seeding and prior to final acceptance shall be repaired by re-grading and re-seeding as directed by the Engineer.

50.3 Payment. Seeding will not be measured separately for payment. It shall be considered incidental to the project.

51. Crack Repair. This item shall consist of repairing and sealing cracks per the details in the plans and in accordance with MAG Standard Specification 337. The crack seal material shall be a hot applied material that meets ASTM D 6690, and be a self-leveling and non-expansive material.

51.1 Measurement and Payment. Crack repair will be measured and paid by the lineal foot of crack length repaired. Measurement shall include all work including equipment, tools, all preparation including cleaning of the crack as needed, material delivery, hauling, sealant and application thereof, and all other incidentals and work necessary to complete the item in-place as indicated in the plans.

The Contractor is made aware that actual constructed/completed quantities may be less than the quantity shown on the bid schedule and plans. This item is a Contingent Bid Item and must be approved by the Resident Engineer or Airport Manager prior to work beginning in a specified/localized area. Approval to perform work under this Bid Item does not constitute approval beyond the specific area agreed to by the Engineer. Work beyond an approved area shall be at the Contractor's risk and at his sole expense. The actual quantity of work constructed/completed will be verified daily by the Resident Engineer.

Payment will be made under:

SP 51-1 Crack Repair per Detail B, on Sheet G1.5 (Contingent Item)
 - per Lineal Foot

52. Bituminous Tack Coat. This item shall consist of furnishing all materials and applying a bituminous material on the milled bituminous surface as shown on the typical sections in the project plans and in accordance with MAG Specifications Sections 329, 330, 333, and 713. The bituminous tack coat shall be grade SS-1.

52.1 Measurement and Payment. Measurement and payment for Bituminous Tack Coat shall be made at the contract unit price per ton, furnished and installed in accordance with the project plans and specifications, and accepted by the Engineer. This price shall be full compensation for all labor, materials, and equipment necessary to complete the item.

Payment shall be made under:

SP 52-1 Bituminous Tack Coat – per Ton

53. Runway End Monument. This item shall consist of furnishing and installing runway end survey monuments at the locations shown on the plans or as directed by the Engineer and in accordance with MAG Standard Detail 120-1, Type B and as outlined in this specification.

53.1 The survey monuments shall, at a minimum, include the elevation and either the northing and easting or latitude and longitudinal coordinates on the monument. RSA survey monuments shall also include text identification of the runway end, (i.e. “RW 12” or “RW 30”).

53.2 The monuments shall be set so that distance between the monuments is exactly 6,848.35 feet, as indicated on the plans. The surveyor shall “pin” the monuments at this exact distance.

53.3 The tops of survey monuments shall be set flush within the concrete, and the concrete shall be flush with the asphalt pavement surface. Survey monuments shall be approved by the Resident Engineer/Airport Manager. Any monument or installation thereof found to be deficient or not in accordance with the plans, this specification, or the above reference MAG standards details and specifications shall be removed and replaced at the contractor’s sole expense.

53.4 Measurement and payment for Runway End Survey Monuments per MAG Standard Detail 120-1, Type B shall be made at the contract unit price per each installed and accepted. This price shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the item, in place (including all necessary saw-cutting, concrete, asphalt seal, excavation and backfill, etc.), as shown on the plans, identified herein, or as directed by the Engineer, including any modifications required to the existing surroundings as required for a clean installation, complete in-place.

Payment shall be made under:

SP 53-1 Runway End Survey Monument – per Each

(END OF SECTION)

TECHNICAL SPECIFICATIONS:

Pinal Airpark Runway 12-30 Rehabilitation and Repair Project #61790016

1. Technical Specifications. Construction of this project shall be in accordance with the Technical Specifications following this page and all applicable County, State and Federal requirements.
2. Method of Measurement for Payment. All pay items relating to the work indicated in the specifications are listed in the Bid Schedule. All necessary costs to complete this project shall be included within these pay items. All work necessary to complete the project as represented in the plan and/or specifications that is not specifically noted as a pay item in the Bid Schedule shall be considered integral and no separate payment shall be made. The total bid price in the Contract is final.
3. Material Specifications. Contractor shall conform to all material specifications defined in the Scope of Work and provisions of the Technical Specifications as referenced in paragraph 1 above. Prior to the use or construction of any materials, Contractor shall be required to furnish signed and notarized Certificates of Compliance.
4. Construction Warranty: The Contractor shall warrant that all materials and equipment furnished under this Contract will be free from defects and the work will conform to the requirements of the contract for a period of one year (365 calendar days) after completion of the project.
5. Permits: All permits associated with this project shall be the Contractors responsibility.



TECHNICAL PROVISIONS
PINAL COUNTY
PINAL AIRPARK
RUNWAY 12-30 REHABILITATION AND REPAIR
PINAL COUNTY PROJECT No. 61790016

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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 (unless stated otherwise in the Pinal County Front End Contract Documents):

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 ADOT. The Arizona Department of Transportation, (Aeronautics or Airport Division). When used in association with a section number or detail number, ADOT shall mean the Standard Specifications and Standard Drawings issued by the Arizona Department of Transportation.

10-04 ADVERTISEMENT. A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.

10-05 AIP. The Airport Improvement Program, a grant-in-aid program, administered by the Federal Aviation Administration.

10-06 AIR OPERATIONS AREA. For the purpose of these specifications, the term air operations area shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

10-07 AIRPORT. (Pinal Airpark or the 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.

10-08 ASTM. The American Society for Testing and Materials.

10-09 AWARD. The acceptance, by the Owner, of the successful bidder's proposal.

10-10 BIDDER. Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-11 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.

10-12 CALENDAR DAY. Every day shown on the calendar.

10-13 CHANGE ORDER. A written order to the Contractor covering changes in the plans, specifications, or

proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the work affected by such changes. The work, covered by a change order, shall be within the scope of the contract.

10-14 CONTINGENT BID ITEM. This is a bid item which is likely, but not certain to occur during the course of the work. If the Engineer determines that this work is required, the Contractor will accomplish the work and payment will be made based on the contingent unit price included in the Proposal. Since the quantity listed in the Proposal is primarily for bid comparison, the amount of work required by the Engineer may vary materially from this. The total cost of the item is included in the total cost of the project for the purpose of comparing bids.

10-15 CONTRACT OR CONTRACT DOCUMENT. The written agreement covering the work to be performed. The awarded contract shall include, but is not limited to: The Advertisement; The Contract Form; The Proposal; The Performance Bond; The Payment Bond; any required insurance certificates; The Specifications; The Plans, and any addenda issued to bidders.

10-16 CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the contract.

10-17 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.

10-18 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.

10-19 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 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/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 construction work is construction that is accomplished through the

use of material, equipment, labor, and supervision provided by the Owner or by another public agency pursuant to an agreement with the Owner.

10-26 INSPECTOR. An authorized representative of the Engineer assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-27 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.

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 percent 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. 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 NOTAM. Notice to Airmen - a notice published by FAA Flight Service Stations made available to all pilots indicating the conditions affecting the use of an airport.

10-34 OWNER (SPONSOR). The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. For AIP contracts, the term "sponsor" shall have the same meaning as the term "Owner." Where the term "Owner" is capitalized in this document, it shall mean airport owner or sponsor only.

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/her surety as a

guaranty that he will pay in full all bills and accounts for materials and labor used in the construction of the work.

10-37 PERFORMANCE BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

10-38 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/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. See definition of "Owner."

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 percent, such increased or decreased work being within the scope of the originally awarded contract; or (2) work that is not within the scope of the originally awarded contract.

10-49 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 or aircraft parking 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 6 hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work, requiring the presence of an inspector, will be considered as working days.

END OF SECTION 10

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SECTION 20 PROPOSAL REQUIREMENTS AND CONDITIONS

The Contractor is made aware that the Section 20 *PROPOSAL REQUIREMENTS AND CONDITIONS* is provided as additional information to the contract documents. In the event of conflicting guidance or direction, the Pinal County front end contract documents shall prevail.

20-01 ADVERTISEMENT (Notice to Bidders).

20-02 PREQUALIFICATION OF BIDDERS. Each bidder shall furnish the owner satisfactory evidence of his/her competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, a list of equipment that would be available for the work, and a list of key personnel that would be available. In addition, each bidder shall furnish the owner satisfactory evidence of his/her financial responsibility. Such evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the Contractor's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether his/her financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect his/her (bidder's) true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that he is prequalified with the State Highway Division and is on the current "bidder's list" of the state in which the proposed work is located. Such evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports hereinbefore specified.

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. Contractor default under previous contracts with the Owner.

- d. 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 titled *ALTERATION OF WORK AND QUANTITIES* of Section 40 without in any way invalidating the unit bid prices.

20-06 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans specifications, and contract forms. He shall satisfy himself as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests may be made available to Bidders for inspection upon request. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which he may make or obtain from his/her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 PREPARATION OF PROPOSAL. The bidder shall submit his/her proposal on the forms furnished by the Owner. All blank spaces in the proposal forms must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals for which he proposes to do each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall sign his/her proposal correctly and in ink. If the proposal is made by an individual, his/her name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state under 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/her authority to do so and that the signature is binding upon the firm or corporation.

20-08 IRREGULAR PROPOSALS. Proposals shall be considered irregular for the following reasons:

- 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.

20-09 BID GUARANTEE. Each separate proposal shall be accompanied by a certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such check, or collateral, shall be made payable to the Owner.

20-10 DELIVERY OF PROPOSAL. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside (See Instructions to Bidders). When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-11 WITHDRAWAL OR REVISION OF PROPOSALS. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by telegram before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-12 PUBLIC OPENING OF PROPOSALS. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-13 DISQUALIFICATION OF BIDDERS. A bidder shall be considered disqualified for any of the following reasons:

- a. 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 titled *ISSUANCE OF PROPOSAL FORMS* of this section.

END OF SECTION 20

SECTION 30 AWARD AND EXECUTION OF CONTRACT

The Contractor is made aware that the Section 30 *AWARD AND EXECUTION OF CONTRACT* is provided as additional information to the contract documents. In the event of conflicting guidance or direction, the Pinal County front end contract documents shall prevail.

30-01 CONSIDERATION OF PROPOSALS. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in the subsection titled *IRREGULAR PROPOSALS* of Section 20.

b. If the bidder is disqualified for any of the reasons specified in the subsection titled *DISQUALIFICATION OF BIDDERS* of Section 20.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 AWARD OF CONTRACT. The award of a contract, if it is to be awarded, shall be made within **Ninety (90) 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 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 hereinbefore specified in the subsection 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 contracts bonds as specified in the subsection titled *REQUIREMENTS OF CONTRACT BONDS* of this section.

30-05 REQUIREMENTS OF CONTRACT BONDS. At the time of the execution of the contract, 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 such signed contract to the owner, along with the fully executed surety bond or bonds specified in the subsection titled *REQUIREMENTS OF CONTRACT BONDS* of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder. If the contract is mailed, special handling is recommended.

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 titled *REQUIREMENTS OF CONTRACT BONDS* of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the Owner.

END OF SECTION 30

SECTION 40 SCOPE OF WORK

The Contractor is made aware that the Section 40 *SCOPE OF WORK* is provided as additional information to the contract documents. In the event of conflicting guidance or direction, the Pinal County front end contract documents shall prevail.

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 percent (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations that do not exceed the 25 percent limitation shall not invalidate the contract nor release the surety, and the Contractor agrees to accept payment for such alterations as if the altered work had been a part of the original contract. These alterations 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.

Unless otherwise specified herein, the Engineer with the approval of the County, shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded contract quantities, provided that the aggregate of such alterations does not change the total contract cost or the total cost of any major contract item by more than 25 percent (total cost being based on the unit prices and estimated quantities in the awarded contract). 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.

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 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, he may order the Contractor to proceed with Extra Work by force account as provided in the subsection titled *PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK* of Section 90.

Extra Work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a Supplemental Agreement as hereinbefore defined in the subsection 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.

It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas of the airport with respect to his/her own operations and the operations of all his/her subcontractors as specified in the subsection titled *LIMITATION OF OPERATIONS* of Section 80. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in the subsection titled *CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS* in Section 70.

With respect to his/her own operations and the operations of all his/her subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying: personnel; equipment; vehicles; storage areas; and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport.

When the contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall furnish erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office), unless otherwise specified herein. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

The Contractor shall make his/her own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of aircraft and vehicular traffic as specified in this subsection.

The cost of maintaining the aircraft and vehicular traffic specified in this subsection shall not be measured or

paid for directly, but shall be included in the various contract items.

40-06 REMOVAL OF EXISTING STRUCTURES. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Engineer 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 titled *RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK* of this section, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be utilized in the work as otherwise provided for in the contract and shall remain the property of the Owner when so utilized in the work.

40-07 RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be either embankment or waste, he may at his/her option either:

- a. Use such material in another contract item, providing such use is approved by the Engineer and is in conformance with the contract specifications applicable to such use; or,
- b. Remove such material from the site, upon written approval of the Engineer; or
- c. Use such material for his/her own temporary construction on site; or,
- d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., he shall request the Engineer's approval in advance of such use.

Should the Engineer approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at his/her own expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for his/her use of such material so used in the work or removed from the site.

Should the Engineer approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of his/her exercise of option a., b., or c.

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 CLEANING UP. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. He shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property owner.

END OF SECTION 40

SECTION 50 CONTROL OF WORK

The Contractor is made aware that the Section 50 *CONTROL OF WORK* is provided as additional information to the contract documents. In the event of conflicting guidance or direction, the Pinal County front end contract documents shall prevail.

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/her opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, he will advise the Owner of his/her determination that the affected work be accepted and remain in place. In this event, the Engineer will document his/her 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 good engineering judgment and such tests or retests of the affected work as are, in his/her opinion, needed. Changes in the contract price shall be covered by contract modifications (change order or supplemental agreement) 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 prosecution of the work, when, in the Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority, after consultation with the FAA, to use good engineering judgment in his/her determinations as to acceptance of work that is not in strict conformity but will provide a finished product

equal to or better than that intended by the requirements of the contract, plans and specifications.

The Engineer will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

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 FAA advisory circulars; contract general provisions shall govern over plans, cited standards for materials or testing, and cited FAA advisory circulars; plans shall govern over cited standards for materials or testing and cited FAA advisory circulars. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, he shall immediately call upon the Engineer for his/her interpretation and decision, and such decision shall be final.

50-04 COOPERATION OF CONTRACTOR. The Contractor will be supplied a copy each of the plans and specifications. He shall have available on the work at all times one copy each of the plans and specifications. Additional copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and he shall cooperate with the Engineer and his/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/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/her authorized representative.

50-05 COOPERATION BETWEEN CONTRACTORS. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct his/her work so as not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his/her contract and shall protect and save harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by him because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his/her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. He shall join his/her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-06 CONSTRUCTION LAYOUT AND STAKES. The Contractor must establish all layout required for the construction of the work. Such stakes and markings as the Engineer may set for either his/her own or the Contractor's guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or his/her employees, resulting in the destruction of such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due the Contractor at the discretion of the Engineer.

The Contractor will be required to furnish all lines, grades and measurements from the control points necessary for the proper prosecution and control of the work contracted for under these specifications.

The Contractor must give weekly copies of the survey notes to the Engineer so that the Engineer may check them as to accuracy and method of staking. All areas that are staked by the Contractor must be checked by the Engineer prior to beginning any work in the area. The Engineer will make periodic checks of the grades and alignment set by the Contractor. In case of error on the part of the Contractor, or his/her employees, resulting in establishing grades and/or alignment that are not in accordance with the plans or established by the Engineer, all construction not in accordance with the established grades and/or alignment shall be replaced without additional cost to the Owner.

No direct payment will be made for this labor, materials, or other expenses therewith. The cost thereof shall be considered incidental for the various items of the Contract.

Relevant Construction Staking and Layout frequencies may include (but not limited to) the following: Clearing and Grubbing perimeter staking, Rough Grade slope stakes at 50-foot increments, Fence lines at 25 foot stations, and all horizontal and vertical angle points, all subgrade finished elevations, all ABC finished grade elevations, all AC finished grade elevations, SD pipe inverts, infield grading flowlines, taxiway crowns and centerlines, pavement marking offsets, etc.

NOTE: Controls and stakes disturbed or suspected 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 employed by the Owner shall be authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors employed by the Owner are authorized to notify the Contractor or his/her representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Engineer for his/her

decision.

50-09 INSPECTION OF THE WORK. All materials and each part or detail of the work shall be subject to inspection by the Engineer. 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 titled *CONFORMITY WITH PLANS AND SPECIFICATIONS* of this section.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of the subsection titled *CONTRACTOR'S RESPONSIBILITY FOR WORK* of Section 70.

No removal work made under provision of this subsection shall be done without lines and grades having been given by the Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as given, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply forthwith with any order of the Engineer made under the provisions of this subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed and 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/her hauling equipment and shall correct such damage at his/her own expense.

50-12 MAINTENANCE DURING CONSTRUCTION. The Contractor shall maintain the work during construction and until the work is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 FAILURE TO MAINTAIN THE WORK. Should the Contractor at any time fail to maintain the work as provided in the subsection titled *MAINTENANCE DURING CONSTRUCTION* of this section, the Engineer 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 prosecution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, he may request the Engineer 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, he may accept it as being completed, 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 completed 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 him for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, he shall notify the Engineer in writing of his/her intention to claim such additional compensation before he begins the work on which he 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 his/her 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. The provisions of this subsection will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.

On projects with original contract amounts in excess of \$100,000, the Contractor may submit to the Engineer, in writing, proposals for modifying the plans, specifications or other requirements of the contract for the sole purpose of reducing the cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards. This provision shall not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.

Not eligible for cost reduction proposals are changes in the basic design of a pavement type, runway and taxiway lighting, visual aids, hydraulic capacity of drainage facilities, or changes in grade or alignment that reduce the geometric standards of the project.

As a minimum, the following information shall be submitted by the Contractor with each proposal:

- a. A description of both existing contract requirements for performing the work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each;
- b. An itemization of the contract requirements that must be changed if the proposal is adopted;
- c. A detailed estimate of the cost of performing the work under the existing contract and under the proposed changes;

- d. A statement of the time by which a change order adopting the proposal must be issued;
- e. A statement of the effect adoption of the proposal will have on the time for completion of the contract; and
- f. The contract items of work affected by the proposed changes, including any quantity variation attributable to them.

The Contractor may withdraw, in whole or in part, any cost reduction proposal not accepted by the Engineer, within the period specified in the proposal. The provisions of this subsection shall not be construed to require the Engineer to consider any cost reduction proposal that may be submitted.

The Contractor shall continue to perform the work in accordance with the requirements of the contract until a change order incorporating the cost reduction proposal has been issued. If a change order has not been issued by the date upon which the Contractor's cost reduction proposal specifies that a decision should be made, or such other date as the Contractor may subsequently have requested in writing, such cost reduction proposal shall be deemed rejected.

The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings from the adoption of all or any part of such proposal. In determining the estimated net savings, the Engineer may disregard the contract bid prices if, in the Engineer's judgment such prices do not represent a fair measure of the value of the work to be performed or deleted.

The Owner may require the Contractor to share in the Owner's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall acknowledge acceptance of it in writing. Such acceptance shall constitute full authority for the Owner to deduct the cost of investigating a cost reduction proposal from amounts payable to the Contractor under the contract.

If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by a contract change order that shall specifically state that it is executed pursuant to this subsection. Such change order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted and shall include any conditions upon which the Engineer's approval is based. The change order shall also set forth the estimated net savings attributable to the cost reduction proposal. The net savings shall be determined as the difference in costs between the original contract costs for the involved work items and the costs occurring as a result of the proposed change. The change order shall also establish the net savings agreed upon and shall provide for adjustment in the contract price that will divide the net savings equally between the Contractor and the Owner.

The Contractor's 50 percent share of the net savings shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the work.

Acceptance of the cost-reduction proposal and performance of the cost-reduction work shall not extend the time of completion of the contract unless specifically provided for in the contract change order.

END OF SECTION 50

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SECTION 60 CONTROL OF MATERIALS

The Contractor is made aware that the Section 60 *CONTROL OF MATERIALS* is provided as additional information to the contract documents. In the event of conflicting guidance or direction, the Pinal County front end contract documents shall prevail.

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The materials used on the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish complete statements to the Engineer 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 (contract plans and specifications). In addition, where an FAA specification for airport lighting equipment is cited in the plans or specifications, the Contractor shall furnish such equipment that is:

- a. Listed in FAA Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, that is in effect on the date of advertisement; and,
- b. Produced by the manufacturer qualified (by FAA) to produce such specified and listed equipment.

Airport lighting equipment will be required for this contract and is to be furnished by the Contractor in accordance with the requirements contained within the Contract Technical Specifications.

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, tests in accordance with the cited standard methods of ASTM, AASHTO, Federal Specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids, will be made by and at the expense of the Engineer. The testing organizations performing on site 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/her request. Unless otherwise designated, samples 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 his/her request.

The Contractor shall employ a testing organization to perform all Contractor required 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, 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.

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, he shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 PLANT INSPECTION. The Engineer or his/her authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for his/her acceptance of the material or assembly.

Should the Engineer 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 he 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. Not required for this project

60-06 STORAGE OF MATERIALS. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the Engineer. 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/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 used in the work.

60-08 OWNER-FURNISHED MATERIALS. The Contractor shall furnish all materials required to complete the work, except those specified herein (if any) to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified herein.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies 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

The Contractor is made aware that the Section 70 *LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC* is provided as additional information to the contract documents. In the event of conflicting guidance or direction, the Pinal County front end contract documents shall prevail.

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. He shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all his/her officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself or his/her employees.

70-02 PERMITS, LICENSES, AND TAXES. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

70-03 PATENTED DEVICES, MATERIALS, AND PROCESSES. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the work.

70-04 RESTORATION OF SURFACES DISTURBED BY OTHERS. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. 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 Owner and/or 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 so as to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the Engineer, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 NOT USED.

70-06 SANITARY, HEALTH, AND SAFETY PROVISIONS. The Contractor shall provide and maintain in a neat,

sanitary condition such accommodations for the use of his/her employees as may be necessary to comply with the requirements of the state and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, state, and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to his/her health or safety.

70-07 PUBLIC CONVENIENCE AND SAFETY. The Contractor shall control his/her operations and those of his/her subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to his/her own operations and those of his/her subcontractors and all suppliers in accordance with the subsection titled *MAINTENANCE OF TRAFFIC* of Section 40 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in the subsection titled *LIMITATION OF OPERATIONS* of Section 80 hereinafter.

70-08 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS. The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated. Barricades, warning signs, and markings shall be provided and installed in accordance with Special Provisions Section 60.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office).

When the work requires closing an air operations area of the airport or portion of such area, the Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of AC 150/5340-1, Standards for Airport Markings (most recent revision).

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and his/her parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to AC 150/5370-2, Operational Safety on Airports During Construction (most recent revision).

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to AC 150/5370-2 (most recent revision).

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work that requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Engineer.

Open-flame type lights shall not be permitted within the air operations areas of the airport.

70-09 USE OF EXPLOSIVES. Not allowed for this project.

70-10 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his/her manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, he shall restore, at his/her own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or he shall make good such damage or injury in an acceptable manner.

70-11 RESPONSIBILITY FOR DAMAGE CLAIMS. To the fullest extent permitted by law, Contractor shall indemnify, defend, save and hold harmless Pinal, its agents, representatives, officers, directors, officials and employees, from any and all liability, demands, proceedings, suits, actions, claims, losses, costs, and damages of every kind and description, arising out of, resulting from or alleged to have resulted from the performance of the Work. Contractor's duty to indemnify, defend, save and hold harmless Pinal, its agents, representatives, officers, directors, officials and employees shall arise in connection with all demands, proceedings, suits, actions, claims, workers' compensation claims, unemployment claims, or employee's liability claims, damages, losses or expenses (including but not limited to attorney's fees, court costs and/or arbitration costs and the cost of appellate proceedings) that are attributable to personal or bodily injury, sickness, disease, death, or injury to, impairment or destruction of property including loss of use resulting there from, caused by or contributed to, in whole or in part, by any omission, fault mistake or negligent act, whether active or passive, of Contractor, its employees, agents, representatives, any tier of Contractor's subcontractors, their employees, agents or representatives or anyone directly or indirectly employed by Contractor or its subcontractors or anyone for whose acts Contractor or its subcontractors may be liable. The amount and type of insurance coverage requirements set forth in the Contract Documents or remuneration of any insurance coverage herein provided shall in no way be construed as limiting the scope of the indemnity in this paragraph. Contractor's obligation under this indemnity shall not extend to the sole negligence of Pinal, its agents, representatives, officers, directors, officials and employees. Such indemnity shall be required by Contractor from its subcontracts on behalf of Pinal.

70-12 THIRD PARTY BENEFICIARY CLAUSE. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 OPENING SECTIONS OF THE WORK TO TRAFFIC. Should it be necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work shall be specified herein and indicated on the plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise

specified. The Contractor shall make his/her own estimate of the difficulties involved in arranging his/her work to permit such beneficial occupancy by the Owner.

Upon completion of any portion of the work listed above, such portion shall be accepted by the Owner in accordance with the subsection 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/her expense.

The Contractor shall make his/her own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

Contractor shall be required to conform to safety standards contained in the latest revision of FAA AC 150/5370-2, Operational Safety on Airports During Construction.

Contractor shall refer to the approved safety plan 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 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/her expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seedings, and soddings furnished under his/her contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS. As provided in the subsection titled *RESTORATION OF SURFACES DISTURBED BY OTHERS* of this section, the Contractor shall

cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control his/her operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and the owners are indicated as follows:

Member Name	Facility Types	Contact Name	Phone Number
CTLQL - CenturyLink	COAXIAL, FIBER	ELM Locating Recalls and Unknowns: East	(623) 780 - 3350
Southwest Gas- Pima County	GAS	BRAD ARNESON	(520) 794 - 6021
Trico Electric Cooperative- TUCSON	ELECTRIC	Dispatch - One Call Locators	(520) 740 - 9944

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of his/her responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the owners of all utility services or other facilities of his/her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided hereinbefore in this subsection and the subsection titled *RESTORATION OF SURFACES DISTURBED BY OTHERS* of this section. A copy of each notification shall be given to the Engineer.

In addition to the general written notification hereinbefore provided, it shall be the responsibility of the Contractor to keep such individual owners advised of changes in his/her plan of operations that would affect such owners.

Prior to commencing the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such owner of his/her plan of operation. If, in the Contractor's opinion, the owner's assistance is needed to locate the utility service or facility or the presence of a representative of the owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's PERSON TO CONTACT no later than two normal business 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 hereinabove provided shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use excavation methods acceptable to the Engineer within 3 feet of such

outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, he shall immediately notify the proper authority and the Engineer 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 his/her operations whether or not 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/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 to him by this contract, there shall be no liability upon the Engineer, his/her authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 NO WAIVER OF LEGAL RIGHTS. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or his/her surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his/her obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the owner's rights under any warranty or guaranty.

70-19 ENVIRONMENTAL PROTECTION. The Contractor shall comply with all Federal, state, and local laws and regulations controlling pollution of the environment. He shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 ARCHAEOLOGICAL AND HISTORICAL FINDINGS. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during his/her operations, any building, part of a building, structure, or object that is incongruous with its surroundings, he 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 his/her operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract modification (change order or supplemental agreement) as provided in the subsection titled *EXTRA WORK* of Section 40 and the subsection titled *PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT WORK* of Section 90. If appropriate, the contract modification shall include an extension of contract time in accordance with the subsection titled *DETERMINATION AND EXTENSION OF CONTRACT TIME* of Section 80.

END OF SECTION 70

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SECTION 80 PROSECUTION AND PROGRESS

The Contractor is made aware that the Section 80 *PROSECUTION AND PROGRESS* is provided as additional information to the contract documents. In the event of conflicting guidance or direction, the Pinal County front end contract documents shall prevail.

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.

Should the Contractor elect to assign his/her contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner. In case of approval, the Contractor shall file copies of all subcontracts with the Engineer.

The Contractor shall perform, with his organization, an amount of work equal to at least 50 percent of the total contract cost. The Contractor shall prove this effort in his filling out of Attachment A and B within Division I of the Contract Documents. If the Contractor does not show a minimum of 50 percent of self-performance within the submitted bidding documents, the County reserves the right to declare said bid nonresponsive.

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 7 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.

80-03 PROSECUTION AND PROGRESS. Unless otherwise specified, the Contractor shall submit his/her progress schedule for the Engineer's approval within 7 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 his/her operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.

For AIP contracts, 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/her operations and the operations of

his/her subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft in the AIR OPERATIONS AREAS of the airport.

When the work requires the Contractor to conduct his/her operations within an AIR OPERATIONS AREA of the airport, the work shall be coordinated with airport operations (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AIR OPERATIONS AREA until so authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in the subsection titled *BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS* of Section 70.

When the contract work requires the Contractor to work within an AIR OPERATIONS AREA (AOA) of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as hereinafter 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 follows:

- **Aircraft Parking Apron**
- **Taxiway 'A'**

Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction, most recent edition. See Division IV Special Provision of the Contract Documents for additional information.

80-04.1 OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION. All Contractors' operations shall be conducted in accordance with the project safety plan and the provisions set forth within the latest revision of FAA AC 150/5370-2. The safety plan included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a plan that details how it proposes to comply with the requirements presented within the safety plan.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks of the safety plan measures to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the safety plan and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved safety plan unless approved in writing by the Owner 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 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 prosecution 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, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this subsection.

80-06 TEMPORARY SUSPENSION OF THE WORK. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods as he may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the prosecution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the 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/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. He shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 DETERMINATION AND EXTENSION OF CONTRACT TIME. The number of calendar or working days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Should the contract time require extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

a. CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of his/her weekly statement of the number of working days charged against the contract time during the week and the number of working days currently specified for completion of the contract (the original contract time plus the number of working days, if any, that have been included in approved CHANGE ORDERS or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).

The Engineer shall base his/her weekly statement of contract time charged on the following considerations:

(1) No time shall be charged for days on which the Contractor is unable to proceed with the principal item of work under construction at the time for at least 6 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 titled *FINAL ACCEPTANCE* of Section 50.

(5) The Contractor will be allowed 1 week in which to file a written protest setting forth his/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 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 nonwork days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

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 completed.

If the Contractor finds it impossible for reasons beyond his/her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the contract time as extended, make a written request to the Engineer for an extension of time setting forth the reasons which he believes will justify the granting of his/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 which 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 Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may extend the time for completion in such amount as the conditions justify. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

Extensions of time due to adverse weather conditions not reasonably anticipated will be granted only because of such inclement weather occurring and preventing the execution of the major or critical item of work ordinarily performed at that time. Extensions of time for weather delays will be considered only if such actual monthly inclement weather exceeds twice the monthly average for that in the table below (next page) for the same month. The average monthly precipitation data in the vicinity of Pinal Airpark has been provided as shown in the table below (on the net page). The Contractor shall build into his schedule at least three (3) weather days per thirty (30) calendar days of contract time, which is not considered an extension of Contract Time. Such time shall be reflected in the Critical Path Method schedule.

The Contractor shall request an extension of time in writing within twenty-four (24) hours after the event that caused the delay. No time extension will be granted if the request is not received within this period and the total days do not exceed the requirements of three (3) days per thirty (30) days contract time. The extension of time, if granted, would be total time requested, less three (3) days.

TABLE – Average Monthly Precipitation Data In The Vicinity of Pinal Airpark

Month	Average Monthly Precipitation
January	0.85-inches
February	0.91-inches
March	0.72-inches
April	0.28-inches
May	0.22-inches
June	0.22-inches
July	2.19-inches
August	2.35-inches
September	1.34-inches
October	0.81-inches
November	0.50-inches
December	1.00-inches

80-08 FAILURE TO COMPLETE ON TIME. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in the subsection titled *DETERMINATION AND EXTENSION OF CONTRACT TIME* of this Section) the sum specified in the contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his/her surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages 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 his/her contract.

80-09 DEFAULT AND TERMINATION OF CONTRACT. The Contractor shall be considered in default of his/her contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons if the Contractor:

- a. Fails to begin the work under the contract within the time specified in the "Notice to Proceed," or
- b. Fails to perform the work or fails to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the contract, or
- c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
- d. Discontinues the prosecution of the work, or
- e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or
- f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

- g. Allows any final judgment to stand against him unsatisfied for a period of 10 days, or
- h. Makes an assignment for the benefit of creditors, or
- i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Engineer consider the Contractor in default of the contract for any reason hereinbefore, he 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 prosecution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 TERMINATION FOR NATIONAL EMERGENCIES. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Engineer.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his/her responsibilities for the completed work nor shall it relieve his/her surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 WORK AREA, STORAGE AREA AND SEQUENCE OF OPERATIONS. The Contractor shall obtain approval from the Engineer prior to beginning any work in all areas of the airport. No operating runway, taxiway, or AOA shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate his/her work in such a manner as to insure safety and a minimum of hindrance to flight operations. All Contractor equipment and material stockpiles shall be stored a minimum of 250 feet from the centerline of an active runway. No equipment will be allowed to park within the approach area of an active runway at any time. No equipment shall be within 250 feet of an active runway at any time.

END OF SECTION 80

SECTION 90 MEASUREMENT AND PAYMENT

The Contractor is made aware that the Section 90 *MEASUREMENT AND PAYMENT* is provided as additional information to the contract documents. In the event of conflicting guidance or direction, the Pinal County front end contract documents shall prevail.

90-01 MEASUREMENT OF QUANTITIES. All work completed under the contract will be measured by the Engineer, or his/her authorized representatives, using United States Customary Units of Measurement or the International System of Units.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meter) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

In computing volumes of excavation the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inches.

The term "ton" will mean the short ton consisting of 2,000 pounds. 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 to the Engineer, 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 subject to approval 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 D 1250 for asphalts or ASTM D 633 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.

Timber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories for a complete and operational item.

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 titled *PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK* of this section.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked

length of the beam or dial and shall not exceed one-tenth of 1 percent of the nominal rated capacity of the scale, but not less than 1 pound (454 grams). The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector can safely and conveniently view them.

Scale installations shall have available ten 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 percent.

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the Engineer. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 SCOPE OF PAYMENT. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, subject to the provisions of the subsection titled *NO WAIVER OF LEGAL RIGHTS* of Section 70.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 COMPENSATION FOR ALTERED QUANTITIES. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in the subsection titled *ALTERATION OF WORK AND QUANTITIES* of Section 40 will be made for any increased expense, loss of expected reimbursement, or loss of

anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his/her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 PAYMENT FOR OMITTED ITEMS. As specified in the subsection titled *OMITTED ITEMS* of Section 40, the Engineer 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 nonperform 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 AND FORCE ACCOUNT WORK. Extra work, performed in accordance with the subsection titled EXTRA WORK of Section 40, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work. When the change order or supplemental agreement authorizing the extra work requires that it be done by force account, such force account shall be measured and paid for based on expended labor, equipment, and materials plus a negotiated and agreed upon allowance for overhead and profit.

a. Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

b. Comparison of Record. The Contractor and the Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.

c. Statement. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such force account work detailed as follows:

(1) Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.

(2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.

(3) Quantities of materials, prices, and extensions.

(4) Transportation of materials.

(5) Cost of property damage, liability and workman's compensation insurance premiums, unemployment insurance contributions, and social security tax.

Statements shall be accompanied and supported by a receipted invoice for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

90-06 PARTIAL PAYMENTS. Partial payments will be made 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 in place in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the subsection titled *PAYMENT FOR MATERIALS ON HAND* of this section.

No partial payment will be made when the amount due the Contractor since the last estimate amounts to less than five hundred dollars.

From the total of the amount determined to be payable on a partial payment, 10 percent of such total amount will be deducted and retained by the Owner until the final payment is made, except as may be provided (at the Contractor's option) in the subsection titled *PAYMENT OF WITHHELD FUNDS* of this section. The balance (90 percent) of the amount payable, less all previous payments, shall be certified for payment. Should the Contractor exercise his/her option, as provided in the subsection titled *PAYMENT OF WITHHELD FUNDS* of this section, no such 10 percent retainage shall be deducted.

When not less than 95 percent of the work has been completed, the Engineer may, at the Owner's discretion and with the consent of the surety, prepare an estimate from which will be retained 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 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 retained percentage or 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/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, he/she may request that the Owner accept (in lieu of the 10 percent retainage on partial payments described in the subsection titled PARTIAL PAYMENTS of this section) the Contractor's deposits in escrow under the following conditions.

- a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.
- b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the 10 percent retainage that would otherwise be withheld from partial payment.

- c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.
- d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 ACCEPTANCE AND FINAL PAYMENT. When the contract work has been accepted in accordance with the requirements of the subsection titled *FINAL ACCEPTANCE* of Section 50, 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 his/her objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. 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 titled *CLAIMS FOR ADJUSTMENT AND DISPUTES* of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of the subsection titled *CLAIMS FOR ADJUSTMENTS AND DISPUTES* of Section 50 or under the provisions of this subsection, such claims will be considered by the Owner in accordance with local laws or ordinances. 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 14 days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 30 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 City of Mesa 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. Technical Specifications P-100, *Contractor Quality Control Program*.

END OF SECTION 100

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SECTION 120 NUCLEAR GAGES

The Contractor is made aware that the Section 120 *NUCLEAR GAGES* is provided as additional information to the contract documents and technical specifications, and shall only be referenced in accordance with the Technical Specifications.

120-01 TESTING. When the specifications provide for nuclear gage acceptance testing of material the testing shall be performed in accordance with this section. At each sampling location, the field density shall be determined in accordance with ASTM D 2922 using the Direct Transmission Method. The nuclear gage shall be calibrated in accordance with Annex A1. Calibration and operation of the gage shall be in accordance with the requirements of the manufacturer. The operator of the nuclear gage must show evidence of training and experience in the use of the instrument. The gage shall be standardized daily in accordance with ASTM D 2922, paragraph 8.

Use of ASTM D 2922 results in a wet unit weight, and when using this method, ASTM D 3017 shall be used to determine the moisture content of the material. The moisture gage shall be standardized daily in accordance with ASTM D 3017, paragraph 7.

120-02 VERIFICATION TESTING. The Engineer will verify the maximum laboratory density of material placed in the field for each lot. A minimum of one test will be made for each lot of material at the site. The verification process will consist of; (1) compacting the material and determining the dry density and moisture-density in accordance with ASTM D 1557, and (2) comparing the result with the laboratory moisture-density curves for the material being placed. This verification process is commonly referred to as a "one-point Proctor". If the material does not conform to the existing moisture-density curves, the Engineer will establish the laboratory maximum density and optimum moisture content for the material in accordance with ASTM D 1557.

Additional verification tests will be made, if necessary, to properly classify all materials placed in the lot.

The percent compaction of each sampling location will be determined by dividing the field density of each subplot by the laboratory maximum density for the lot.

END OF SECTION 120

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**PINAL COUNTY
PINAL AIRPARK
RUNWAY 12-30 REHABILITATION AND REPAIR
PINAL COUNTY PROJECT No. 61790016**

TECHNICAL SPECIFICATIONS

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ITEM P-100 CONTRACTOR QUALITY CONTROL PROGRAM

DESCRIPTION

100-1.1 GENERAL. This item shall consist of all work necessary to ensure quality control of the Contractor's work during Construction in accordance with applicable requirements.

The Contractor shall be responsible to conduct all quality control testing and inspections as indicated in the technical provisions and specifications, as well as any other test or inspection not specifically listed but necessary to adequately control the work to the satisfaction of the Owner. The Owner will be responsible for acceptance testing at their discretion. The Owner's quality acceptance test results can be made available to the Contractor upon request but may not be used for quality control at any time. The Contractor shall not depend on the Owner's quality acceptance for the Contractor's quality control. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical provisions, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall be prepared to discuss and present, at the Preconstruction Conference, his understanding of the project's quality control requirements, specifically identifying all requirements for each material introduced by this project. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program (QCP) has been approved by the Owner. No partial payment will be made for materials subject to specific quality control requirements until the QCP has been approved.

The Contractor shall be responsible to conduct all quality control testing and inspections and for each pay item that is shown in the bid, as well as any other test or inspection not specifically listed but necessary to adequately control the work to the satisfaction of the Owner. The Contractor shall not depend on any Engineer's Quality Acceptance testing that may be performed during the course of the project for the Contractor's QCP.

The Contractor shall submit his QCP to the Owner **at least five (5) working days prior to the Pre-Construction Conference** for the review and approval. The QCP 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 (test type, standard, and frequency);
- f. Documentation of quality control activities; and
- g. Requirements for corrective action when QC or QA criteria are not met.

The Contractor is encouraged to add any additional elements to the QCP that he deems necessary to adequately control all production and/or construction processes required by this contract

The QCP shall include, at a minimum, a quality control plan, all required quality control testing and inspections to be performed by the Contractor, and a list of personnel including their resumes showing adequate accreditation and experience, a Quality Control Manager (a minimum of 5 years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as the contract). The QCP shall include a comprehensive schedule correlating material submittals, construction activities, and the associated QC tests and required inspections. The QCP will also include at a minimum the following elements:

1. Designation of a Quality Control Manager, a Contractor's representative responsible for implementing and monitoring the QCP for the duration of the project.
2. Identification of individual/subcontractor responsibilities for conducting quality control tests and inspections in a manner and frequency to adequately control operations, and submitting reports as indicated in the respective Special Provision, referenced MAG Standard Specification, or Technical Specification.
3. Procedure for providing test result information in a timely manner to the Owner, and provisions for corrective work and re-tests if required due to failed test samples.
4. A schedule that correlates construction activities, required materials testing, and all testing procedures. This schedule shall be updated weekly by the Contractor and discussed with the Owner at each weekly construction meeting.

The Contractor shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Owner. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

- (1) Technical specification item number and description;
- (2) Compliance with approved submittals;
- (3) Proper storage of materials and equipment;
- (4) Proper operation of all equipment;
- (5) Adherence to plans and technical specifications;
- (6) Review of quality control tests; and
- (7) Safety inspection.

The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible quality control technician and the Program Administrator. The Owner shall be provided at least one copy of each daily inspection report on the work day following the day of record.

METHOD OF MEASUREMENT

100-2.1 GENERAL. Measurement for Contractor Quality Control to be paid for will be determined by the lump sum amount provided in the bid.

100-2.2 COMPUTATIONS FOR CONTRACTOR MONTHLY PAY APPLICATIONS. Monthly progress payments will be calculated by dividing the lump sum amount by the performance period in months.

100-2.3 SCHEDULE OF VALUES. Contractor must submit a schedule of values to the Engineer detailing a cost breakdown for each quality control requirement.

BASIS OF PAYMENT

100-3.1 Contractor Quality Control will be paid for at the lump sum price provided in the bid based on work effort as outlined in the Contractor Quality Control Schedule of Values. This lump sum price shall constitute full compensation for furnishing all labor, material, tools, incidental, technicians, inspectors, testing equipment, and field vehicles.

Payment will be made under:

Item P-100-3.1 Contractor's Quality Control – per Lump Sum

END OF ITEM P-100

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ITEM P-101 MOBILIZATION

DESCRIPTION

101-1.1 GENERAL. Mobilization shall consist of preparatory work and operations, including but not limited to, installation of the Contractor's Staging and Storage area, temporary utilities including water for construction purposes, temporary fencing and access gates, staging area track-out pad(s), the movement of personnel, equipment, materials, supplies and incidentals to the project site, and for transportation of buildings, laboratory field testing storage facilities, equipment and tools, haul roads and other facilities necessary to complete the work on the project including providing one or more staging areas with security fence and gate(s) if desired by the Contractor to secure staging areas or if required by the plans. This item is also for the Contractor's operations and material storage for the project and is for other work and operations that the Contractor must perform or costs he must incur before beginning work on the project, and for necessary work and costs in completing the construction and demobilizing from the site. Included in this item is also the preparation and submittal of a Construction Safety and Phasing Compliance document, refer to Special Provisions Section 48 *Operations, Safety and Security*. The Contractor may use the Engineer's Construction Safety and Phasing Plan as a go-by and for information only.

Demobilization costs will include, but not be limited to, removal of temporary utilities, fencing and access gates, and track-out pad to the staging area(s), removal of materials laboratories (if any), demobilization of equipment, and the clean-up and restoration of the construction staging and storage area(s) to a condition acceptable to Pinal County. Demobilization costs shall be considered incidental to the Mobilization payment line item provided.

CONSTRUCTION METHODS

101-2.1 STAGING AREAS. The proposed staging area is shown on the plans. Prior to the start of construction, the Engineer will confirm the location for use by the Contractor. This area may be used for the Contractor's operations, and at the Contractor's option. The staging area shall be kept in a neat and orderly condition at all times. Stockpiling of materials in the staging area(s) shall be kept below all Federal Aviation Regulation (FAR) Part 77 surfaces. Equipment shall only be parked in retracted and lowered condition. The Engineer reserves the right to direct the Contractor to correct any deficiencies in the maintenance of the staging yards and the Contractor shall promptly comply with the directives of the Airport.

101-2.2 SPECIAL REQUIREMENTS OF STAGING AREA(S). The following special requirements shall be adhered to:

- a. **Obstruction Lighting.** Equipment of significant height, including cranes, shall be required to have red obstruction lights provided and maintained by the Contractor. The red obstruction lights shall be 100-watt fixtures, with 360-degree beam spread, in compliance with the Federal Aviation Administration (FAA) Specification AC 150/5345-43, (most current edition), also refer to the Special Provision Section 60 for barricading and lighting.

- b. Dust Control.** The Contractor shall use all measures to control dust from equipment. Uncontrolled dust from the staging areas shall be grounds for suspension of operation until remedial measures are undertaken. The Contractor shall address dust control of the staging area(s) in the dust control plan prior to commencing operations, in accordance with Special Provisions Section 49. Vacuum sweeping equipment must be equipped and maintained by the Contractor such that excessive dust is not emitted while operating.
- b. Material Delivery Limitations.** Refer to Special Provisions Section 48 *Operations, Safety and Security*.
- c. Traffic Control.** The safety, convenience and the protection of persons and property, of the general public and residents along the streets, highways and areas adjacent to the work areas shall be provided for by the Contractor.
- d. Protection and Restoration of Staging Area.** The Contractor shall be responsible for all damage or injury to property of any character. The Contractor shall protect all existing utilities, fencing, concrete curb, sidewalk and other facilities on-site and at the staging area(s) in accordance with MAG Specification 107.9. The Contractor shall apply seeding to the soil at all staging/storage/access areas, in accordance with Special Provisions Section 50 *Seeding*, prior to final completion. The material and work necessary to complete the application of seeding contained in the above referenced special provision shall be considered incidental to the mobilization payment line item, (i.e. non-pay item).
- g. Mobile Telephones.** The Contractor's and each subcontractor's on-site superintendent, and foremen shall have mobile telephones. The mobile telephone numbers shall be provided to Engineer and Airport Manager.

METHOD OF MEASUREMENT

101-3.1 Mobilization shall be measured for payment by the lump sum as a single complete unit of work.

BASIS OF PAYMENT

101-4.1 Payment for the performance of the Mobilization work as specified above will be made at the contract lump sum price for the item Mobilization. Mobilization shall not exceed four (4) percent of the total bid for the bid schedule in which the item is included. This item shall include the movement of all personnel, all equipment, the establishment of all haul roads, temporary utilities, fencing, access gates, and track-out pad for the staging area, restoration and protection of the site(s) and seeding application to Engineer's approval, providing and for maintaining temporary security fence, gates, an a Construction Safety and Phasing Compliance document.

Partial payments under this item will be made in accordance with the provisions of Table 1.

TABLE 1 – Payment Schedule for Mobilization

Mobilization/ Demobilization Payment Number	Percent Payment (See Footnote No. 1)	Partial Payment Requirements
1	25% of Lump Sum Amount	After the Pre-construction Conference provided that submissions required are provided to the satisfaction of Resident Engineer and the Critical Path Method Part I schedule has been submitted. The first payment for Mobilization shall be contingent upon Engineer receiving the CQP at least five (5) working days before the pre-construction conference.
2	25% of Lump Sum Amount	When Engineer has determined that a significant amount of equipment has been mobilized to the project site which will be used to perform the Contract work. The second payment for mobilization shall be contingent upon the Contractor submitting the revised QCP to Engineer for review and approval.
3	25% of Lump Sum Amount	On the first progress payment application following completion of five (5) percent of the bid amount per schedule.
4	25% of Lump Sum Amount	On the first progress payment application following completion of (10) percent of the bid amount per schedule.

1. If the price for Mobilization exceeds four (4) percent of the total bid for the bid schedule in which it is included, any excess will be paid to the Contractor upon final completion of the project.

Payment will be made under:

Item P-101-4.1 Mobilization – per Lump Sum

END OF ITEM P-101

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ITEM P-104 REMOVAL OF PAVEMENT

DESCRIPTION

104-1.1 This item shall consist of saw cutting, milling, and the removal of asphaltic concrete pavement identified on the plans and the clean-up of all pavement materials. The asphalt millings shall be transported to an on-site location identified on the plans and placed below all Federal Aviation Regulation (FAR) Part 77 surfaces, and lightly rolled and compacted so that the material remains stable in place.

MATERIALS

104-2.1 All other materials used in conjunction with this work shall be furnished by the Contractor and will be considered incidental to these P-104 items.

CONSTRUCTION METHODS

104-3.1 GENERAL. The removal of existing structures and utilities required to permit orderly progress of work shall be accomplished by the Contractor, unless otherwise shown on the plans. See Technical Specification Item P-151.

All materials and debris which are to be discarded shall be disposed of by the Contractor to an off-site location (landfill) and in accordance with Local, State, and Federal Rules, Regulations, and Laws.

Upon removal, if the aggregate base or subgrade is exposed, it shall be compacted in accordance with Technical Specification P-152. If any area is determined to be unacceptable to pave on after the milling operations, the area shall be remediated as outlined in Technical Specification P-152. This is a contingent item and can only be performed when provided approval by the airport.

104-3.2 PAVEMENT SAW CUTTING. Existing asphalt pavement to be removed shall be cut to the depth of the bituminous material as estimated on the plans around the perimeter of the area to be removed and shall be saw cut by a device capable of making a neat, straight, smooth and vertical cut without damaging adjacent pavement that is not to be removed. The machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the pavement to remain. The machine shall have a positive method of controlling the depth of cut. The Engineer's decision as to the acceptability of the cutting device and manner of operation will be final. Pavement saw cutting shall be required at all match lines to existing pavement that is to remain, per section 104-3.4.

104-3.3 PAVEMENT REMOVAL. Pavement to be removed shall be sawcut from adjoining pavement and removed and disposed of off-site by the Contractor, except as noted below.

The bituminous pavement designated for removal shall be saw cut, as shown on the plans or as directed by the Resident Engineer, and removed by milling or breaking up and disposed of off-site. Stockpiling of the removed bituminous material shall not be allowed in the Air Operations Area (AOA). All material shall be immediately hauled off site of the Airport.

The Contractor shall use care when removing existing pavement adjacent to pavement that is proposed to remain, such that lower-paving courses will not “slough” or be disturbed. If lower paving courses, such as aggregate base courses, select base courses or native materials are being disturbed at the pavement match line, the Contractor will be required to repair the existing pavement to the satisfaction of the Resident Engineer and at no additional cost to the Airport.

104-3.4 PAVEMENT MATCHING. Existing asphalt pavement that is to be matched shall be trimmed to a neat true line, with straight vertical edges free from irregularities using a saw specifically designed for this purpose and as outlined in sections 104-3.2 and 104-3.3.

- a. **Matching Asphalt Pavement.** The existing asphalt pavement trimmed shall be cut full depth and a coating of asphalt cement or emulsified asphalt shall be applied immediately prior to constructing the new asphaltic concrete in accordance with MAG Standard Specification Section 329 (SS-1). Reference Special Provision Section 52 for additional information and measurement and payment.

104-3.5 ADJOINING PAVEMENTS DESIGNATED TO REMAIN. The matching edge of all existing pavements designated to remain shall be saw cut in a straight and true line and as outlined in sections 104-3.3 and 104-3.4. The saw cut edge shall be protected from damage until the finished surface has been completed. Edges which are damaged in the opinion of the Engineer shall be re-sawn the entire length of the matching joint prior to placing the finished surface. Objects, surfaces and items, including the underground utilities designated to remain, shall be carefully avoided and left undisturbed. Any damage to these items shall be the responsibility of the Contractor, and shall be corrected to the satisfaction of the Engineer and at no additional cost to the Owner.

CONTRACTOR QUALITY CONTROL

104-4.1 QUALITY CONTROL PROGRAM. The Contractor shall develop a Quality Control Plan (QCP) in accordance with Technical Specification P-100. The program shall address all elements that affect the quality of the pavement to be milled, including, but not limited to:

- a. Maximum gradation of the milled material;
- b. Fugitive dust control from the milling operation;
- c. Inspection and testing of placement and compaction of materials stated in Item P-104; and
- d. Inspection and documentation for saw cut irregularities.

104-4.2 CORRECTIVE ACTION. The QCP shall indicate that appropriate action shall be taken when the milling process is believed to be out of tolerance. The QCP shall contain a set 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, correction action shall be taken when the following conditions are determined:

- a. **Gradation of Milled Asphalt.** When the maximum size gradation exceeds 2-inches, the Contractor shall make the appropriate adjustments to effectively control the gradation.

- b. Fugitive Dust.** The Contractor shall supply and operate all necessary equipment and personnel to meet the requirements for dust control. The Contractor shall document dust control procedures in the daily Quality Control reports.

METHOD OF MEASUREMENT

104-5.1 Measurement for Saw Cut Existing AC Pavement (2.5-Inch Depth) shall be made by the number of linear feet, completed in conformance with these specifications. Measurement for any variation in depth or thickness shall not be considered. Measurement shall be made to the nearest foot. The Contractor is made aware that the existing AC pavement varies between 4 and 6 Inches of asphalt.

104-5.2 Measurement for Saw Cut Existing AC Pavement (3-Inch Depth) shall be made by the number of linear feet, completed in conformance with these specifications. Measurement for any variation in depth or thickness shall not be considered. Measurement shall be made to the nearest foot. The Contractor is made aware that the existing AC pavement varies between 4 and 6 Inches of asphalt

104-5.3 Measurement for Removal of Existing AC Pavement (2.5-Inch Mill) shall be the number of square yards completed in conformance with these specifications. Measurement for various depths or thicknesses shall not be made for the miscellaneous bituminous pavement removed. Measurement shall be calculated to the nearest square yard. The Contractor is made aware that the existing AC pavement varies between 4 and 6 Inches of asphalt.

104-5.4 Measurement for Removal of Existing AC Pavement (2.5 to 3-Inch Variable Depth Mill) shall be the number of square yards completed in conformance with these specifications. Measurement shall be calculated to the nearest square yard. The Contractor is made aware that the existing AC pavement varies between 4 and 6 Inches of asphalt.

BASIS OF PAYMENT

104-6.1 Payment for Saw Cut Existing AC Pavement (2.5-Inch Depth) shall be made by the number of linear feet, completed in conformance with these specifications. Payment for any variation in depth or thickness shall not be considered. Payment shall be made to the nearest foot. The Contractor is made aware that the existing AC pavement varies between 4 and 6-inches thick.

104-6.2 Payment for Saw Cut Existing AC Pavement (3-Inch Depth) shall be made by the number of linear feet, completed in conformance with these specifications. Payment for any variation in depth or thickness shall not be considered. Payment shall be made to the nearest foot. The Contractor is made aware that the existing AC pavement varies between 4 and 6-inches thick.

104-6.3 Payment for Removal of Existing AC Pavement (2.5-Inch Mill) shall be the number of square yards completed in conformance with these specifications. Payment for various depths or thicknesses shall not be made for the miscellaneous bituminous pavement removed. Payment shall be calculated to the nearest square yard. The Contractor is made aware that the existing AC pavement varies between 4 and 6-inches thick.

104-6.4 Payment for Removal of Transition AC Pavement (2.5 to 3-Inch Variable Depth Mill) shall be the number of square yards completed in conformance with these specifications. Payment shall be calculated to the nearest square yard. The Contractor is made aware that the existing AC pavement varies between 4 and 6-inches thick.

Payment will be made under:

- Item P-104-6.1 Saw Cut Existing AC Pavement (2.5-Inch Depth) – per Linear Foot
- Item P-104-6.2 Saw Cut Existing AC Pavement (3-Inch Depth) – per Linear Foot
- Item P-104-6.3 Removal of Existing AC Pavement (2.5-Inch Mill) – per Square Yard
- Item P-104-6.4 Removal of Transition AC Pavement (2.5 to 3-Inch Variable Depth Mill)
– per Square Yard

END OF ITEM P-104

ITEM P-151 REMOVAL OF EXISTING FACILITIES

DESCRIPTION

151-1.1 This item shall consist of clearing the work area of all existing facilities including but not limited to the removal of non-airfield pavements, removal of underground and above-ground utilities (encased or non-encased), utility pipes, storm drains, sanitary sewers, irrigation items, structures and obstructions, fences, debris and rubbish of any nature, natural obstructions, removal of all trees, stumps, down timber, logs, snags, brush, cacti (excluding Saguaro cacti), undergrowth, hedges, heavy growth of grass or weeds, including the clearing and grubbing of foundations or such material which in the opinion of the Resident Engineer is unsuitable for the foundation of any new construction, and including the disposal of these aforementioned waste materials resulting from clearing as required by the Engineer.

Removal of airfield pavements is included under Technical Specification Item P-104.

MATERIALS

151-2.1 All materials used in conjunction with this work shall be furnished by the Contractor and will be considered incidental to the item.

CONSTRUCTION METHODS

151-3.1 GENERAL. Clearing and grubbing shall be performed in the areas denoted on the plans as the removal or grading limits as well as all areas under proposed embankments or excavations. The clearing shall be done at a satisfactory distance in advance of any grading operations. All spoil materials removed by clearing shall be disposed of by hauling to an off-site disposal area, such as a landfill, at the time of the excavation in accordance with local regulations. Burning of spoil materials shall not be permitted on airport property.

The removal of existing structures, utilities, utility pipes, storm drains, airfield electrical facilities, fences, and non-airfield pavements and other existing improvements required to permit the orderly progress of work shall be accomplished by the Contractor, unless otherwise shown on the plans. Whenever a facility not indicated to be removed on the plans (pipeline, conduit, sewer, or other utility) is encountered and must be removed or relocated, the Contractor shall advise the Engineer who will notify the Airport and/or the proper local authority or owner and attempt to secure prompt action.

151-3.2 CLEARING AND GRUBBING. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials shall be removed, except where embankments exceeding 3-1/2 feet in depth are to be made outside of paved areas. In cases where such depth of embankments is to be made, all unsatisfactory materials shall be removed, but sound trees, stumps, and brush can be cut off within 6 inches above the ground and allowed to remain. Tap roots and other projections over 1-1/2 inches in diameter shall be grubbed out to a depth of at least 12 inches below the finished subgrade or slope elevation.

All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in

layers to the density required in Item P-152 and to the lines and grades shown in the plans. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

All necessary clearing and grubbing as identified in the specifications and the plans shall be considered incidental to related items of work.

151-3.3 REMOVAL OF EXISTING STRUCTURES. The Contractor shall clear the indicated areas of all objectionable materials by removing all structures, obstructions, and miscellaneous concrete, including all or portions of drainage structures, concrete box culverts, foundations, footings, tie-downs, electrical structures, etc. All existing concrete and structures shall be removed to its full depth, unless otherwise specified in the special provisions, designated on the plans, or directed by the Engineer. Although all earthwork associated with the removal of these items is considered incidental to the item, backfill shall be accomplished in accordance with the requirements of Technical Specification P-152.

All non-airfield bituminous pavements to be removed shall be disposed of off-site. Prior to removal, bituminous pavement shall be sawcut in accordance with Technical Specification P-104, as shown on the plans, or as directed by the Engineer.

Fencing materials identified to be removed and shall be hauled off-site by the Contractor. Where fence fabric, rails, wire, hardware and accessories which are in satisfactory condition and the correct size, the Contractor may be reused upon approval of the Engineer for fence relocations and/or temporary fencing. Excess fence fabric and barbed wire shall be neatly rolled and stored on the airport at a designated location (if desired by the Airport at the time of removal). Posts and other material deemed by the Engineer unsuitable for re-use shall be disposed of off-site by the Contractor.

151-3.4 REMOVAL OF EXISTING PIPE, TRENCH DRAINS, DUCTS AND CONDUIT. Existing pipe, trench drains, underground electrical concrete encased ducts, underground electrical concrete encased conduits, underground electrical direct buried ducts and underground electrical direct buried conduits to be removed shall be cut with straight and smooth edges on a plane perpendicular to the centerline of the structure. Backfill of the trench left behind shall be accomplished in accordance with the requirements of Technical Specification P-152. Unless otherwise indicated on the plans, the ends of any abandoned structure that remain in the ground shall be plugged in accordance with applicable MAG Standards.

There shall be no separate measurement or payment for any backfill required after the removal of structures or utilities (see below), but shall be considered incidental to the associated removal item.

151-3.5 FILLING OF EXISTING PIPE. If indicated on the plans to be abandoned in place and filled, all such pipes shall be filled from low to high with Controlled Low-Strength Material (CLSM), (refer to Technical Specification P-153), material that is able to flow into the pipe and fill all voids. There shall be no measurement or payment for this item but shall be considered incidental to the associated item.

151-3.6 REMOVAL OF UTILITIES. If so noted or shown on the plans, all utilities within the clearing limits shall be uncovered and completely removed, not abandoned in place. Prior to removal, the Contractor shall contact and coordinate the removal with the utility owner. If utility pipes are indicated on the plans, or directed by the utility owner, to be abandoned in place, all such utility pipes shall be filled from high to low with CLSM that is able to flow into the pipe and fill all voids.

151-3.6 REMOVAL OF PAINT AND RUBBER. All paint and rubber that will affect pavement bonding shall be removed from the surface of the existing pavement. Chemicals, high-pressure water, heater scarifier (asphaltic concrete only), or cold milling may be used. If cold milling is used, the Contractor shall clear the area of any Foreign Object Debris (FOD) immediately upon completion. Any methods used shall not cause major damage to the pavement or leave behind any FOD. Major damage is defined as changing the properties of the pavement or removing pavement over 1/8 inch deep. If chemicals are used, they shall comply with the state's environmental protection regulations. No material shall be deposited on the runway shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

A MasterSeal material or approved equivalent must be applied to all AC pavements that are to remain, that were impacted by the removal of paint operations. This action must take place before Substantial Completion is met. The Contractor shall submit MasterSeal material and application shop drawings for the review and approval of the Engineer. All equipment, material, and labor required to repair the AC pavement to its original condition shall be considered incidental to the associated item of work, (i.e. Obliterate Existing Pavement Markings).

151-3.7 BACKFILLING.

a. Under Aircraft Loaded Pavements. Backfill following removals within runways, taxiways, connecting taxiways, aprons or associated shoulder pavements shall consist of select material meeting the requirements of and placed in accordance with Technical Specification Item P-152, and compacted to not less than 98% of maximum dry density as determined by ASTM D 1557. The select backfill shall be placed up to the bottom of the overlaying pavement base course. The backfill shall be considered incidental to the item being removed.

151-3.8 ADJUSTING UTILITY FRAMES, COVERS AND VALVE BOXES TO GRADE. Unless otherwise noted elsewhere in the plans or specifications all existing frames, covers and valve boxes within the project limits shall be adjusted to grade in accordance with MAG Standard Specification 345 for utilities to remain. Unless otherwise noted in the plans and specifications, this work shall be incidental to the work most closely related (earthwork or paving).

151-3.9 CONTRACTOR QUALITY CONTROL. The Contractor shall be responsible for developing and implementing a Contractor Quality Control Program including inspection and testing to assure compliance with the requirements of Technical Specification P-151, in accordance with Technical Specification P-100.

METHOD OF MEASUREMENT

151-4.1 There is no separate measurement for removal of existing facilities.

BASIS OF PAYMENT

151-5.1 There is no separate payment for removal of existing facilities.

END ITEM P-151

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ITEM P-152 EXCAVATION AND EMBANKMENT

DESCRIPTION

152-1.1 This item covers excavation, disposal, haul, placement, and compaction of all materials within the limits of the work required to construct pavements and grading of the surrounding areas, as well as other areas for drainage, 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 placement (i.e. fill or embankment) or disposal of all material, depending on its nature, which is not otherwise classified and paid for under another identified item. All required hauling shall be considered incidental to the item.

b. Over-excavation and Replacement of Unsuitable Materials, Backfill & Compaction. Over-Excavation and Replacement of Unsuitable Materials, Backfill and Compaction shall consist of the removal and disposal of deposits of mixtures of soils and organic matter not suitable for foundation material, and replacement with material suitable for foundation material as identified in this specification, as well as any hauling and legal disposal to an off-site location as required.

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, when approved by the Engineer as suitable material, may be used on the embankment slope.

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be completely cleared and grubbed in accordance with Technical Specification P-151. There is no separate measurement or payment for clearing and grubbing of the project site.

The suitability of material to be placed in embankments shall be subject to approval of the Resident Engineer. Unsuitable material shall be disposed of off airport property.

If the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued. At the direction of the Resident Engineer/Airport Manager, 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.

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 Resident Engineer/Airport Manager, who shall arrange for their removal if necessary. The Contractor shall, at his/her own expense, satisfactorily repair or

pay the cost of all damage to such facilities or structures which 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 elevations and measurements of the ground surface. All suitable excavated material shall be used in the formation of embankment, subgrade, or for other purposes shown on the plans. All unsuitable material shall be disposed of at the direction of the Airport.

When the volume of the excavation exceeds that required to construct the embankments to the grades indicated, the excess shall be legally disposed of off-site. When the volume of excavation is not sufficient for constructing the fill to the grades indicated, the deficiency shall be obtained from a materials supplier, and the materials shall meet Section 152-2.3.

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 which may affect the work.

a. Selective Grading. Although not anticipated on this project, if selective grading is indicated on the plans, the more suitable material as designated by the Resident Engineer/Airport Manager 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 so that it can be measured for payment for rehandling.

b. Over-excavation of Unsuitable Materials. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for aircraft pavement areas, subgrades, roads, or shoulders, shall be excavated to a minimum depth of 12-inches, or to the depth specified by the Resident Engineer, below the subgrade. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified by the Resident Engineer. Unsuitable materials shall be disposed of at an off-site location by the Contractor, and the resultant excavated area shall be refilled with suitable material, obtained from the grading operations or borrow areas and thoroughly compacted by rolling.

c. Over-excavation of Wet Unstable Materials. Soft, wet, or unstable subgrade that is encountered during asphalt milling operations, the Contractor shall perform the following (pending field conditions and upon approval of the Resident Engineer/Airport Manager):

1. Remove the remaining unstable pavement/subgrade material to a depth of 12-inches below the existing asphalt surface, place and compact crushed aggregate base course meeting the requirements of Technical Specification P-201.

The Contractor shall assure the subgrade material becomes compacted as in accordance with Section 152-2.2.e. This item is a Contingent Item and can only be performed upon advance approval by the Resident Engineer/Airport Manager. All hauling, work, equipment and material required for either method will not be paid for separately but shall be considered incidental to the Over-Excavation Payment Line Item provided in the bid schedule.

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 for at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed. All foundations thus excavated shall be backfilled with suitable material and compacted as specified herein.

e. Compaction. For areas under new pavements, the subgrade materials shall be compacted to a density of not less than 98 percent (%) of maximum density as determined by ASTM D 1557. The material to be compacted shall be wetted and thoroughly mixed to achieve optimum moisture content, +/- two percent (2%) before rolling to obtain the prescribed compaction.

The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 2167. Stones or rock fragments larger than 4-inches in their greatest dimension will not be permitted in top 6-inches of the subgrade. The finished grading operations, conforming to grades on the plans, shall be completed and maintained ahead of the paving operations or as directed by the Resident Engineer/Airport Manager.

In cuts, all loose or protruding rocks on the back slopes shall be bared loose or otherwise removed to line of finished grade of slope. 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 Resident Engineer/Airport Manager.

Blasting will be not be permitted.

152-2.3 PREPARATION OF EMBANKMENT AREA. Where an embankment is to be constructed to a height of 4-feet or less, all sod and vegetable matter shall be removed from the surface upon which the embankment is to be placed, and the cleared surface shall be completely broken up by plowing or scarifying to a minimum depth of 6-inches. This area shall then be compacted as indicated in Section 152-2.2.e. When the height of fill is greater than 4-feet, sod not required to be removed shall be thoroughly disked and recompact to the density of the surrounding ground before construction of embankment.

Where embankments are to be placed on natural slopes steeper than 3 to 1, horizontal benches shall be constructed as shown on the plans.

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.

152-2.4 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 Resident Engineer. Embankments should be placed on subgrade that has been properly prepared in accordance with Technical Specification P-152 and approved by a Soils Engineer. Embankment material should be wetted and thoroughly mixed to achieve optimum moisture content, +/- two percent (2%).

The grading operations shall be conducted, and the various soil strata shall be placed, to produce a soil structure as shown on the typical cross-section or as directed. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Operations on earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain or other unsatisfactory conditions of the field. The Contractor shall drag, blade, or slope the embankment to provide proper surface drainage.

If imported fill is required, it shall meet the following requirements for imported fill/select backfill:

<u>Sieve Size</u>	<u>Percent Passing</u>
3 inch	100
No. 4	20-60
No. 40	10-40
No. 200	0-30

The maximum Plasticity Index per ASTM D 4318 should not exceed 8. A higher P.I. may be approved at the discretion of the Engineer provided that the percent passing the No. 40 sieve and No. 200 sieve does not exceed 20 percent and 10 percent respectively.

The material in the layer shall be within +/-2 percent of optimum moisture content as determined by ASTM 1557 before rolling to obtain the prescribed compaction. The local clayey and silty fine sandy soils are sensitive to excessive moisture content and will become unstable at elevated moisture content. It may be necessary to compact soils on the dry side of optimum. In order to achieve uniform moisture content throughout the layer, wetting or drying of the material and manipulation shall be required when necessary. Should the material be too wet to permit proper compaction or rolling, all work on all of the affected portions of the embankment shall be delayed until the material has dried to the required moisture content. Sprinkling of dry material to obtain the proper moisture content shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times. Samples of all embankment materials for testing, both before and after placement and compaction, shall be taken by the Contractor for each 1,000 cubic yards. Based on the results of these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content in order to achieve the correct embankment density.

Rolling operations shall be continued until the embankment is compacted to the requirements of 152.2.e Compaction.

The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 2167.

Compaction areas shall be kept separate, and no layer shall be covered by another until the proper density is obtained.

During construction of the embankment, the Contractor shall route his/her equipment at all times, both when loaded and when empty, over the layers as they are placed and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of embankments, layer placement shall begin in the deepest portion of the fill; as placement progresses, 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 and every effort shall be exerted to fill the voids with the finer material forming a dense, compact mass. Rocks or boulders shall not be disposed of outside the excavation or embankment areas, except at places and in the manner designated by the Resident Engineer/Airport Manager.

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 leveling equipment and by distribution of spalls and finer fragments of rock. These type lifts shall not be constructed above an elevation of 4-feet below the finished subgrade. Density requirements will not apply to portions of embankments constructed of materials which cannot be tested in accordance with specified methods.

There will be no separate measurement or payment for compacted embankment, and all costs incidental to hauling, placing in layers, compacting, diking, watering, mixing, sloping, and other necessary operations for construction of embankments will be included in the contract price for excavation.

152-2.5 FINISHING AND PROTECTION OF SUBGRADE. After the subgrade has been substantially completed the full width shall be conditioned by removing any soft or other unstable material which will not compact properly. The resulting areas and all other low areas, holes or depressions shall be brought to grade with suitable material. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines, grades, and densities shown on the plans and required by these specifications.

Grading of the subgrade shall be performed so that it will drain readily. The Contractor shall take all precautions necessary to protect the subgrade from damage. Contractor shall limit hauling over the finished subgrade to that which is essential for construction purposes.

All ruts or rough places that develop in a completed subgrade shall be smoothed and recompact. Subgrade shall be finished to the plan lines and grades, and compacted to the required density and depth as shown on the plans.

No subbase, or surface course shall be placed on the subgrade until the subgrade has been approved by the Resident Engineer. It is the full responsibility of the Contractor to obtain this approval enough in advance so as to not impact his construction operations or overall project schedule.

152-2.6 HAUL. All hauling will be considered a necessary and incidental part of the work. Its cost shall be considered by the Contractor and included 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.

152-2.7 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 16-foot straightedge applied parallel and at right angles to the paving lane, it shall not show any deviation in excess of 1/2-inch, or shall not be more than 0.05-foot from true grade as established by grade hubs or pins. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials; reshaping; and recompacting by sprinkling and rolling.

Intermediate and other designated areas, the surface shall be of such smoothness that it will not vary more than 0.10 foot 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. Flow lines of ditches or swales shall not vary by more than 0.05 feet from true grade.

METHOD OF MEASUREMENT

152-3.1 “Over-Excavation and Replacement of Unsuitable Materials” shall be measured by the cubic yard from its original position of the surface prior to excavation of unsuitable material less the measured surface after excavation of unsuitable material when complete. Measurement shall include furnishing all materials, labor, equipment, tools, and incidentals necessary to excavate, remove, haul and properly dispose of the unsuitable material off-site, as well as the crushed aggregate base course material, mixing, placement, compaction and finishing of the suitable material in its place including the hauling of any embankment. This is a Contingent Item and measurement shall not include the quantity of materials excavated without prior approval by the Airport, or the quantity of material used for purposes other than those directed.

152-3.2 There will be no separate payment for Clearing and Grubbing.

BASIS OF PAYMENT

152-4.1 Payment for “Over-Excavation and Replacement of Unsuitable Materials, Backfill and Compaction” shall be by the cubic yard from its original position of the surface prior to excavation of unsuitable material less the measured surface after excavation of unsuitable material when complete. Payment shall include furnishing all materials, labor, equipment, tools, and incidentals necessary to excavate, remove, haul and properly dispose of the unsuitable material off-site, as well as the crushed aggregate base course material, mixing, placement, compaction and finishing of the suitable material in its place including the hauling of any embankment. This is a Contingent Item and measurement shall not include the quantity of materials excavated without prior approval by the Airport, or the quantity of material used for purposes other than those directed.

Payment will be made under:

Item P-152-4.1 Over-Excavation and Replacement of Unsuitable Materials,
Backfill and Compaction (Contingent Item) – per Cubic Yard

TESTING REQUIREMENTS

- | | |
|-------------|--|
| ASTM D 1556 | Test for Density of Soil In-Place by the Sand Cone Method |
| ASTM D 1557 | Tests for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 10-pound (4.5 kg) Rammer and 18-inch (45 cm) Drop |
| ASTM D 2167 | Test for Density of Soil In-Place by the Rubber Balloon Method. |

END OF ITEM P-152

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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 C 150 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. Flyash. Flyash shall conform to ASTM C 618, Class C or F.

c. Fine Aggregate (Sand). Fine aggregate shall conform to the requirements of ASTM C 33 except for aggregate gradation. Any aggregate gradation which produces performance characteristics of the CLSM specified herein 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 free of oil, salt, acid, alkali, sugar, vegetable matter, or other substances injurious to the finished product.

e. Dyes. Dyes and other methods of coloring the backfill material may be incorporated if desired and approved by the Engineer.

MIX DESIGN

153-3.1 PROPORTIONS. The aggregates for CLSM shall be Aggregate Base conforming to MAG Section 702. Proportioning of the mixture shall comply with MAG Section 728.3 and 725.6, and shall conform to the requirements of Table 1. A mix design shall be submitted with test data for the Engineer's approval prior to the excavation for which the material is intended for use.

TABLE 1 – CLSM PROPORTIONING

Minimum Cement Content (lbs/ cu yd)	Slump (inches)	Compressive Strength at 28 days, (psi)
94±5%	9±2	150±50

Notes for Table 1:

1. The values specified in the table are for both mix design requirements and field production. The deviations are for production, testing and sampling tolerances.
2. Slump shall be tested in accordance with ASTM C 143. Flow consistency test can be substituted for the slump test. When used the CLSM shall have a flow consistency of 8 inches as tested in accordance with ASTM D 6103. Test specimens shall be in accordance with ASTM C 31.
3. Compressive strength shall be tested in accordance with ASTM D 4832 or ASTM C 39. The supplier shall provide laboratory and/or field test data to verify the design strength.
4. Sampling shall be in accordance with ASTM D 4832.
5. Unit weight shall be obtained by ASTM D 6023.
6. Temperature shall be taken in accordance with ASTM C 1064.
7. Cement content shall be tested in accordance with ASTM D 5982.

Where CLSM is to be used as backfill around gas pipelines (totally encapsulating the gas pipeline), the material shall meet a minimum permeability coefficient (k) of 1×10^{-5} cm/sec or more, based on ASTM D 5982.

153-3.2 MIXING. The total elapsed time between the addition of the water and placement of the complete mix shall not exceed 90 minutes. The Engineer may waive this limitation if the slump is such that the material can be placed without addition of water.

Mixing shall continue until the cementitious material and water are thoroughly dispersed throughout the material. Mixes shall be homogeneous, readily place-able, and uniformly workable: Proportioning of ingredients shall produce consistency, durability, workability, and other required properties appropriate for the intended usage. When the CLSM is mixed other than at the project site, the mixing shall comply with MAG Section 725.8 and 728. When the CLSM is mixed at the jobsite, the Contractor shall submit for the Engineer’s approval, the methods, equipment, and procedures for proportioning and mixing of the material before the mixing is performed.

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 in such a manner that structures or pipes are not displaced from their desired final position and intrusion of CLSM into undesirable areas is avoided. The material shall be brought up uniformly to the fill line shown on the plans or as directed to 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 of 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 should 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 75 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 153-3.1.

MATERIAL ACCEPTANCE

153-5.1 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 or the material used in the course of a day's shift. 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

153-6.1 Measurement. No separate measurement for CLSM will be made. Measurement for backfilling trenches, structures and filling abandoned pipes shall be incidental to the pay item of which it is a part.

BASIS OF PAYMENT

153-7.1 Payment. No separate payment will be made for CLSM. The cost for placing the material shall be included in the unit price bid for the pay item of which it is a part (laying pipe, placing structure foundation, construction retaining wall, filling abandoned pipe, etc.).

TESTING REQUIREMENTS

ASTM D 4832 Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

MATERIAL REQUIREMENTS

ASTM C 33 Specification for Concrete Aggregates

ASTM C 150 Specification for Portland Cement

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

ASTM C 595 Specification for Blended Hydraulic Cements

END OF ITEM P-153

ITEM P-201 CRUSHED AGGREGATE BASE COURSE

DESCRIPTION

201-1.1 Maricopa Association of Governments (MAG) crushed aggregate base course (modified) shall be crushed aggregate base course, consisting of crushed aggregate constructed on a prepared course in accordance with MAG 702 and this specification.

MATERIALS

201-2.1 The Contractor shall supply crushed aggregate. When a particular classification of base material is specified, the Contractor may substitute any higher classification of base material for the specified classification with the approval of the Resident Engineer, but at no additional cost to the owner.

Except where materials are being obtained from a previously approved source, the Contractor shall give the Resident Engineer ten (10) days advance notice, in writing, of the source of the base material he intends to use in order to allow sufficient time to perform the necessary tests.

201-2.2 CRUSHED AGGREGATE. Crushed aggregate shall consist of crushed rock or crushed gravel or a combination thereof. Samplings and sieve analyses shall be performed in accordance with ASTM D 75 and ASTM C 136. Sand equivalents shall be determined in accordance with AASHTO T 176. The liquid limit and plasticity index shall be determined in accordance with AASHTO T 89 and T 90.

Rock and gravel shall be clean, hard, sound, durable, and uniform in quality and free of any detrimental quantity of soft, friable, thin, elongated or laminated pieces, disintegrated material, organic matter, oil, alkali or other deleterious substance.

The loss by abrasion in the Los Angeles Abrasion Machine, determined as prescribed in ASTM C 131, grading B, shall not exceed ten (10) percent by weight after one hundred (100) revolutions, nor forty (40) percent after five hundred (500) revolutions.

201-2.2.1 Crushed Rock. Crushed rock shall consist of the product obtained by crushing rock, stone or gravel so that at least fifty (50) percent by weight of aggregate retained on the No. 4 sieve for 3/4-inch or larger maximum sizes, and fifty (50) percent retained on the No. 8 sieve for maximum sizes less than 3/4-inch shall consist of particles which have at least one (1) rough, angular surface produced by crushing. All material that will pass a grizzly with bars spaced fifteen (15) inches apart, clear opening, shall be crushed.

The gradation of crushed rock shall comply with ASTM D 448.

201-2.2.2 Gravel. Material designated herein as gravel shall be composed entirely of particles that are either fully or partially rounded or water-worn. Crushed rock obtained by crushing rock which exceeds ASTM D 448 maximum gradation sizes may be combined provided it is uniformly distributed throughout and blended with the gravel. The quality and gradation requirements shall be as stated in this specification.

201-2.2.3 Sand. Sand shall be fine granular material produced by the crushing of rock or gravel or naturally produced by disintegration of rock and shall be sufficiently free of organic material, mica, loam, clay and other deleterious substances to be thoroughly suitable for the purpose for which it is intended.

201-2.3 GRADATION. The aggregate shall be well graded when tested in accordance with ASTM C 136 and C 117. The percentage composition by weight shall be within the limits for “Aggregate Base” as shown in Table 1 below.

TABLE 1. GRADATION AND PLASTIC INDEX REQUIREMENTS FOR P-201 MATERIAL

Sieve Sizes (Square Openings)	Percentage by Weight Passing Sieve
1-1/2 in	100
1 in	90-100
No. 4	38-65
No. 8	25-60
No. 30	10-40
No. 200	3-12
Plastic Index (max)	5

Gradations in Table 1 represent the limits that shall determine suitability of aggregate for use from the sources of supply. The final gradations decided on, within the limits designated in the table, shall be well-graded from course to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieves, or vice versa.

The Plasticity Index shall be as noted in Table 1 above when tested in accordance with AASHTO T-146 Method A (Wet Preparation), T-89 and T-90.

201-2.3.1 Filler for Blending. If filler, in addition to that naturally present in the base course material, is necessary for satisfactory bonding of the material, for changing the soil constants of the material passing the No. 4 mesh sieve, or for correcting the gradation to the limitations of the specified gradation, it shall be uniformly blended with the base course material at the crushing plant or at the mixing plant. The material for such purpose shall be obtained from sources approved by the Resident Engineer and shall be of a gradation necessary to accomplish the specified gradation in the finally processed material.

The additional filler may be composed of sand, but the amount of sand shall not exceed 20 percent by weight of the total combined base aggregate. All the sand shall pass a No. 4 mesh sieve and not more than 5 percent by weight shall pass a No. 200 mesh sieve.

PLACING

201-3.1 The underlying course shall be checked and accepted by the Resident Engineer prior to placing and spreading operations. Crushed aggregate base course may be placed in layers not to exceed six (6) inches in thickness and shall be built up in successive layers of approximately equal compacted thickness not to exceed a maximum thickness of six (6) inches. The requirements that follow are applicable to all types of material.

After distributing, the base material shall first be watered and then immediately bladed to a uniform layer that will net, after rolling, the required thickness. If the materials deposited are not uniformly blended together, the blading operation shall be continued to such extent as may be necessary to eliminate segregation. The quantity of water applied shall be that amount which will assure proper compaction resulting in a relative density of not less than 95 percent as determined in accordance with ASTM D 1557 for aircraft movement areas. Care shall be exercised in connection with watering operations to avoid wetting the subgrade or any lower base course to detrimental extent.

Upon completion, the base surface shall be true, even and uniform conforming to the grade and cross-section specified.

Crushed aggregate base course may vary not more than 1/2-inch above or below required grade and cross-section.

201-3.2 COMPACTION. Immediately upon completion of the spreading operations, the aggregate shall be thoroughly compacted. The number, type and weight of rollers shall be sufficient to compact the material to the required density.

The moisture content of the material during placing operations shall not be below, nor more than one and one half percentage points (1-1/2%) above, the optimum moisture content as determined by ASTM D 1557 or ASTM D 2922.

QUALITY CONTROL

201-4.1 GENERAL. The Contractor shall develop a Quality Control Program (QCP) in accordance with Technical Specification P-100, and shall perform all Quality Control tests and inspections necessary to control the production and construction process applicable to this specification. The program shall address all elements that effect the quality of the MAG crushed aggregate base course, but not limited to:

- a. **Material Density.** The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 2167. Nuclear moisture and density methods meeting ASTM D 2922 and D 3017 may be used, provide that at least one (1) out of four (4) tests are conducted using the ASTM D 1556 method to correlate test results. Calibration tests shall be conducted on each lot of material placed that meets the density requirements. Material density shall be tested on a lot basis. A lot shall consist on one day's production where it is not expected to exceed 2,400 square yards. Each lot shall be divided into two (2) equal sublots. One (1) test shall be made for each subplot. Sampling locations shall be determined in accordance with ASTM D 3665. If the specified density is not attained, the entire lot shall be reworked and recompacted and two (2) additional tests shall be made. This procedure shall be followed until the specified density is reached. Each lot will be accepted for density when the field density is at least 95 percent of the maximum density of laboratory specimens prepared from samples of the base course material delivered to the job site. The specimens shall be compacted and tested in accordance with ASTM 1557.
- b. **Material Moisture Content.** The material in each layer shall be within plus or minus 1½ percent of optimum moisture content before rolling to obtain the prescribed compaction.

- c. **Aggregate Gradation.** The material in each layer shall be sampled and tested to fall within the range of Table 1. The material shall be verified for compliance for each lot.
- d. **Surface Tolerances.** The finished surface shall not vary more than 1/2-inch when tested with a 16-foot straightedge applied parallel with or at right angles to the centerline. The Contractor at the Contractor's expense shall correct any deviation in excess of this amount.
- e. **Placing and Finishing.** If the elevation of the top layer is 1/2-inch or more below grade, the top layer of the crushed aggregate base course shall be scarified to a depth of at least three (3) inches, new material added, and the layer shall be blended and re-compacted to bring it to grade. If the finished surface is above plan grade, it shall be cut back to grade and re-rolled and re-tested for density and moisture. The Contractor shall provide a quality control survey of the finished grade prior to paving the next course.
- f. **Foreign Object Debris.** Quality Control inspection shall be provided for ensuring that there is not any foreign object debris on runways, taxiways, aprons or other movement areas, at least fifteen (15) minutes prior to opening the section to aircraft traffic. Foreign object debris shall be removed by vacuum sweeping.

METHOD OF MEASUREMENT

201-5.1 There will be no separate measurement for Crushed Aggregate Base Course, but shall be considered incidental to the associated item of installation, (reference Technical Specification P-152).

BASIS OF PAYMENT

201-6.1 There will be no separate payment for Crushed Aggregate Base Course, but shall be considered incidental to the associated item of installation, (reference Technical Specification P-152).

TESTING REQUIREMENTS

ASTM C 29	Unit Weight of Aggregate
ASTM C 117	Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 131	Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
ASTM C 136	Sieve Analysis of Fine and Coarse Aggregates
ASTM D 422	Particle Size Analysis of Soils
ASTM D 1557	Tests for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 10-pound (4.5 kg) Rammer and 18-inch (45 cm) Drop
ASTM D 1556	Density of Soil in Place by the Sand-Cone Method
ASTM D 2167	Density of Soil in Place by the Rubber-Balloon Method

ASTM D 3665	Random Sampling of Paving Materials
ASTM D 4318	Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 6938	In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods

END OF ITEM P-201

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ITEM P-405 ASPHALT CONCRETE PAVEMENT

DESCRIPTION

405-1.1 Maricopa Association of Governments (MAG) Asphalt Concrete (modified) pavement shall consist of bituminous paving in accordance with MAG Standard Specifications Sections 321 and 710, 3/4" Marshall, High Volume Traffic mix design as defined by Section 710.

MATERIALS AND MANUFACTURER

405-2.1 GENERAL. Materials and manufacture shall conform to MAG Section 710, 3/4" Marshall, High Volume Traffic mix design as defined by Section 710, except as modified in this specification.

405-2.2 JOB MIX FORMULA. No bituminous mixture for payment shall be produced until a job mix formula has been approved by the Airport. The job mix formula for the mixes shall be as shown in MAG Section 710, 3/4" Marshall, High Volume Traffic mix design as defined by Section 710. The asphalt binder shall be PG70-10 in accordance with MAG Section 711.

405-2.3 RECYCLED ASPHALT. Recycled asphalt concrete will not be allowed on this project.

CONSTRUCTION METHODS

405-3.1 WEATHER AND MOISTURE CONDITIONS. Asphalt concrete shall be placed only when the surface is dry, and when the atmospheric temperature in the shade is forty degrees Fahrenheit (40°F) or above. Asphalt Concrete for surface course which is less than two (2) inches in thickness shall be placed only when the surface is dry, and when the surface temperature is equal to or greater than fifty degrees Fahrenheit (50°F).

No asphalt concrete shall be placed when the weather is foggy or rainy, or when the base on which the material is to be placed contains moisture in excess of the optimum. Asphalt concrete shall be placed only when the Airport determines weather conditions are suitable.

405-3.2 APPLICATION OF TACK COAT. A tack coat shall be applied to all existing and new pavement edges or surfaces (AC and PCCP) prior to the placing of a succeeding layer of bituminous mixed material adjacently. The tack coat may be deleted when a succeeding layer of asphalt concrete is being applied over a freshly laid course that has been subjected to very little traffic when approved by the Engineer.

The tack coat and application thereof shall comply with MAG Sections 329 and 713, meeting the requirements of a SS-1h material. There will be no separate measurement or payment for the application of tack coat; all work, equipment and materials shall be considered incidental to the installation of the asphalt pavement.

405-3.3 PLACING, SPREADING AND FINISHING. Asphalt concrete shall be delivered and placed within the job mix formula limits specified in MAG Section 710, unless otherwise shown within this specification. Tarpaulins shall be furnished and used to cover all loads during transportation if the

temperature of the mixture is below two hundred-sixty degrees Fahrenheit (260°F). The temperature shall be taken by the Contractor's Quality Control personnel, at a point six (6) inches below the exposed surface of the material, in the truck, on the job site, and just prior to placement. When releasing agents are placed in the truck beds, no free fluid shall be present in the truck bodies at the time of asphalt concrete is loading. Diesel fuel shall not be used as a releasing agent.

The handling of the completed mixture shall at all times be such as to prevent segregation, and the material as spread shall be free from areas of excess course or fine material. Float rock developed in the process of raking shall be placed on an underlying course or otherwise disposed of. In no case shall it be scattered over the surface of a final course.

Placement shall begin on pavement at points farthest from the source of supply, and progress continuously toward the source of supply, unless otherwise ordered by the Airport, and no more than one-half (1/2)-day's delivery to the project shall be placed in any one lane in advance of other lanes. Transverse joints in adjacent lanes shall be offset a minimum of ten (10) feet.

At locations where the mixture is to be placed over areas inaccessible to the required spreading or compacting equipment or over areas where the use of the required spreading and compacting equipment would not be practicable, the mixture may be spread or compacted by other means approved by the Airport.

a. Base Preparation. The base on which the asphalt concrete is to be placed shall be prepared by the Contractor, and shall be smooth, firm, and true to grade and cross-section as shown on the plans, and shall be so maintained throughout the period of placing asphalt concrete. If necessary, in order to obtain the above-specified base condition, and if ordered by the Airport, aggregate base shall be spread to level out any irregularities such as dips, depressions, and sags. All irregularities such as humps or high spots shall be removed in order to provide a smooth base of uniform grade and cross-section, so subsequent surfacing will be of uniform thickness. The finished surface of the base shall not vary more than one-half (1/2)-inch when tested with a sixteen (16)-foot straight edge applied parallel with or at right angles to the centerline. Any deviation in excess of this amount shall be corrected by the Contractor at the Contractor's expense.

No additional compensation will be allowed for furnishing and placing these materials. Full compensation for all materials and for all work incidental to the correcting of irregularities will be considered as included in the contract price for asphalt concrete.

b. Spreading and Finishing Equipment. Self-propelled mechanical spreading and finishing equipment shall be provided with a vibrating screed or strike off assembly capable of distributing not less than the full width of a paving lane. The term screed includes any strike-off device which operates by cutting, crowding, or other practical action which is effective on mixtures at workable temperatures without tearing, shoving, or gouging, and which will produce a finished surface of the smoothness and texture required. The screed shall be adjustable to the required template and elevation. The forward speed of operation of self-propelled mechanical spreading and finishing equipment shall be so regulated so no irregularities will result in the surface texture or smoothness of the mat due to excessive forward speed of the spreading machine. The forward speed of operation shall not exceed fifty-five (55) feet per minute, unless the Contractor can demonstrate to the satisfaction of the Airport higher speeds will not affect the smoothness of the mat.

All material within the self-propelled mechanical spreading and finishing equipment shall be handled to prevent segregation of the aggregate. This includes but is not limited to devices such as augers, screws or slat conveyors. These devices shall extend to the final or termination point where the material is being transported within the equipment. If any of the devices fail to function, the paving operation shall be terminated immediately until repairs are completed. In the case of the screed, auger extensions and vibrators shall be installed wherever the screed is extended more than one (1) foot beyond the end of the base auger or auger extension. However, when placing material against an extremely uneven edge over a short distance, the Airport may waive the auger extensions and vibrators.

Self-propelled mechanical spreading and finishing equipment shall be equipped with control system capable of automatically maintaining the screed elevation as specified herein.

The control system shall be automatically actuated from a laser system of mechanical sensors or sensor directed mechanisms or devices which 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 plus or minus 0.1 percent. When directed by the Airport, the transverse slope control system shall be made inoperative and the screed shall be controlled by sensor directed automatic mechanisms which will independently control the elevation of each end of the screed from reference lines or surfaces.

The controls shall be capable of working in conjunction with a thirty (30) or longer ski taut string line (wire) set to grade, short ski or laser control. The Contractor shall furnish all necessary equipment to perform the paving operation.

When trucks are backed into the self-propelled mechanical spreading and finishing equipment, it shall be in such a manner that the equipment will not be jarred excessively or moved out of line. Once in position, the truck shall be securely attached to the equipment during spreading and finishing.

When the Airport deems that the automatic screed control operation is not practical under a particular set of conditions, he/she may order the use of manual control in lieu thereof. However, the machine shall be equipped with the automatic device.

Use of the spreader boxes will be permitted by the Airport only in writing, under certain conditions, such as in narrow paving projects where it is not practical to use self-propelled equipment. The spreader box will be equipped with a readily adjustable strike off blade. In order to obtain a smooth surface manipulation of the controls of the spreader box shall be held to a minimum. Trucks shall be backed into the spreader box in such a manner that the box will not be jarred excessively or moved out of line and the trucks shall be securely attached to the spreading and finishing.

The asphaltic concrete materials shall not be placed with a self-propelled pneumatic tired blade grader.

c. Compaction Equipment. All rollers used in compaction of asphalt concrete shall be self-propelled and reversible, with a minimum weight of eight (8) tons. All rollers shall be maintained to insure smooth operation in respect to steering, the ability to stop, start and reverse. All rollers shall be equipped with an automatic device or devices capable of properly dispensing an approved

releasing agent on the wheels to prevent the wheels from picking up the asphalt concrete. Diesel fuel shall not be used as a releasing agent. All rollers shall be equipped with scrapers to keep the wheels clean from asphalt and other debris.

Pneumatic-tired rollers shall be of the two (2)-axle tandem type having a rolling width of not less than five (5) feet. All tires shall not be less than twenty (20) inches in diameter, shall be of the same size and shall have treads satisfactory to the Airport. The roller shall be so constructed that the operating weight per tire shall not be less than two thousand (2,000) pounds and the tires shall be spaced so that the entire gap between adjacent tires will be covered by the tread of the following tire. Except as otherwise specified, each tire shall be inflated to ninety (90) psi and at all times the air pressure in each tire shall not vary more than five (5) psi from the specified pressure. Pneumatic-tired rollers shall be equipped with skirt-type devices mounted around the tires so that the temperature of the tires will be maintained during the rolling process.

Steel-wheeled tandem rollers or vibratory rollers may be used where applicable. In all cases, the larger of the two roller wheels will be operated in the forward position. The steel wheels shall be straight, free from grooves and/or pits. Vibratory rollers shall be operated in accordance with standard practices and manufacturer recommendations.

d. Asphalt Surface Course. Asphalt surface course (3/4") shall be spread and finished by means of self-propelled mechanical spreading and finishing equipment as described and specified above, except as otherwise noted. The compacted thickness of layers placed shall be as shown on the plans, but in no case shall the compacted thickness of each lift exceed three (3) inches.

When more than one (1) course is placed, longitudinal joints of each course shall be staggered not less than one (1) foot with relation to the longitudinal joints of the underlying course. Transverse joints in adjacent lanes shall be offset a minimum of ten (10) feet.

Before another course is placed adjacent to cold transverse construction joint, the joint shall be trimmed to a vertical face by saw cutting the material back to its full depth to expose a fresh surface. The joint shall be cut on a ten-degree (10°) to fifteen-degree (15°) skew from a line perpendicular to the center line of the paveway. The joint formed when the fresh mixture is placed shall be dense and well sealed. The transverse surface joints shall be tested with a sixteen (16)-foot straightedge and shall conform to the requirements herein for surface smoothness. For short overnight intermissions in paving, a full depth bulkhead (e.g., wooden member) can be placed near the end of the day's pavement. The bulkheads and excess material will be removed just prior to the placement of the following day's pavement.

An approved joint heater shall be used on cold transverse or longitudinal joints where conditions are such that it is deemed necessary by the Airport. The joint heater shall be capable of heating the joint to a minimum temperature of two hundred degrees Fahrenheit (200°F).

Emulsified asphalt shall be applied to the exposed edge before new pavement is placed against the joint.

Sufficient rolling equipment shall be furnished to satisfactorily compact and finish the amount of mixture being placed. However, there shall be a minimum of two (2) rollers with two (2) operators on the project at all times. Upon direction of the Airport, one of the rollers may be a pneumatic-tire

roller. During rolling operations, the speed of the roller(s) shall not exceed 3 miles per hour if an ample number of rollers are not present, the Contractor shall adjust the asphalt placement rate to accommodate the roller(s) speed. The type and required number of rollers shall be on the project and in acceptable operating condition, prior to the placement of any asphalt material. All rollers shall be operated continuously from the breakdown through finish rolling. The Contractor may use vibratory rollers in lieu of the steel-wheeled roller, however when the thickness of the asphalt is one (1) inch or less, all rolling will be done in the static mode.

When more than one width of asphalt concrete material will be placed, a six (6)-inch strip adjacent to the area on which future material is to be laid shall not be rolled until such material has been placed but shall not be left unrolled more than two (2) hours after being placed, unless the six (6)-inch unrolled strip is first heated with a joint heater. After the first strip or width has been compacted, the second width shall be placed, finished and compacted as provided for the first width, except that rolling shall be extended to include the six (6) inches of the first width not previously completed.

At any place not accessible to the roller, the mixture shall be thoroughly compacted with tampers and finished, where necessary, with a hot smoothing iron to provide a uniform and smooth layer over the entire area compacted in this manner.

Breakdown rolling shall begin as soon as the mixture will bear the roller without undue displacement. Rolling shall be longitudinal, overlapping on successive trips by at least thirty-four percent (34%) but not more than the width of the rear wheels. Alternate trips of the roller shall be of slightly different lengths. The motion of the roller shall at all times be slow enough to avoid displacement of the mixture.

Break down and compaction rolling shall be done by either steel-wheel or pneumatic-tire rollers. The Engineer may require a pneumatic-tire roller for one of the rolling operations. Rolling shall continue until the specific gravity of the compacted mixture is not less than ninety-five percent (95%) of the specific gravity of specimens composed of the same materials in similar proportions or composed of the same mixture compacted in the laboratory by the seventy-five (75) blow method of AASHTO T-245 if the mix was designed by the Marshall method. If the mix was designed by the Asphalt Institute's SP-2 Gyrator method, rolling shall continue until the specific gravity of the compacted mixture is not less than ninety-three percent (93%) of the maximum theoretical specific gravity (ASTM D-2041) of specimens composed of the same materials in similar proportions or composed of the same mixture compacted in the laboratory.

Finish rolling shall be done by means of steel-wheeled roller or a vibratory steel-wheel roller operated in the static mode.

The completed surfacing shall be thoroughly compacted, smooth and true to grade and cross-section and free from ruts, humps, depressions or irregularities. The surface shall not vary by more than one-quarter (1/4)-inch from the lower edge of a sixteen (16)-foot straightedge when the straightedge is placed parallel to the centerline, and shall not vary by more than three-eighths (3/8)-inch from the lower edge of a sixteen (16)-foot straightedge when the straightedge is placed perpendicular, or in any other direction. This straightedge smoothness requirement applies to taxiways, service roads, and other paved surfaces. **The straightedge shall be furnished by the Contractor and shall be acceptable to the Airport.**

All areas paved shall be water tested by the Contractor for drainage in the presence of the Airport or designated representative before final acceptance. Any areas not draining properly shall be corrected to the Airport’s satisfaction at the Contractor’s expense. Water for this testing shall be provided and paid for by the Contractor.

When deviations in excess of the above tolerance are found, humps or depressions shall be corrected to meet the specified tolerance, or shall be saw cut out along neat straight lines and replaced with fresh hot mixture and thoroughly compacted to conform with and bond to the surrounding area. Materials and work necessary to correct such deviations shall be at no additional cost to the Airport.

MATERIAL ACCEPTANCE

405-4.1 ACCEPTANCE SAMPLING AND TESTING. Acceptance Sampling and testing of asphalt concrete surface course shall be in accordance with MAG Specification 321, except as modified below.

a. Thickness. A minimum of (4) cores shall be taken per lot, or a day’s production not to exceed 2,000 square yards. Cores will be taken by the Contractor, as directed by the Airport. If a deficiency of more than one-quarter (1/4)-inch is found, additional cores shall be taken every 50 feet until the deficiency in thickness area has been determined.

The average of these cores will be used to determine the amount of the deficiency. Thickness of the cores shall be determined by the Airport, and by using the average caliper measurement.

Where pavement thickness is deficient by one-quarter (1/4)-inch or less, it will be paid for at the contract unit price.

Where the pavement is deficient in thickness by more than one-quarter (1/4)-inch see table below.

TABLE 1. PAVEMENT THICKNESS PAYMENT REDUCTION, ASPHALT CONCRETE

Specified Mat Thickness	Reduction in Payment
2.75 – 3.0 Inches	0%
2.50 – 2.75 Inches	15%

When the deficiency of the pavement thickness exceeds 1/2-inch, the pavement shall be milled and overlaid on the area affected, but in no case less than the determined area, with a new mat of material, equal in thickness to the deficiency but not less than one-and-one-half (1-1/2) inches in any instance with a new mix design designated by the Owner/Engineer at that time. This will be performed at no additional cost to the Owner.

Where a core and corresponding test are taken within a 20’ transition section as shown in the construction drawings/plans, any reduction in payment will be applied in the intervals shown in the table above against deficiencies in the theoretical/calculated mat thickness of the specific test location within the transition section.

b. Density. All density acceptance will be in accordance with MAG Section 321.10.5.

c. Gradation, Binder Content and Air Voids. Acceptance criteria shall be in accordance with MAG Specification 321.10.2.

CONTRACTOR QUALITY CONTROL

405-5.1 GENERAL. The Contractor shall develop a Quality Control Program in accordance with Technical Specification P-100. The program shall address all elements that affect the quality of the pavement including, but not limited to:

- | | |
|-------------------------|------------------------------|
| a. Mix Design | f. Mixing and Transportation |
| b. Aggregate Grading | g. Placing and Finishing |
| c. Quality of Materials | h. Joints |
| d. Stockpile Management | i. Compaction and density |
| e. Proportioning | j. Surface smoothness |

405-5.2 TESTING LABORATORY. The laboratory used to develop the job mix formula shall meet the requirements of ASTM D 3666. A certification signed by the manager of the laboratory stating that it meets these requirements shall be submitted to the Airport prior to the start of construction. The certification shall contain as a minimum:

- a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.
- b. A listing of equipment to be used in developing the job mix.
- c. A copy of the laboratory's quality control system.
- d. Evidence of participation in the AASHTO Materials Reference Laboratory (AMRL) program
- e. Evidence the laboratory is accredited, for the test methods required herein, by a nationally recognized laboratory accreditation organization.

405-5.3 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 MAG specs.

405.5.4 SAMPLING. 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.

METHOD OF MEASUREMENT

405-6.1 MEASUREMENT. Asphaltic concrete pavement for asphaltic concrete surface course, (to the depths shown within the typical sections in the plans), will be measured by the ton, computed to the nearest square yard, for the mixture actually constructed in-place. No separate measurement will be made for the required quantities of any material required for the installation

of asphalt pavement including (but not limited to) mineral aggregates, filler material, asphalt cement, sand, tack coat, etc.

Weighmaster's Certificates shall be provided by the Contractor. The weighing shall be done on certified platform scales sealed by the State Inspector as defined by ARS Sections 44-2112 and 44-2116. The Contractor shall furnish PMGAA with duplicate weighmaster's certificates showing the actual net weights together with the information required by ARS Section 44-2142.

The price per ton for Asphalt Concrete Pavement surface course shall include the cost of the asphalt cement in the percentages as specified in these specifications.

There will be no separate measurement or payment for any work, equipment, or material required for the application of tack coat as herein mentioned, but shall be considered incidental to the project.

BASIS OF PAYMENT

405-7.1 PAYMENT. The asphalt concrete measured as provided above will be paid for at the contract price per ton, (to the depths shown within the typical sections in the plans), and that price shall be full compensation for the item complete in-place, as herein described and specified. The price shall be compensation for furnishing all materials, including bituminous material, for all preparation, mixing, transportation and placement of these materials, and for all labor, equipment, tools and incidentals necessary to complete the item. No separate payment will be made for corrective work.

No payment will be made for any overrun in quantity of asphaltic concrete in excess of ten percent (10%) based on actual field measurement of area covered, design thickness, and a unit weight of one hundred-fifty (150) pounds per cubic foot.

Payment shall be made under:

Item P-405-7.1 Asphalt Concrete Pavement Overlay – per Ton

TESTING REQUIREMENTS

ASTM C 29	Unit Weight of Aggregate
ASTM C 88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C 117	Test Method for Materials Finer than 75-um (No.200) Sieve in Mineral Aggregates by Washing
ASTM C 131	Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
ASTM C 136	Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C 183	Sampling Hydraulic Cement

ASTM C 566	Total Moisture Content of Aggregate by Drying
ASTM D 75	Sampling Aggregates
ASTM D 995	Requirements for Mixing Plants for Hot-Mixed Hot-Laid Bituminous Mixtures Paving
ASTM D 118	Bulk Specific Gravity of Compacted Bituminous Mixtures Using Paraffin-Coated Specimens
ASTM D 1461	Moisture or Volatile Distillates in Bituminous Paving Mixtures
ASTM D 1559	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
ASTM D 2041	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D 2172	Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D 2419	Sand Equivalent Value of Soils and Fine Aggregate
ASTM D 2489	Degree of Particle Coating of Bituminous-Aggregate Mixtures
ASTM D 2726	Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens
ASTM D 3203	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D 2950	Density of Bituminous Concrete in Place by Nuclear Method
ASTM D 3665	Random Sampling of Paving Materials
ASTM D 3666	Inspection and Testing Agencies for Bituminous Paving Materials
ASTM D 4125	Asphalt Content of Bituminous Mixtures by the Nuclear Method
ASTM D 4318	Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 4791	Flat or Elongated Particles in Coarse Aggregate
ASTM D 4867	Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D 6307	Asphalt Content of Hot Mix Asphalt by Ignition Method.
ASTM E 178	Practice for Dealing with Outlying Observations
AASHTO T 30	Mechanical Analysis of Extracted Aggregate

MATERIAL REQUIREMENTS

ASTM D 242	Mineral Filler for Bituminous Paving Mixtures
ASTM D 946	Asphalt Cement for Use in Pavement Construction
ASTM D 3381	Viscosity-Graded Asphalt Cement for Use in Pavement Construction

END OF ITEM P-405

ITEM P-620 AIRFIELD PAVEMENT MARKING

DESCRIPTION

620-1.1 This item shall consist of the 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.

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.

620-2.2 PAINT. Paint shall be Waterborne, in accordance with the requirements of Federal Specification TT-P-1952E. Paint shall be furnished in Yellow - 33538 or 33655 and White – 37925 in accordance with Federal Standard No 595. Paint shall be furnished in Type II – Fast drying time for no-pick-up when tested in accordance with ASTM D 711.

620-2.3 REFLECTIVE MEDIA. Glass beads shall meet the requirements of Fed. Spec. TT-B-1325D, Type III. 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.

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. Markings shall not be applied when the pavement temperature is greater than 120°F. The Contractor should be aware of any manufacturer's minimum and maximum pavement surface temperatures.

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 dirt, laitance, and loose materials without damage to the pavement surface. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the Engineer. Cleaning methods shall be chosen to eliminate or minimize generation of dust.

Paint shall not be applied to Portland cement concrete pavement until the areas to be painted are clean of curing material. Sandblasting or high-pressure water shall be used to remove curing materials.

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.

If required by the Owner, prior to application of pavement markings, the Contractor shall test the airless-type marking spray at the location approved by the Owner. The Contractor shall test 100 linear feet of Centerline Marking to satisfaction of the Owner prior to application of markings for this project.

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 Owner. The edges of the markings shall not vary from a straight line more than 1/2 in (12 mm) in 50 ft (15 m) and marking dimensions and spacing shall be within the following tolerances:

Dimension and Spacing	Tolerance
36 inches (910 mm) or less	±1/2 inch (12 mm)
greater than 36 inches to 6 feet (910 mm to 1.85 m)	± 1 inch (25 mm)
greater than 6 feet to 60 feet (1.85 m to 18.3 m)	± 2 inches (51 mm)
greater than 60 feet (18.3 m)	± 3 inches (76 mm)

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate(s) shown in Table 1. **Two coats of paint shall be applied, with the first coat applied at 33% of the Table 1 rate, and the second coat at 100% of the Table 1 rate.** The addition of thinner will not be permitted. A period of 7 days (minimum) shall elapse between placement of bituminous surface course or seal coat and application of the paint.

TABLE 1. APPLICATION RATES FOR PAINT & GLASS BEADS

Paint Square feet per gallon, ft ² /gal	Glass Beads, Type III Pounds per gallon of paint-lb./gal.
115 (maximum)	10 (minimum)

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.

Glass beads shall not be applied to temporary or black pavement markings.

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. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made.

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.

A 24-to-30 day waiting period after paving is recommended for all types of paints to be used for pavement marking. If the airport operations require pavement marking prior to the recommended waiting period, the paint may be applied in a temporary light coat application rate of 33% for temporary markings. Glass beads are not required for temporary markings. The final application should occur after the waiting period has passed.

620-3.7 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 pavement markings to be paid for shall be the number of square feet of painting, including both coats (33% and 100% as described in Paragraph 620-3.5) and the application of glass beads, performed in accordance with the specifications and accepted by the Owner.

BASIS OF PAYMENT

620-5.1 Payment shall be made at the bid unit price per square foot for pavement marking, including both coats (33% and 100% as described in Paragraph 620-3.5). This price shall be full compensation for furnishing all materials (including glass beads) and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

- P-620-5.1 Airfield Pavement Markings (Yellow) – per Square Foot
- P-620-5.2 Airfield Pavement Markings (White) – per Square Foot

TESTING REQUIREMENTS

- ASTM C 136 Sieve Analysis of Fine and Coarse Aggregates
- ASTM C 146 Chemical Analysis of Glass Sand
- ASTM C 371 Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders

ASTM D 92	Test Method for Flash and Fire Points by Cleveland Open Cup
ASTM D 711	No-Pick-Up Time of Traffic Paint
ASTM D 968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D 1213-54 (1975)	Test Method for Crushing Resistance of Glass Spheres
ASTM D 1652	Test Method for Epoxy Content of Epoxy Resins
ASTM D 2074	Test Method for Total Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D 2240	Test Method for Rubber Products-Durometer Hardness
ASTM G 15453	Operating Light and Water-Exposure Apparatus (Fluorescent Light Apparatus UV-Condensation Type) for Exposure of Nonmetallic Materials.
Federal Test Method Standard No. 141D/GEN	Paint, Varnish, Lacquer and Related Materials; Methods of Inspection, Sampling and Testing

MATERIAL REQUIREMENTS

ASTM D 476	Specifications for Dry Pigmentary Titanium Dioxide Pigments Products
Code of Federal Regulations	40 CFR Part 60, Appendix A – Definition of Traverse Point Number and Location
Code of Federal Regulations	29 CFR Part 1910.1200 – Hazard Communications
FED SPEC TT-B-1325D	Beads (Glass Spheres) Retroreflective
AASHTO M 247	Glass Beads Used in Traffic Paints
FED SPEC TT-P-1952E	Paint, Traffic and Airfield Marking, Waterborne
Commercial Item Description (CID) A-A-2886B	Paint, Traffic, Solvent Based
FED STD 595	Colors used in Government Procurement

END OF ITEM P-620

Construction Safety and Phasing Plan
Pinal Airpark
Runway 12-30 Rehabilitation and Repair

County Contract No.: EC14-010
County Project No.: 61790016

MAY 19, 2015

Prepared For:



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List of Exhibits (located at the end of the report)

Exhibit A – Project Site Plan

Exhibit B – Construction Phasing Plan

1. COORDINATION

A. General Project Information

The existing Runway 12-30 at Pinal Airpark consists of old and severely deteriorated asphalt concrete (AC) pavement and has reached the end of its useful life. The existing condition generates varying sizes of Foreign Object Debris (FOD) relatively easy and often and is a significant concern for the County due to the potential risk of jet engine ingestion. It is anticipated that the County will receive a state grant in ADOT Fiscal Year (FY) 2016, (July 2015), for the rehabilitation/repair of the runway.

The goal of the project is to extend the life of runway by maximizing available budget. The construction documents include plans, technical specifications, and bid-ready contract documents for the rehabilitation/repair of approximately 114,517 square yards (SY) of AC pavement. Work will include demolition of the existing AC pavement, minor grading modifications, and construction of new AC pavement, (see **Exhibit A**).

This Construction Safety and Phasing Plan provides specific information to the Contractor and/or Subcontractors selected to carry out the construction contract for the Runway 12-30 Rehabilitation and Repair project. This plan includes the requirements and procedures for accident prevention, safety requirements, and security considerations at the Pinal Airpark. The Airport's safety objective is to achieve accident-free construction projects. Furthermore, the Contractor must be in full compliance with FAA Advisory Circular (AC) 150/5370-2F, *Operational Safety on Airports during Construction*. This will be discussed at the Pre-Bid and Pre-Construction Conferences.

The Contractor(s) or Subcontractor(s) shall conduct their operations in a manner that will provide safe working conditions for all employees, the protection of the public and all others who may be affected by construction activities. Nothing contained in this plan is intended to relieve the Contractor, subcontractor or supplier of the obligations assumed by the Contractor under contract with Pinal County or as required by law.

Safety must be an integral part of the 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 phasing, marking, barricading, and lighting of airside construction areas is to delineate hazardous areas and prevent unauthorized incursions into the areas by personnel, vehicles, equipment, and aircraft during construction; and to positively separate construction activity from aircraft operations.

A Pre-Construction Conference will be scheduled prior to the issuance of the Notice to Proceed. Invitees and attendees will include Pinal County, Airport Operations personnel, the Engineer, the Contractor's Project Superintendent, and representatives from ADOT (in person or by phone). Relevant safety-related issues will be discussed in detail at this meeting.

Topics of discussion will include the FAA Advisory Circular (AC) 150/5370-2F, *Operational Safety on Airports during Construction*, project scope, the Resident Engineer's responsibility and authority, identifying the Contractor's Superintendent, NOTAM responsibility, phasing and scheduling of work,

Notice to Proceed date, safety during construction, security, badging and escorting requirements, quality control and testing, test reports, maintenance of record drawings, and other federal requirements.

The Pre-Construction Meeting has not yet been scheduled.

B. Contractor Progress Meetings

Weekly construction progress meetings will be held where the invitees and attendees will include at minimum Pinal County personnel, the Resident Engineer, the Contractor's Project Superintendent, and the lead personnel of each Subcontractor. In addition to the discussions on the progress of the project, operational safety procedures identified within this Safety Plan will be reviewed and discussed.

C. Scope or Schedule Changes

The Contractor will be required to immediately notify the Airport and Engineer of any anticipated changes to the original project scope or schedule. The Airport will coordinate (as needed) any changes with the impacted stakeholders, (i.e. ATCT, tenants, FAA, etc.). Approval from ADOT/FAA is required in advance of the work being performed by the Contractor.

D. FAA ATO Coordination

The Airport staff will be responsible for continually coordinating as required with the FAA/ATO during construction.

2. PHASING

The Runway 12-30 Rehabilitation and Repair project is anticipated to be constructed in multiple construction phases. The construction phasing was developed based on a number of factors including: minimizing impact to aircraft traffic and airport operations, maintaining aircraft traffic in and out of hangars, minimizing temporary taxiway closures, constructability, and construction costs.

Requirements and procedures in this phasing and safety plan and accompanying exhibits may be altered, on a case-by-case basis, if determined by Pinal County, so that safety is not compromised and the proposed alternative improves operational or project conditions. Any such alterations or deviations shall be at the sole discretion of Pinal County.

A. Phase Elements

The project has been divided into three phases, starting from the Runway 12 threshold and progressing south towards the Runway 30 threshold. Construction is anticipated to commence on August 1st, 2015. The three phases, designated Phase A, Phase B, and Phase C, have scheduled durations of 11, 7, and 11 calendar days, respectively. The Contractor will have until August 31, 2015 to reach substantial completion for all construction phases. Phase D shall take place during final completion.

Between each phase, the runway will be opened temporarily for one day to accommodate scheduled aircraft movements. Without exception, the runway must be prepared for operation and open on August 12, August 20, and September 1 of 2015. Ultimately, the Contractor will be responsible to submit his own construction safety and phasing compliance document at the Pre-Construction Conference for review and approval by the Engineer and Airport. See **Exhibit B** for a graphical representation of these phase elements, which are also described in greater detail below.

Phase A: Beginning at the north end of Runway '12-30', Phase A includes a mill and overlay of the first 2,605 feet of runway. This segment will also include pavement markings (33% application and without glass beads) and be prepared for opening of the runway before continuing to Phase B. The last 20-foot section will be a transition section to match into existing pavement. Phase A has an estimated duration of 11 calendar days, requiring substantial completion by August 11, 2015.

Phase B: The beginning Phase B overlaps the end of Phase A at the 20-foot wide transition section. Phase B is a mill and overlay of the next 1,700 feet of runway pavement. This segment will also include pavement markings (33% application and without glass beads) and be prepared for opening of the runway before continuing to Phase C. The last 20-foot section will be a transition section to match into existing pavement. Phase B has an estimated duration of 7 calendar days, requiring substantial completion by August 19, 2015.

Phase C: The beginning Phase C overlaps the end of Phase B at the 20-foot wide transition section. Phase C is a mill and overlay of the last 2,593 feet of runway pavement. This segment will include pavement markings (33% application and without glass beads) and preparation for opening of the runway at the conclusion of construction activities. Phase C has an estimated duration of 11 calendar days, requiring substantial completion by August 31, 2015.

Phase D: This Phase is scheduled to take place during final completion for 100% pavement markings application with glass beads. Striping of the runway shall occur at minimum 7 calendar days after the last day of paving the area. Date will be coordinated with the Airport one week ahead of work in order to issue NOTAM for runway closure.

B. Construction Safety Drawings

The Construction Phasing Plan is shown in **Exhibit B**.

3. AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY

A. Affected Areas on the Airfield

This project consists of reconstructing existing AC pavement along the corridor of Runway 12-30. The limits of runway pavement reconstruction are shown in **Exhibit A**.

1) *Closed or Partially Closed Facilities*

Depending on Pinal County operations at various times during the project, the Vehicular Access Gate 1 may be closed to allow for Contractor operations, (i.e. access, hauling, deliveries, etc.).

2) *ARFF Access Routes*

This project will have minimal impact on ARFF access routes. The runway and connecting taxiways will be closed during each construction phase; however, ARFF vehicles will have full access to the aircraft parking apron and perimeter roads. Alternate ARFF routes will be coordinated by the airport during the closure. The Contractor will be directed to maintain the alternate access routes and all other existing routes that may be used by an ARFF vehicle within the Airfield Operations Area (AOA) at all times. As shown in **Exhibit A**, Pinal County and other service vehicles will be re-routed to the southwest side of the project area for each phase by the use of signage and barricades.

3) *Airport and Airline Support Vehicle Access Routes*

Airport support vehicle access routes will be maintained throughout the project. If the Contractor elects to use the existing Airfield Perimeter or other Service roads, the Contractor will be required to maintain those roads at all times. Furthermore, the Contractor will be directed that Airfield Operations will always have the right-of-way. The proposed Contractor's haul routes can be seen in **Exhibit A**.

4) *Utilities for Firefighting*

No underground utilities used for firefighting (including water) within the AOA are anticipated to be impacted by the construction of this project. While every effort has been made to include the locations and depths of known utilities within the project areas, the Contractor will be required to pothole for utilities to avoid damage to them.

5) *Affected Approach and Departure Surfaces*

The Contractor's operations are not anticipated to impact any Approach/Departure Surfaces. However, the Contractor will be required to abide by the Part 77 airspace requirements at all times, and for all equipment, material and batch plants that may be required for this project. Construction equipment will be limited to stay below the approach surfaces at all times.

Construction activity shall be prohibited when equipment penetrates the imaginary surface described in Title 14 CFR Part 77 and any restricted area as defined in the current edition of FAA AC 150/5300-13, Airport Design, unless a favorable airspace finding has been made by the FAA and the Pinal County, and approved by the Operations Specialist on Duty. Equipment that penetrates the Part 77 imaginary surface must display a red obstruction light during nighttime use and an orange and white checkered flag during the day.

6) *Affected Instrument Approach Procedures and NAVAID Critical Areas*

It is not anticipated that any Instrument Approach Procedure or NAVAID Critical Area will be impacted by this project.

B. Mitigation of Effects

1) Construction Staging Area and Haul Routes

The Contractor's Staging and Storage Area haul routes, and construction access areas are shown in **Exhibit A**. The Contractor's Staging Area and Stockpile Area are located outside of all Object Free Areas. Construction access areas and haul routes have been established to minimize impact to airfield operations.

The Contractor will be required to supply gate guards at all construction entrances to the airfield when in use. Gate guards will not be required as long as the gates are closed and locked. Additionally, crossing guards will be required at either side of an active taxiway/taxilane when impacted by the Contractor's haul route.

The driver shall be issued an orange/white checkered flag to be mounted on the highest point of the truck; and shall be returned to the security guard upon check out. The driver shall be advised to remain on the marked haul route and follow the appropriate signs to the intended work area. At no time shall a driver unfamiliar with the worksite be allowed to deviate from the marked haul route. Additionally, during times of low visibility or darkness, the drivers shall be required to use an amber beacon.

2) Temporary Taxi Operations

When Contractor's operations impact any Taxiway Object Free Area (OFA), the respective taxiway will be closed as required in FAA AC 150/5370-2F, *Operational Safety on Airports during Construction*. Reference Section 2, *Phasing*, for further information on the required, temporary taxiway closures for each construction phase. Also reference **Exhibit B**.

3) Detours for ARFF and Other Airport Vehicles

All determined airport support vehicle access routes or alternate routes, including established ARFF routes, will be coordinated and maintained throughout the project by the Contractor and Airport personnel. However, because each construction situation is different, the Contractor must coordinate construction vehicle traffic with Pinal County Operations for each phase of construction. Contractor vehicle movements to and from the site must conform to approved Access and Haul Roads as defined on **Exhibit A**, or as directed by Pinal County at the weekly construction meetings. Pinal County will coordinate with all stake holders any detours from existing Airfield Service Roads as needed, throughout the duration of the project.

4) Maintenance of Essential Utilities

Essential utilities for structures/buildings may be impacted during construction. The Contractor will be required to provide temporary means to any impacted utilities until the impacted utilities are restored.

5) Temporary ATC Procedures

Pinal Airpark is an uncontrolled airport and is not equipped with an Air Traffic Control Tower (ATCT). However, all construction activities and runway closures will be detailed in weekly Notices to Airmen (NOTAMs), which will be coordinated through the Pinal Airpark NOTAMs facility. All

NOTAMs for construction activities will be posted approximately one week in advance of the commencement of said activities.

4. PROTECTION OF NAVIGATIONAL AIDS (NAVAIDS)

A. NAVAID Critical Areas

It is not anticipated that any NAVAID Critical Area will be impacted by this project.

B. Effects of Construction on NAVAID Performance

No negative effects of NAVAID performance are anticipated for the construction of this project.

C. Protections of NAVAID Facilities

It is not anticipated that any NAVAID Facility will be impacted by this project.

D. Required Distance from NAVAIDs to Construction Areas

There are no NAVAIDS that fall within the limits of construction for this project, therefore it is not anticipated that any NAVAID Facility will be impacted by this project.

E. Coordination Procedures with FAA/ATO

The Airport staff will be responsible for continually coordinating as required with the FAA/ATO during construction.

5. CONTRACTOR ACCESS

A. General Items

1) Contractor Access Areas

Any time access is required within the Restricted Areas the Contractor shall be responsible for assuring that no breaches of airport security occur. Restricted areas are fenced and must remain fenced at all times. The gates will remain closed and locked or a guard (badged by the airport) will be provided at the Contractor's expense. The Contractor will furnish the guard with a roster of his personnel and ensure that each individual has adequate identification. The duplicate keys for each lock will be turned over to Airport authorities. The following additional measures must also be taken:

- No person shall enter the contractor worksite without authorization. Any person found within the worksite without proper identification as described herein shall be considered unauthorized and shall be removed from the worksite.

Reference Section 5.B below for additional requirements imposed on the Contractor regarding the Staging Area and Haul Routes.

2) 49 CFR Part 1542 Airport Security

This project will require that the Contractor and any employees, Subcontractors, and delivery staff working on the airfield will be responsible for being vigilant in helping to maintain security of the airfield. The Contractor will be responsible for posting employees/gate guards at Contractor access points into the secured area of the airfield, and locking each access gate when leaving the project each day.

The airport is operated in Federal Aviation Regulations (FAR), which prohibit unauthorized persons or vehicles in the Air Operations Area (AOA). Equipment and workmen will be restricted to the work area defined on the plans. Any violation by Contractor's personnel or sub-contractors will subject the contractor to penalties imposed by the FAA or Pinal County, including fines.

The Contractor will assume all fines against Pinal County assessed to them by the FAA/TSA for the Contractor's security violations. Typical fines are ten thousand dollars (\$10,000.00) or more per incident.

The Contractor shall be responsible for the protection of the construction site, and all work, materials, equipment, and existing facilities thereon, against vandals and other unauthorized persons. Security measures shall include items such as additional security fencing, barricades, lighting, and other measures as the Contractor may deem necessary to protect the site.

The Contractor's responsibilities for work areas are as follows:

- The Contractor shall be held responsible for controlling his employees, subcontractors, and their employees with regard to traffic movement.
- The Contractor shall rebuild, repair, restore, and make good at his own expense all injuries or damages to any portion of the work occasioned by his use of these facilities before completion and acceptance of his work.
- The Contractor shall submit to the Engineer in writing a detailed work plan for each construction phase. The work plan shall include, but not be limited to, rehabilitation of the existing asphalt concrete per the typical sections provided in the plans. This plan shall be submitted 14 calendar days prior to the start of each construction phase. No work within the construction phase may commence until the phase work plan is approved.
- The Contractor shall submit to the Engineer in writing a plan, by construction phase, for controlling construction equipment and vehicular movements in the Air Operations Area (AOA). This plan shall be submitted at the Pre-Construction Meeting. No work may commence until this plan is approved. The Plan must include material haul roads.
- The Contractor shall provide a responsible Traffic Manager whose duty shall be to direct all traffic on or near active runways, taxiways, haul roads, and highways. Paved surfaces shall be kept clear at all times and specifically must be kept free from all debris which might damage aircraft.

B. Location of Stockpiled Construction Materials

All contractor materials, equipment and supplies shall be within the Contractor's designated staging and storage area. All storage areas shall be marked; debris boxes covered and area kept neat and clean of debris (see **Exhibit A**).

For equipment that must remain in the work area, the following conditions must be met:

- Be located outside of the runway/taxiway safety and object free areas.
- Be marked with lighted barricades around the equipment perimeter with a spacing of no more than 10 feet.
- Be coordinated at least 48 hours in advance with the Engineer.

The highest point of the equipment marked and lit with a red flashing/steady burning omnidirectional obstruction light.

Stockpiled materials are allowed only within the Contractor's designated staging and storage area:

- Remove daily all stockpiled material from within aircraft movement areas, unless otherwise directed by the Engineer.
- No excavated or stored materials may remain within active runway or taxiway safety areas and object free zones.
- Stockpiled material may be located within the Air Operations Area only upon prior coordination and approval of the Engineer.

Furthermore, Construction activity shall be prohibited when equipment penetrates the imaginary surface described in Title 14 CFR Part 77 and any restricted area as defined in the most current edition of FAA AC 150/5300-13, Airport Design, unless a favorable airspace finding has been made by the FAA and the Pinal County, and approved by the Operations Specialist on Duty. Equipment that penetrates the Part 77 imaginary surface must display an orange and white checkered flag during daytime operations and a red obstruction light during nighttime use.

1) Stockpiles within Runway Object Free Areas (ROFAs)

No large stockpiles within the Runway Object Free Area are anticipated for this project.

2) Proper Stockpiling of Materials

Stockpiled materials must be stabilized with water in order to avoid dust during windy conditions. Daily inspections by the Contractor will be required of the stockpiles and other areas within the construction limits that may be affected by windy conditions. Construction Administration personnel will also be performing daily inspections on these areas to insure compliance with this aspect.

3) Construction Site Parking

Construction parking will be allowed in the Contractor's Staging and Storage Area, which is outside of any Object Free Areas. No personal vehicles will be allowed onto the airfield with the exception

of inside the Contractor's staging and storage area. See Section 5.A.1, *Contractor Access Areas* for further information.

4) *Construction Equipment Parking*

Construction equipment parking will be in the Contractor's Staging and Storage Area for any equipment that is not in use. See Section 5 *Contractor Access Areas* for further information.

C. *Vehicle & Pedestrian Operations*

1) *Access and Haul Roads*

Access and haul roads on Airport property will be delineated with the use of low-profile barricades, flagging, temporary construction fencing, or escorts, or a combination thereof. Contractor access and haul roads can be seen in **Exhibit A**. See Section 5.A.1, *Contractor Access Areas* for further information.

2) *Marking and Lighting of Construction Vehicles*

All Contractor and Subcontractor vehicles must be properly marked with the company name at least four (4) inches in height on both sides of the vehicle. All vehicles must have a 3' x 3' orange and white checkered flag at the tallest point on the vehicle for daytime construction activities, and a flashing amber or yellow beacon, mounted at the highest point, for nighttime construction activities, and a flashing amber beacon during the nighttime operations.

All vehicle marking and lighting must comply with the most recent version of Advisory Circular 150/5210-5D "Painting, Marking and Lighting of Vehicles Used on an Airport."

3) *Construction Vehicle Operations within AOA*

For the purposes of this project, the AOA is defined as any area within the secured (fenced) area of the Airport except the Contractor's Staging and Storage Area (see **Exhibit A**). No vehicle shall operate within the Air Operations Area (AOA):

- In a careless or negligent manner.
- With disregard of the rights and safety of others.
- At a speed or in a way which endangers persons or property.
- While the driver is under the influence of drugs or alcohol.
- If such vehicle is loaded or maintained as to endanger persons or property.

4) *Vehicle Driver Training Requirements*

All construction personnel that will be driving a vehicle on Airport property will be required to adhere to the requirements as noted above. The driver training requirements, along with the identification of the RSA, OFZ and TSA's will be discussed at length during the Pre-Construction Conference.

5) *Two-Way Radio Communications Procedures*

Airband two-way radio communication is not required for this project as Pinal Airpark is an uncontrolled airport.

6) *Maintenance of Airport Secured Area*

The Contractor will be required to maintain the Airport fence gates used by the Contractor during the duration of the project. This will include securing and locking the applicable gate(s) after each use and/or posting a gate guard at the applicable gates to insure security of the airfield. The Contractor will also be required to report suspicious situations, persons, and/or materials to the Airport Manager Jim Petty

6. WILDLIFE MANAGEMENT

A. *Trash*

The contractor shall perform daily inspections of the work areas (including the Contractor's Staging Area) to remove any trash, debris and food scraps and place these items in an appropriate trash receptacle.

B. *Standing Water*

The contractor shall approach his\her operations to minimize the potential for standing water. When water begins to stand on site, the contractor shall begin pumping water to drain the area within 24 hours to prevent the attraction of wildlife.

C. *Tall Grass & Weeds*

The contractor shall mow areas under his\her responsibility including, but not limited to, project site staging and storage areas and exclusive use haul roads to prevent the growth of vegetation over 6-inches.

D. *Poorly maintained Fencing and Gates*

The contractor shall close and lock any airfield access gates that are not in use. Any fencing installed by the contractor shall be maintained to prevent the intrusion of wildlife.

E. *Disruption of existing Wildlife Habitat*

The contractor shall report any significant wildlife sightings within the AOA to the nearest Airport employee.

F. *Airport Wildlife Management Procedures*

The Contractor will be required to follow any Airport Wildlife Management Procedures that are in place at the airport; however, at a minimum the Contractor will be required to perform the following:

- Close and lock any airfield access gates that are not in use.

- Report any significant wildlife sightings within the AOA to the nearest Airport employee.

7. FOREIGN OBJECT DEBRIS MANAGEMENT

This project will include the movement of construction vehicles adjacent to active airfield pavements, therefore the Contractor will be required to maintain a fully-operational sweeper vehicle on-site during the project. Furthermore, once any portion of any construction phase is ready to be opened to aircraft traffic the Contractor, Resident Engineer, and Airport personnel shall walk the area to determine that all FOD that may have been generated is no longer present.

The Contractor will be required to keep water on construction areas to minimize the possibility of FOD generated by wind. The Contractor will be required to conduct FOD checks at the end of each working shift/day to remove any FOD that has made its way onto the airfield pavements from the Contractor's construction activities. Airport Operations and Construction Administration personnel will be present for these FOD checks to insure compliance.

Additionally, the Contractor will be required to outline the construction zones with 24-inch silt fencing. The material fencing will help prevent FOD and dust from escaping the construction areas adjacent to the active air operations area.

8. HAZARDOUS MATERIALS MANAGEMENT

Any hazardous or regulated waste material produced by the Contractor's operations shall be properly disposed of at the Contractor's expense pursuant to all local, state and federal regulations. The Contractor may be required to provide test results to confirm that a contaminated area has been properly remediated.

Any hazardous materials situation that poses a threat to safety or property shall be immediately reported to emergency personnel by dialing '911' and to the nearest Airport employee.

9. NOTIFICATIONS OF CONSTRUCTION ACTIVITIES

A. Maintenance of a List of Responsible Representative/Points of Contact

A full list of Points of Contact and Contact Procedures will be developed prior to the Pre-Construction Meeting for this project. The Resident Engineer will generally be the central point of contact with all communications relating to construction being filtered through him. Matters relating to Airport Operations will be handled through the Airport, with assistance from the Resident Engineer and/or Contractor as needed.

Pinal Airpark Airport Manager	Jim Petty	(520) 866-6545
Marana Aerospace Solutions Inc. Director, Airport Facilities / Fire	Sam Soria	(520) 940-4124
Marana Aerospace Solutions Inc. Ground Support Services Supervisor	Christopher Barnard	(520) 682-4181 ext 5755/5752
Engineers	Ryan Toner	(602) 957-1155

B. *Notice to Airmen (NOTAM)*

Construction NOTAM's will be filed by the Airport staff approximately one week prior to construction beginning in the area which the NOTAM references, or prior to any change in airfield conditions which may affect operations or safety. The Contractor will be required to submit pertinent information to the airport for any construction items that would require the issuance of a NOTAM a minimum of 1-week prior to the work being performed.

C. *Emergency Notification Procedures*

In the event of a serious injury requiring medical attention call 911. All injuries must be reported to the Airport Manager as soon as possible.

The Contractor shall submit to the Engineer a list of personnel who can be contacted 24 hours a day, seven (7) days a week and can respond in a reasonable time frame regarding any possible emergency on the work site. The list must include names, job title and phone numbers.

D. *Notification to the FAA and Airport Users*

All proposed construction activities that affect operations at the Airport will be immediately relayed to all Airport Users and the FAA by way of meetings, advisories, NOTAM's and the filing of Form 7460 as appropriate (minimum of 60 days prior to the proposed construction) all issued by one of the Airport's designated staff or Engineer.

This project is phased in order to maintain a fully operating airfield; therefore each phase will likely require additional information to be passed on to the Airport Users as the project progresses. NOTAM's and project advisories will be distributed approximately three (3) days prior to a new construction phase which may include effects to NAVAIDs, temporarily relocated thresholds, approach conditions, lighting, runway and taxiway closures, and other items that may affect normal operating conditions at the Airport. Anticipated night work by the Contractor will need Pinal County approval prior to proceeding with the night work.

E. *Coordination with ARFF for Non-Emergency Issues*

This section is not applicable to this project or Pinal Airpark.

F. *Local ATO/Technical Operations Personnel*

This section is not applicable to this project or Pinal Airpark.

G. *ATCT Managers on Duty*

This section is not applicable to this project or Pinal Airpark.

H. *Authorized Representatives to the FAA's Operational Control Center (OCC)*

This section is not applicable to this project or Pinal Airpark.

I. *OCC Notification about Closed and/or Hazardous Conditions on the Airfield*

This section is not applicable to this project or Pinal Airpark.

J. *FAA Notification under CFR Parts 77 and 157*

This section is not applicable to this project or Pinal Airpark.

K. *FAA Reimbursable Agreements*

A FAA Reimbursable Agreement is not a method of funding for this project.

L. *Affected Instrument Approach Procedures*

This section is not applicable to this project or Pinal Airpark.

10. INSPECTION REQUIREMENTS

A. *Daily (or more frequent) Inspections*

Daily inspections will be required for areas requiring haul routes over active airfield pavements to insure that FOD is minimized. In addition, daily inspections of Contractor access areas will be performed to help insure safety onto the airfield. Daily inspections will be conducted by an Airport Operations employee, a Contractor representative, and a Construction Administration field representative.

Special inspections will be required for airfield pavements that are ready to be re-opened to aircraft traffic after certain phases of the project. Special inspections will also be attended by an Airport Operations employee, a Contractor representative, and a Construction Administration field representative.

All discrepancies noted in the inspection must be corrected to the satisfaction of the Engineer prior to the Contractor leaving the worksite.

Should any inspection reveal any FOD concerns, the Contractor shall have a crew ready to remove any FOD prior to reopening the pavements. Should any inspection reveal work that does not meet Contract requirements or that is deficient in any way, the Contractor shall mobilize a crew as soon as possible to remedy the deficient areas so as to avoid prolonging the continued closure of the areas.

B. *Final Inspections*

Inspections will be required at the Substantial Completion and Final Completion phases of the project. These inspections will be attended by the Contractor, Airport Manager, an ADOT Grant Manager, the Engineer, and Construction Administration representatives. A punch list will be developed at the Substantial Completion inspection, and any items placed on the punch list will be required to be completed within 30 days, in time for the Final Inspection.

11. UNDERGROUND UTILITIES

Prior to beginning construction on the airfield, the Contractor will be required to Blue Stake and pothole (if necessary) existing utilities in the project areas. Protection of utilities may include, but is not limited to, flagging utilities, marking lines on pavement, placement of barricades along utility lines and at manholes. A detailed Technical Specification and Special Provision have been provided to the Contractor for additional requirements.

12. PENALTIES

The Contractor will be required to enforce his company's safety policies with the employees working on this project. In addition, the Airport may enforce policies that are in place to protect the safety of the Airport property, its users, and the local Airspace. These policies include, but are not limited to, the following:

- Informal conversations with the subject person or party
- Formal meetings/conversations with the subject person or party and their supervisors/managers
- Formal written notices of non-compliance from the Airport
- Immediate removal from Airport property
- Notification of law enforcement personnel for persons that cause situations posing dangerous threats to property or personal safety

13. SPECIAL CONDITIONS

Special unforeseen conditions or circumstances may require the activation of special procedures by the Airport. In cases involving aircraft emergencies or distressed aircraft the Contractor may be required to temporarily halt construction activities and immediately vacate the area in which he is working. The nearest Airport Operations employee will be expected to notify all Contractor personnel in the vicinity, and promote safe and orderly removal of all Contractor personnel and equipment to an area that is no longer in conflict with the emergency at hand. The Contractor will be expected to immediately comply with all Airport personnel directions, and may not return to the subject work area until given the all clear to do so.

In the event of low-visibility conditions, or other conditions which may signal the need for additional unimpeded space next to runways or taxiways, the Contractor may be required to move to another work area of the project or temporarily stop work. The Contractor will be made aware of the possibility of these situations during the Pre-Construction Conference.

14. RUNWAY AND TAXIWAY VISUAL AIDS

A. General

1) Airport User and FAA Notification Procedures

Temporary visual aids may be used from time to time as the project progresses to increase safety. Any temporary visual aid, including temporary edge lights or threshold lights for relocated thresholds, will be secured either in-pavement or with heavy items preventing blow-away, while at the same time not obscuring the objects themselves.

2) Frangibility Requirements

All temporary visual aids must have frangible connections.

B. Markings

Any temporary markings that may be required for this project will meet the requirements of FAA Advisory Circular 150/5340-1L "Standards for Airport Markings".

If any existing markings need to be obliterated in this project, obliteration of existing markings will be in accordance with a method approved by Pinal County or as directed in the project Technical Specifications.

C. Lighting and Visual Aids

Lighting for all barricades used within the AOA shall be red and shall be a steady-burn or blinking light. All barricading and lighting shall conform to the details in the plans and specifications. Low-profile barricades shall be spaced not more than four feet apart, and shall be placed to prevent ground vehicle traffic from moving onto active airfield pavements (barring a deliberate act), and alert aircraft traffic of closed facilities.

Exhibit B shows the anticipated placement of all barricades and their locations, as required for each construction phase of this project.

Lighting for any closed facilities will be disconnected or covered and secured with a material that prevents light leakage. Disconnected lighting shall be completed so as to not affect the remaining portion of facilities that may be open to aircraft traffic.

Lighting shall conform to AC 150/5340-30: *Design and Installation Details for Airport Visual Aids*, AC 150/5345-50: *Specification for Portable Runway and Taxiway Lights*, AC 150/5345-53: *Airport Lighting Certification Program*, AC 150/5345-44: *Specification for Runway and Taxiway Signs*, AC 150/5340-18: *Standards for Airport Sign Systems*, and AC 150/5345-53: *Airport Lighting Certification Program*, as required.

D. Signs

Temporary airfield signing is not anticipated for this project. However, airfield signage illuminated to indicate an open facility that is actually closed due to construction shall be covered and secured with a material that prevents light leakage. Signs may be partially covered as a number of signs have multiple panels. In this case, only the affected panels shall be covered.

15. MARKING AND SIGNS FOR ACCESS ROUTES

Temporary signing used for Contractor access/haul routes, open trenching or other hazards shall be clear, concise, reflective, and large enough so as to minimize safety-related issues. All temporary signing shall meet the requirements of the most current version of AC 150/5340-18 and, to the extent practicable, with the MUTCD and/or State highway specifications. All temporary signs shall also be properly secured to withstand the site and elemental conditions.

16. HAZARD MARKING AND LIGHTING

A. General

1) Hazard Marking and Lighting

Hazards, such as open trenches, manholes, and steep embankments shall be barricaded and lighted with Caution Tape or orange fabric construction fencing to prohibit accidental falls. The Contractor's site-specific and company safety plan/guidelines shall address the protection of these areas and the protection of the employees against these hazards. The Contractor shall also assign a Project Safety Officer for the project to monitor and enforce the Contractor's safety guidelines and the provisions of this Construction Safety Plan.

When areas on the Airport are closed or present hazards due to construction activities, they should be marked and lighted according to AC 150/5340-1L, Standards for Airport Markings. Marking and lighting must be approved by the Operations Specialist on Duty.

When construction involves an extended closure of a runway, an illuminated cross ("X") shall be required at each end and shall be serviced and maintained by the Contractor. See Section 14.C for more information.

2) Less Obvious Construction Related Hazards

Some less obvious construction related hazards include, but are not limited to, the following:

- Loose debris, trash, etc. in the work areas
- Loose debris, trash, etc. on or in the bed of vehicles
- Jet blast
- Jet engine run-up noise

The Contractor shall be vigilant in keeping the work areas in a safe and trash-free condition as much as possible so as to prevent debris from making its way onto active airfield pavements. The Contractor shall also exercise due care when working the vicinity of active aircraft. This can include the use of hearing protection and the securing of clothing and hardhats while working.

B. Equipment

1) Use of Warning Indicators for Construction Areas

Construction areas will be barricaded with either vertical panel or low-profile barricades on aircraft movement areas, as shown in **Exhibit B**. For construction areas that do not include aircraft operating areas, Vertical Panel barricades may be used to prohibit vehicle and pedestrian traffic. All barricades must have flashing red or steady burn lights.

Barricades, temporary markers approved by the Airport, and any other warning equipment placed or left in areas adjacent to any open aircraft movement area, (i.e. runway, taxiway, taxilane, etc.), shall be as low to the ground as possible, and not more than 18-inches in height, (unless otherwise noted on the phasing plans). All barricades and temporary markers shall also be properly secured to withstand the site and elemental conditions.

2) Hazard Marking and Lighting

Hazards, such as open trenches, manholes, and steep embankments shall be barricaded and lighted with Caution Tape or orange fabric construction fencing to prohibit accidental falls. The Contractor's site-specific and company safety plan/guidelines shall address the protection of these areas and the protection of the employees against these hazards. The Contractor shall also assign a Project Safety Officer for the project to monitor and enforce the Contractor's safety guidelines and the provisions of this Construction Safety Plan.

When areas on the Airport are closed or present hazards due to construction activities, they should be marked and lighted according to AC 150/5340-1L, Standards for Airport Markings. Marking and lighting must be approved by the Operations Specialist on Duty.

3) Security Equipment to Prevent Blow-Down

Barricading and lighting equipment shall be secured to prevent blow-down. This may include the use of water-filled items, the use of sandbags, and/or flat heavy footings. Temporary lighting may be secured to the pavement with nails or screws.

4) Spacing Barricades

See **Exhibit B** for all barricading requirements regarding type, spacing, etc.

5) Requirements of Red Lights

Red LED lights on low-profile barricades shall be of the omni-directional, flashing or steady-burn type. The rate of flash and illumination, as well as barricade reflectivity, shall meet the requirements of the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD).

6) Low-Profile Barricades and Markers

Low-profile barricades shall be used and shall be reflective, have an omni-directional steady-burning or flashing red LED light, and shall be properly secured (screwed-in).

7) Proper Marking of Barricades

Barricades shall be properly colored and marked with reflective material according to the plan details for this project and the latest edition of the MUTCD.

8) Proper Reflectivity and Lighting of Barricades

Barricades shall be properly colored and marked with reflective material according to the plan details for this project and the latest edition of the MUTCD.

9) Marking for Temporary Closures

Temporarily closed taxiways will be outlined with barricades as outlined in this report and identified on the project plans. If determined necessary by Pinal County, partially closed taxiways shall have the appropriate markings obliterated (with either sand-blasting or water-blasting) that would indicate a fully-operational facility.

10) Emergency Maintenance of Airport Hazard Lighting and Barricades

The Contractor shall designate an employee (or Subcontractor) to be responsible for the regular maintenance of barricades and lighting. In addition, the Contractor shall provide an emergency contact number for the responsible individual to perform any emergency maintenance on any barricades or lighting, and insure functional operation of all hazard lighting and barricades 24 hours per day, 7 days per week. The designated person or sub-contractor shall be able to respond to the Airport within one (1) hour of notification of a non-functioning barricade.

17. PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS, OFA'S, OFZ'S, AND APPROACH/DEPARTURE SURFACES

A. Runway Safety Area (RSA)

1) Construction within Runway Safety Areas

Due to the closure of Runway 12-30, no construction will occur within an active RSA.

2) Adjustment of Runway Safety Areas

No impact or adjustment to any RSA is anticipated for this project for an active runway.

3) Requirements for Open Procedures

No trenches shall be left open within the RSA. Any trenching within the RSA needing to be left open after the Contractor leaves the work site for the day shall be properly plated and capable of safely supporting aircraft traffic, but it is the intent that this be a unique situation with very limited occurrences. Any requests of this type shall be submitted in writing to the Engineer at least 48 hours prior to the construction. The Engineer will confer with the Airport and the FAA, and any decision related to the particular situation at hand shall be final.

4) Appropriate Covering of Excavations within RSA's

No major excavations within active RSA's are anticipated on this project.

5) *Marking of Excavations and Open Trenches*

Hazards, such as open trenches, major excavations, manholes, and steep embankments shall be barricaded, lighted, and outlined with appropriate caution tape or orange fabric construction fencing to prohibit accidental falls. The Contractor's site-specific and company safety plan/guidelines shall address the protection of these areas and the protection of the employees against these hazards. See Section 16 *HAZARD MARKING AND LIGHTING* for further information.

6) *Maintenance of RSA's*

No impact or adjustment to any RSA is anticipated for this project for an active runway.

7) *Blast Protection Procedures*

The Contractor's company safety plan/guidelines shall include a provision for jet blast protection. At a minimum, it should address requirements for the securing of clothing and hardhats, as well as any requirements for hearing protection.

B. *Runway Object Free Area (ROFA)*

Due to the closure of Runway 12-30, no construction will occur within an active ROFA.

Construction equipment not in use shall be returned to the Contractor's Staging Area by the Contractor, where practicable. In no case shall construction equipment be left within any Object Free Areas.

C. *Taxiway Safety Area (TSA)*

1) *Construction within Taxiway Safety Areas*

No construction activities will occur within any active Taxiway Safety Areas. However, if it does occur the respective taxiway will be closed.

2) *Adjustment of Taxiway Safety Areas*

No impact or adjustment to any TSA is anticipated for this project for an active taxiway. However, if it does occur the respective taxiway will be closed.

3) *Requirements for Open Procedures*

No construction impacts any active TSA, therefore, no trenches shall be left open within TSA's.

4) *Appropriate Covering of Excavations within TSA's*

No major excavations within an active TSA are anticipated on this project.

5) *Marking of Excavations and Open Trenches*

Hazards, such as open trenches, major excavations, manholes, and steep embankments shall be barricaded, lighted, and outlined with appropriate caution tape or orange fabric construction fencing to prohibit accidental falls. The Contractor's site-specific and company safety plan/guidelines shall address the protection of these areas and the protection of the employees against these hazards. See Section 16 *HAZARD MARKING AND LIGHTING* for further information.

6) *Maintenance of TSA's*

No impact or adjustment to any TSA is anticipated for this project.

7) *Blast Protection Procedures*

The Contractor's company safety plan/guidelines shall include a provision for jet blast protection. At a minimum, it should address requirements for the securing of clothing and hardhats, as well as any requirements for hearing protection.

D. *Taxiway Object Free Area (TOFA)*

Reference Section 2, *PHASING*, for additional information regarding the construction phasing.

Construction equipment not in use shall be returned to the Contractor's Staging Area by the Contractor, where practicable. In no case shall construction equipment be left within any Object Free Areas.

E. *Obstacle Free Zone (OFZ)*

It is not anticipated that any construction of this project will affect an OFZ or Threshold Siting Surface.

F. *Runway Approach & Departure Surfaces*

It is not anticipated that any construction of this project will impact a Runway Approach or Departure Surface or Clearway.

18. OTHER LIMITATIONS ON CONSTRUCTION

A. *Prohibitions*

1) *Use of Flare Pots*

The use of flare pots is not permitted within the AOA at any time.

2) *Use of Electrical Blasting Caps*

The use of electrical blasting caps is not permitted within 1,000 feet of the Airport property.

B. *Restrictions*

1) *Open Flame Welding and Torches*

Open flame welding and the use of torches shall be approved by the Airport prior to the project commencing. Open flame welding and the use of torches may require a "Hot-Work Permit" by a governing agency, or the Airport's Aircraft Rescue and Fire Fighting (ARFF) department. If this type of work is required on this project, the Contractor shall notify the Airport.

2) *Airfield Lighting Vault Lock-Out/Tag-Out Policy*

The purpose of this procedure is to standardize the lock-out/tag-out procedures between Electrical Contractors, Airport Electricians, and Operations.

- The Airport electricians responding to a lock-out/tag-out request will coordinate through Operations.
- After Operations notifies electricians of closures, the Airport electricians will turn off the closed runways/taxiways using the airfield computer system.
- The Contractor will supply an approved breaker-locking device and lock, then lock off the individual breakers for the circuits to be locked out.
- The load break elbows and/or S-1 switches will be pulled, locked on the corresponding regulator by the Electrical Contractor, and the S-1 cabinet will be locked by the Contractor.
- The Electrical Contractor and the Airport electricians must fill out lock-out/tag-out forms before leaving the Vault.
- Upon completion of the lock-out, the Contractor will remove all locks and install the load breaks. All circuits must be verified operations in the manual mode on the regulator. Operations will perform a complete check of the lights in the field to verify actual operation.
- When that has been completed, the Airport electricians will notify Pinal County Operations when lock-in is complete and regulators are in remove control. Operations will then have control of airfield lighting.
- Complete lock-out/lock-in forms.

This procedural checklist must be followed to the letter.

3) Contractor Employee Safety

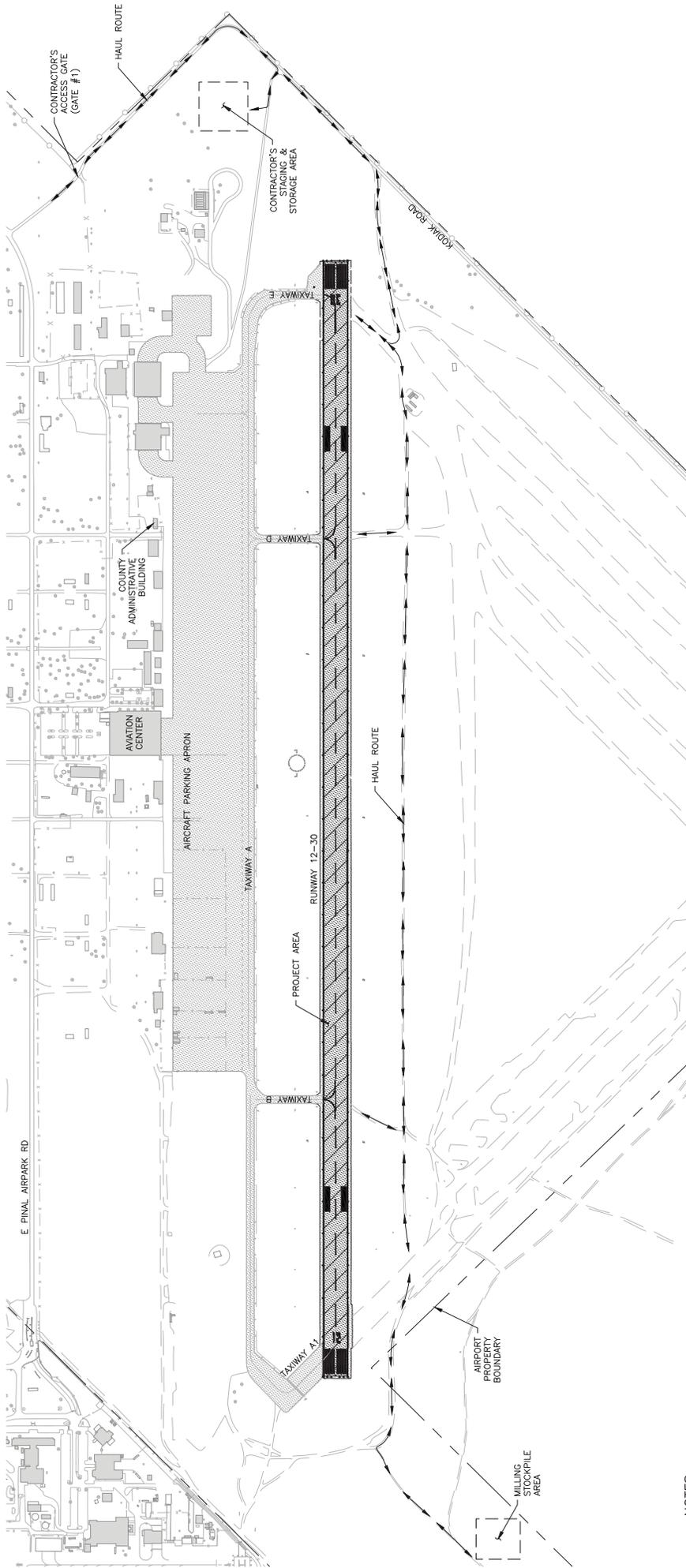
The Contractor and its employees shall employ safe practices per the Contractor's safety procedures and industry safety standards. The Contractor's safety procedures will ultimately dictate the use of protective clothing and equipment for its employees, but at a minimum, the Contractor's employees must be equipped with a Type 2 safety vest, and every employee that enters the site must be wearing said vest. The vest must be worn the entire time that the employee is within the AOA.

The Contractor is required to prepare and submit a Construction Safety and Phasing Plan Compliance document for review and approval of the airport.

AS BUILT DATE



0' 150' 300' 600'
SCALE: 1" = 300'



NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF HIS OWN EQUIPMENT. CONTRACTOR MAY INSTALL TEMPORARY FENCING AROUND THE CONTRACTOR'S STAGING AREA AT HIS OWN EXPENSE.
- CONTRACTOR SHALL PROTECT ALL HAUL ROAD ACCESS POINTS TO THE AIRFIELD FROM UNAUTHORIZED ENTRY. CONTRACTOR IS REQUIRED TO POST GATE GUARD(S) AT AIRFIELD ENTRY GATES DURING CONTRACTOR'S WORKING HOURS (IF LEFT UNLOCKED).
- CONTRACTOR IS RESPONSIBLE FOR THE REPAIR OF ANY HAUL ROADS USED AND ANY OTHER AREAS DISTURBED BY THE CONTRACTOR THAT ARE OUTSIDE THE PROJECT AREA LIMITS. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE OWNER/AIRPORT AND/OR ENGINEER, AND SHALL BE AT THE CONTRACTOR'S EXPENSE.
- THE OWNER MAY, AT HIS DISCRETION, REQUEST THAT THE CONTRACTOR PROVIDE A CROSSING GUARD ON THE AIRFIELD AT ALL ACTIVE CROSSINGS OF TAXIWAYS AND APRONS.
- THE HAUL ROAD WITHIN THE AIR OPERATIONS AREA (AOA) IS SUBJECT TO CHANGE, AT THE OWNER'S DISCRETION, TO ACCOMMODATE AIRCRAFT MOVEMENTS.
- CONTRACTOR SHALL ACCESS PROJECT AREA FROM THE WEST SIDE OF RUNWAY AND AVOID USE OF TAXIWAYS DURING CONSTRUCTION.
- MILLINGS SHALL NOT BE STOCKPILED HIGHER THAN 4 FEET FROM THE EXISTING GROUND/GRADE.

REVISION	BY	DATE
PINAL AIRPARK		
DIRBLE PROJECT NO 101470		
RUNWAY 12-30		
REHABILITATION & REPAIR		
PROJECT SITE PLAN		
DRN: JHA	ISS: GJA	CHK: MAB
DATE: 5.19.15	DATE: 5.19.15	DATE: 5.19.15
SCALE: 1" = 300'		EXHIBIT A



