ATTACHMENT A

SCOTTSDALE AIRPORT

Contract Documents and Project Specifications
for

TAXIWAY A4 REHABILITATION PROJECT

FAA AIP No. 3-04-0032-046-2023
ADOT No. E0XXXX
City Project No. A102A
City Bid No. IFB-052023-091

Prepared for:

CITY OF SCOTTSDALE

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Registered Professional Engineer (Civil)
CERTIFICATE NO.
74185
BRADLEY
MIKULECKY
DATE SIGNED 5-23-2023
ARIZONA U.S.A.

May 2023

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(Last Issued on January 20, 2023)

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Contract Guidance

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

- Include certain provisions in their subcontracts and sub-tier agreements.
    - Mandatory Language – Whenever a clause or provision has mandatory text, Contractors and subcontractors must incorporate the text of the provision without change, except where specific adaptive input is necessary.
- Incorporate the applicable requirements of these contract provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services.

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

Failure to Comply with Provisions

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

1) Withhold progress payments or final payment;

2) Terminate the contract for cause;

3) Seek suspension/debarment; or

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

A1 ACCESS TO RECORDS AND REPORTS

(Source: 2 CFR § 200.334, 2 CFR § 200.337, FAA Order 5100.38)

FAA policy extends these requirements to the Sponsor's contracts and subcontracts of AIP funded projects.

ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A2 AFFIRMATIVE ACTION REQUIREMENT

(Source: 41 CFR Part 60-4, Executive Order 11246)

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables

Goals for minority participation for each trade:	**15.8% (for Maricopa County)**
Goals for female participation in each trade:	6.9%

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is **City of Scottsdale, County of Maricopa, State of Arizona.**

A3 BREACH OF CONTRACT TERMS

(Source: 2 CFR Part 200, Appendix II(A))

Contract Types – **This provision is required for all contracts t**hat exceed the simplified acquisition threshold as stated in 2 CFR Part 200, Appendix II (A). This threshold is occasionally adjusted for inflation and is $250,000.

BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the *Contractor* or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

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

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

A4 BUY AMERICAN PREFERENCE

(Source: Title 49 USC § 50101; Executive Order 14005, *Ensuring the Future is Made in All of America by All of America's Workers;* Bipartisan Infrastructure Law (Pub. L. No. 117-58), Build America, Buy America (BABA)

The Buy American Preference incorporates statutory requirements and policies outlined in the in 49 USC § 50101, Executive Order 14005, and BABA.

Section 50101 of 49 USC requires that all steel and manufactured goods used on AIP projects be produced in the United States. This section also gives the FAA the ability to issue a waiver to a Sponsor to use non-domestic material on an AIP funded project subject to meeting certain conditions. A Sponsor may request that the FAA issue a waiver from the Buy American Preference requirements if the FAA finds that:

1) Applying the provision is not in the public interest.
2) The steel or manufactured goods are not available in sufficient quantity or quality in the United States.
3) The cost of components and subcomponents produced in the United States is more than 60 percent of the total components of a facility or equipment, and final assembly has taken place in the United States. Items that have an FAA standard specification item number (such as specific airport lighting equipment) are considered the equipment.
4) Applying this provision would increase the cost of the overall project by more than 25 percent.

Executive Order 14005 advances the Administration's priority to use terms and conditions of Federal financial assistance awards to maximize the use of goods, products, and materials produced in, and services offered in, the United States. The Order directs, to the extent appropriate and consistent with applicable law, agencies shall partner with the Hollings Manufacturing Extension Partnership (MEP) to conduct supplier scouting in order to identify American companies that are able to produce goods, products, and materials in the United States that meet Federal procurement needs, prior to consideration of using non-domestic products.

The Bipartisan Infrastructure Law, Build America, Buy America (BABA) Act strengthens Made in America Laws and bolsters America's industrial base, protects national security, and supports high-paying jobs. Under BABA, iron, steel, and certain construction materials are required to be 100% produced in the United States.

Under the Bipartisan Infrastructure Law (Pub. L. No. 117-58) BABA three waivers are available for iron and steel, manufactured products, and construction materials when a Federal agency finds that –

1) Applying the domestic content procurement preference would be inconsistent with the public interest (a "public interest waiver");
2) Types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality (a "nonavailability waiver"); or
3) The inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent (an "unreasonable cost waiver").

BABA defines construction materials, items that are or consist primarily of non-ferrous metals, plastic, and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables), glass (including optic glass), lumber, or drywall.

Items that consist of two or more of the aforementioned materials that have been combined together through a manufacturing process, and items that include at least one of the listed materials combined with a material that is not listed through a manufacturing process, should be treated as manufactured products, rather than as construction materials. For example, a plastic framed sliding window should be treated as a manufactured product while plate glass should be treated as a construction material**.**

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

Note: The Buy American Preference does not apply to temporary equipment a contractor uses as a tool of its trade and which does not remain as part of the project.

Required Documentation

The FAA Buy American Requests. All applications (requests) for an FAA Buy American Preference Waiver includes, at minimum, a completed Content Percentage Worksheet and Final Assembly Questionnaire. Additional information may be requested from the applicant by the FAA. Airport Sponsors, consultants, construction contractors, or equipment manufacturers are responsible for completing and submitting waiver applications. The FAA is unable to make a determination on waiver requests with incomplete information. Sponsors must confirm with the bidder or offeror to assess the adequacy of the waiver request and associated information prior to forwarding a waiver request to the FAA for action. All FAA waivers forms are available from the FAA Buy American Requirements webpage.

Proprietary Confidentiality. Exemption 4 of the Freedom of Information Act protects trade secrets and commercial or financial information obtained from a person [that is] privileged or confidential. Proprietary manufacturing and design information submitted to the Federal Aviation Administration for the purposes of receiving a Buy American Waiver shall not be disclosed outside the FAA. The FAA will provide a written notification to the Airport Sponsor, manufacturer(s), contractor(s) or supplier(s) when a waiver determination is complete.

Buy American Conformance Lists. The FAA Office of Airports maintains listings of projects and products that have received a waiver from the Buy American Preference requirements for project specific and nationwide use. Each of these conformance lists is available online at www.faa.gov/airports/aip/buy_american/. Products listed on the FAA Nationwide Buy American Conformance list do not require additional submittal of domestic content information. Nationwide waivers expire five years from the date issued, unless revoked earlier by the FAA.

Contract Types –

- **Construction Projects** involving the replacement, rehabilitation, reconstruction of airfield surfaces such as on runways, taxiways, taxilanes, aprons, roadways, parking lots, etc.
- **Equipment and Buildings Projects** involving and including the acquisition of equipment such as snow removal equipment, navigational aids, wind cones, and the construction of buildings such as hangars, terminal development, lighting vaults, aircraft rescue & firefighting buildings, etc. – Insert the Certificate of Compliance with FAA Buy American Preference Based on Equipment/Building Projects.

FAA BUY AMERICAN PREFERENCE

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA, and other related Made in America Laws,[1] U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel, and manufactured goods used in AIP funded projects

[1] Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA, and Made in America laws included herein with their bid or offer. ***(See Proposal Forms).*** The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

A5 CIVIL RIGHTS – GENERAL

(Source: 49 USC § 47123)

Insert this in every contract or agreement.

GENERAL CIVIL RIGHTS PROVISIONS

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

A6 CIVIL RIGHTS – TITLE VI ASSURANCE

(Source: 49 USC § 47123; FAA Order 1400.11)

Title VI of the Civil Rights Act of 1964, as amended, (Title VI) prohibits discrimination on the grounds of race, color, or national origin under any program or activity receiving Federal financial assistance.

The text of each individual clause comes from the U.S. Department of Transportation Order DOT 1050.2, Standard Title VI Assurances and Nondiscrimination Provisions, effective April 24, 2013. Where the clause refers to the applicable activity, project, or program, it means the AIP project.

Insert this list in every contract or agreement.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

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

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq*., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in federally-assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq*.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq*.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 USC § 12101, et seq) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations);
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs [70 Fed. Reg. 74087 (2005)];
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC § 1681, et seq).

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor"), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions: The Contractor will include the provisions <u>of paragraphs one through six in every subcontract,</u>** including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the

interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

A7 CLEAN AIR AND WATER POLLUTION CONTROL

(Source: 2 CFR Part 200, Appendix II(G); 42 USC § 7401, et seq 33; USC § 1251, et seq)

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

CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

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

A8 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

(Source: 2 CFR Part 200, Appendix II(E); 2 CFR § 5.5(b); 40 USC § 3702; 40 USC § 3704)

Contract Work Hours and Safety Standards Act Requirements (CWHSSA) (40 USC §§ 3702 & 3704) requires contractors and subcontractors on covered contracts to pay laborers and mechanics employed in the performance of the contracts not less than one and one-half times their basic rate of pay for all hours worked over 40 in a workweek. CWHSSA prohibits unsanitary, hazardous, or dangerous working conditions on federally-assisted projects. The Wage and Hour Division (WHD) within the U.S. Department of Labor (DOL) enforces the compensation requirements of this Act, while DOL's Occupational Safety and Health Administration (OSHA) enforces the safety and health requirements.

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

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such

liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $29 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

A9 COPELAND "ANTI-KICKBACK" ACT

(Source: 2 CFR Part 200, Appendix II(D); 29 CFR Parts 3 and 5)

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

COPELAND "ANTI-KICKBACK" ACT

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

A10 DAVIS-BACON REQUIREMENTS

(Source: 2 CFR Part 200, Appendix II(D); 29 CFR Part 5; 49 USC § 47112(b); 40 USC §§ 3141-3144, 3146, and 3147)

The Davis-Bacon Act (40 USC §§ 3141-3144, 3146, and 3147) ensures that laborers and mechanics employed under the contract receive pay no less than the locally prevailing wages and fringe benefits as determined by the Department of Labor.

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

DAVIS-BACON REQUIREMENTS

1. Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding. The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the

Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls shall only need to include an individually identifying number for each employee (*e.g.*, the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will

no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

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

A11 DEBARMENT AND SUSPENSION

(Source: 2 CFR Part 180 (Subpart B); 2 CFR Part 200, Appendix II(H); 2 CFR Part 1200; DOT Order 4200.5; Executive Orders 12549 and 12689)

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

CERTIFICATION OF OFFEROR/BIDDER REGARDING DEBARMENT

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

CERTIFICATION OF <u>LOWER TIER</u> CONTRACTORS REGARDING DEBARMENT

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

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

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction,

the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A12 DISADVANTAGED BUSINESS ENTERPRISE

(Source: 49 CFR Part 26)

Race/Gender Neutral Means

The requirements of 49 CFR Part 26 apply to this contract. It is the policy of the Scottsdale Airport to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership. The Scottsdale Airport's DBE Program indicates a project goal of 5.80%

Prime Contracts (Contracts Covered by a DBE Program)

Contract Assurance (49 CFR § 26.13)

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

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

Prompt Payment (49 CFR § 26.29)

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 14 days from the receipt of each payment the prime contractor receives from the City of Scottsdale. The prime contractor agrees further to return retainage payments to each subcontractor within 14 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the City of Scottsdale. This clause applies to both DBE and non-DBE subcontractors.

Termination of DBE Subcontracts (49 CFR § 26.53(f)

The prime contractor must not terminate a DBE subcontractor listed in response to this project's Notice to Bidders (or an approved substitute DBE firm) without prior written consent of the City of Scottsdale. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally

designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent from the City of Scottsdale. Unless City of Scottsdale consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

City of Scottsdale may provide such written consent only if the City of Scottsdale agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR §26.53.

Before transmitting to the City of Scottsdale its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to the City of Scottsdale, of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise the City of Scottsdale and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the City of Scottsdale should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), the City of Scottsdale may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to preaward deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

A13 DISTRACTED DRIVING

(Source: Executive Order 13513, DOT Order 3902.10)

Insert this provision in all AIP funded contracts that exceed the micro-purchase threshold of 2 CFR § 200.320 (currently set at $10,000).

TEXTING WHEN DRIVING

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

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $10,000 that involve driving a motor vehicle in performance of work activities associated with the project.

A14 PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

(Source: 2 CFR § 200, Appendix II(K); 2 CFR § 200.216)

Sponsors and subgrant recipients are prohibited from using AIP grant funds to:

a) Procure or obtain,
b) Extend or renew a contract to procure or obtain, or
c) Enter into a contract to procure or obtain certain covered telecommunications equipment.

These restrictions apply to telecommunication equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system or as critical technology as part of any system. Covered telecommunications equipment is equipment produced or provided by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of either).

Include the following provision in all AIP funded contracts and lower tier contracts.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Contractor and subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].

A15 DRUG FREE WORKPLACE REQUIREMENTS

(Source: 49 CFR Part 32; Drug-Free Workplace Act of 1988 (41 USC § 8101-8106, as amended)

The Drug-Free Workplace Act of 1988 requires some Federal contractors and *all* Federal grantees to agree that they will provide drug-free workplaces as a condition of receiving a contract or grant from a Federal agency. This provision applies to all AIP funded projects, but not to the contracts between the grantee (the Sponsor) and a contractor, subcontractors, suppliers, or subgrantees.

A16 EQUAL EMPLOYMENT OPPORTUNITY (EEO)

(Source: 2 CFR Part 200, Appendix II(C); 41 CFR § 60-1.4; 41 CFR § 60-4.3; Executive Order 11246)

Contractor must incorporate these clauses without modification in any contract or subcontract when the amount exceeds $10,000.

The purpose of this provision is to provide equal opportunity for all persons, without regard to race, color, religion, sex, or national origin who are employed or seeking employment with contractors performing under a federally-assisted construction contract. There are two provisions — a contract clause and a specification clause.

EQUAL OPPORTUNITY CONTRACT CLAUSE

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during

employment, without regard to their race, color, religion, sex, sexual orientation, gender identify, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff, or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under this section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any

subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance*: Provided,* however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

d. "Minority" includes:

(1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. **Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications** and the Notice which contains the applicable goals for minority and female participation, and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR part 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered

Contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally-assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor

by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its

implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR part 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

A17 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

(Source: 29 USC § 201, et seq, 2 CFR § 200.430)

The U.S. Department of Labor (DOL) Wage and Hour Division administers the Fair Labor Standards Act (FLSA). This act prescribes federal standards for basic minimum wage, overtime pay, record keeping, and child labor standards.

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

FEDERAL FAIR LABOR STANDARDS ACT CLAUSE

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

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

A18 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

(Source: 31 USC § 1352 – Byrd Anti-Lobbying Amendment; 2 CFR Part 200, Appendix II(I); 49 CFR Part 20, Appendix A)

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

CERTIFICATION REGARDING LOBBYING

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

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

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

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

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

A19 PROHIBITION OF SEGREGATED FACILITIES

(Source: 2 CFR Part 200, Appendix II(C); 41 CFR Part 60-1)

This clause must be included in any AIP funded projects that contains the Equal Employment Opportunity clause of 41 CFR § 60-1.4. This obligation flows down to subcontract and sub-tier purchase orders containing the Equal Employment Opportunity clause.

PROHIBITION OF SEGREGATED FACILITIES

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The

Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

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

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

A20 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

(Source: 29 CFR Part 1910)

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). e U.S. Department of Labor – Occupational Safety and Health Administration.

A21 PROCUREMENT OF RECOVERED MATERIALS

(Source: 2 CFR § 200.323, 2 CFR Part 200, Appendix II(J), 40 CFR Part 247, 42 USC § 6901, et seq (Resource Conservation and Recovery Act (RCRA))

PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

1) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or
2) The contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

b) Fails to meet reasonable contract performance requirements; or

c) Is only available at an unreasonable price.

A22 RIGHT TO INVENTIONS

(Source: 2 CFR Part 200, Appendix II(F); 37 CFR Part 401)

Not Applicable.

A23 SEISMIC SAFETY

(Source: 49 CFR Part 41)

Not Applicable.

A24 TAX DELINQUENCY AND FELONY CONVICTIONS

(Source: Section 8113 of the Consolidated Appropriations Act, 2022 (Public Law 117-103) and similar provisions in subsequent appropriations acts; DOT Order 4200.6 – Appropriations Act Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions)

This provision applies to all contracts funded in whole or part with AIP.

CERTIFICATION OF OFFEROR/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

1) The applicant represents that it is ( ) is not ( ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2) The applicant represents that it is ( ) is not ( ) a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty-four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

A25 TERMINATION OF CONTRACT

(Source: 2 CFR Part 200, Appendix II(B); FAA Advisory Circular 150/5370-10, Section 80-09)

Contract Types – **All contracts and subcontracts in excess of $10,000 must address *termination for cause* and *termination for convenience***. The provision must address the manner (i.e., notice, opportunity to cure, and effective date) by which the contract will be affected and the basis for settlement (e.g., incurred expenses, completed work, profit, etc.).

TERMINATION FOR CONVENIENCE (CONSTRUCTION CONTRACTS)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provide are in addition to any other rights and remedies provided by law or under this contract.

TERMINATION FOR CAUSE (CONSTRUCTION)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

A26 TRADE RESTRICTION CERTIFICATION

(Source: 49 USC § 50104, 49 CFR Part 30)

Contractor will incorporate this provision for certification without modification in all lower tier subcontracts. (The trade restriction certification and clause apply to all AIP funded projects.)

Unless waived by the Secretary of Transportation, AIP funds may not be used on a product or service from a foreign country included in the current list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR).

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror:

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

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

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

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

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

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

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

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

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

A27 VETERAN'S PREFERENCE

(Source: 49 USC § 47112(c))

This provision applies to all AIP funded projects that involve labor to carry out the project.

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), **the Contractor and all sub-tier contractors** must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 USC § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

A28 DOMESTIC PREFERENCES FOR PROCUREMENTS

(Source: 2 CFR § 200.322; 2 CFR Part 200, Appendix II(L))

Must be included in all subawards, including all contracts and purchase orders for work or products under the grant.

CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

END OF FEDERAL CONTRACT PROVISIONS

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DIVISION 2

PROJECT SPECIFIC REQUIREMENTS FOR AIRPORT CONSTRUCTION

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Item SP-100 Special Provisions for Airport Construction

DESCRIPTION

100-1.1 General. This section provides for construction safety in an airport environment; limitations on construction operations; minimum requirements for construction management and scheduling; and site-specific information pertaining to potential impacts on construction activities. Unless otherwise noted, all costs associated with these special provisions shall be included in the Contract pay item for Airfield Safety and Traffic Control.

100-1.2 Construction Safety and Phasing Plan. A Construction Safety and Phasing Plan (CSPP) has been prepared for this project and is included in *Division II - Project-Specific Requirements for Airport Construction, Part 2*. Contractor shall comply with the CSPP. Included as part of the requirements of the CSPP is the Safety Plan Compliance Document (SPCD). The SPCD shall be completed by the Contractor and submitted to the Engineer for approval.

100-1.3 Airfield Safety and Traffic Control. Airfield Safety and Traffic Control shall include the special requirements with respect to safely conducting construction activities, coordinating construction with aircraft operations, and maintaining the construction site in a manner that is compatible with aircraft. Unless otherwise noted, all costs associated with related work (including work required as described in the CSPP) shall be included in the Contract pay item for Airfield Safety and Traffic Control.

100-1.4 Construction Schedule and Progress Schedule. A construction schedule and progress schedule shall be submitted to the Engineer by the Contractor within five (5) working days prior to the preconstruction conference. An airport-approved schedule will be required prior to issuing a Notice to Proceed (NTP) for the Construction Element.

Schedule shall be a Critical Path Method (CPM) Baseline type. Schedule shall indicate the complete sequence of each construction category, indicating a time bar for each major category or unit of work to be performed. Work shall be properly sequenced and indicate being fully completed within the scheduled time of completion or substantial completion. The schedule shall also include manpower, equipment utilization and resource needs (resource loading) in order to meet the schedule.

Schedule shall be coordinated with all other Contractors, subcontractors and material suppliers prior to submission. Contractor shall update the schedule for each weekly construction meeting or whenever there is a significant change in progress, whether in a particular phase or total job progress.

Progress schedule shall incorporate, submittals, product data, and sample submissions. Schedule shall indicate preparation time, approval time, resubmissions, fabrications, delivery dates and installation time.

100-1.5 Certified Payroll Requirements (State of Arizona)
For additional certified payroll requirements see *Division II - Project-Specific Requirements for Airport Construction, Part 3 - Certified Payroll Requirements (State of Arizona).*

- **Fringe Benefits Statement**
  - All Fringe Benefits Statements (FBS) must include the total fringe and fringe benefit hourly amount breakdown for each work classification, along with its respective group or step number, applicable to the project for journeymen and apprentices to whom payroll is being provided.
  - The FBS must be signed by the payroll administrator. If for any reason an employee / employer is exempt from fringe benefit payments, it must be explained and documented on the FBS as to why fringe is not being provided, such as “Owner / Operator” or due to legal exemption status.

- The verifiably correct contractor / subcontractor, project name / number, and work classification naming convention(s) shall be included on the FBS, along with the FBS effective date and expiration date.
- The FBS shall indicate whether fringes are partially or fully paid in cash.

- **Certified Payroll Wage Hour Report**
  - All certified payroll reports must clearly indicate whether the worker is a journeyman or apprentice and include vital information for verification, i.e., work classification; group or step number; hours worked each day; and base rate of pay for straight time, overtime, and double-time. Per contractual obligation, all workers will be paid according to the Davis-Bacon Act (DBA) prevailing wage determination rates, as reflected on the General Decision applicable to the project bid specifications (see https://sam.gov/wage-determination). The wage and fringe rate paid by the contractor / subcontractor must be equal to or greater than the DBA prevailing wage determination rate.
  - If a worker did not perform physical labor as laborer or mechanic but provided supervision over others on the job site, it shall be indicated on the payroll receipt or reporting form, e.g., WHD-DoL WH-347. These individuals and those performing administrative, survey, quality control, and testing work are exempt from certified payroll.
  - The WHD-DoL WH-347 form used for certified payroll submittal must be current and not expired.
  - Certified payroll shall be submitted weekly or bi-weekly, based on contractor / subcontractor pay periods, to the certified payroll checker after the first week of onsite work on the project.
  - All work weeks and nonperformance weeks on the project must be accounted for. The contractor payroll administrator shall submit all payroll reports to the certified payroll checker. The subcontractors' payroll administrators shall submit all payroll reports to the contractor's payroll administrator that oversees the subcontractors, who subsequently submits them to the certified payroll checker.
  - Payroll errors and / or omissions must be corrected and / or added and noted as such on a "Revised" certified payroll report, then resubmitted for review and verification of compliance.

- **Statement of Compliance**
  - Each certified payroll wage hour report shall be accompanied by a signed and dated Statement of Compliance (page two of the WHD-DoL WH-347 form). Project-related information and payroll / worker exemptions and remarks shall be recorded in the spaces provided. Item (4) (a) and / or (b) boxes applicable to the project shall be checked.
  - The correct project naming conventions and documentation of the appropriate work week shall be included for compliance verification.

- **Nonperformance Weeks**
  - Each week, or consecutive weeks, in which no work was performed on the project site must be documented with a Statement of Nonperformance or a Nonperformance Week Statement of Compliance prepared and signed by the payroll administrator.
  - Extended / consecutive periods of nonperformance weeks shall be submitted as individual weekly reports in lieu of a summary report of nonperformance weeks. An exception may be granted for submittal of a summary report of nonperformance weeks as a single Statement of Nonperformance and / or Statement of Compliance if approved by the certified payroll checker prior to submittal.

- **Wage Deduction Authorization**
  - A current Wage Deduction Authorization (WDA) form signed and dated by an individual worker shall be submitted to the certified payroll checker by the contractor / subcontractor payroll administrator in conjunction with each applicable certified payroll report.
  - The WDA is required for verification of a worker's voluntary and authorized deduction type(s) and amount(s), e.g., medical, dental, vision, 401K, child support, loans, payroll advances, garnishment, and other payroll deductions that fall outside the category of legal deductions, e.g., Federal and State withholding tax.
  - WDAs are retained for three years along with all other certified payroll reporting records.
- **Questions**
  - The prime contractor (upon execution of contract award) and / or certified payroll checker are first points of contact for questions by the contractor related to certified payroll reporting.
  - The prime contractor's payroll administrator handling subcontractor certified payroll reporting is a second point of contact for questions by subconsultants.

100-1.6 Lines and Grades. The Contractor shall provide construction staking and survey layout in accordance with the requirements of these Special Provisions and Technical Specifications. The Contractor shall protect and preserve all marks set by others and shall be liable for replacement of marks destroyed during construction. Survey shall be performed by or under the supervision of a Registered Land Surveyor in the State of Arizona.

Prior to the start of construction, the Contractor shall check all control points for horizontal and vertical accuracy and certify in writing to the Engineer's Resident Project Representative (RPR) that the Contractor concurs with survey control established for the project. All lines, grades, and measurements from control points necessary for the proper execution and control of the work on this project shall be provided to the RPR. The Contractor is responsible for establishing all control points and layout required for the construction of the project. Prior to paving, the Contractor shall confirm the tie in points at existing pavement match grades shown on the plans.

Copies of survey notes shall be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make quality acceptance checks for conformance with plan grades, alignments and grade tolerances required by the applicable technical specifications. Surveys shall be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided electronically in the following formats: *AutoCAD Civil 3D Drawings, PNEZD text files, and/or stamped surveyed drawings*.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees, or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

The RPR shall be given 48 hours' notice of subgrade and underlying base course completion, each lift of asphaltic concrete completed, and pavement marking layout so finished grades and layouts may be checked. The Contractor shall include all associated costs in the Contract pay item for Construction Staking and Survey Layout. This item shall include locating and potholing all known and unknown site utilities within the project site, if required.

100-1.7 Record Drawings. The Contractor shall maintain Record Drawings of all work continuously as the job progresses. A separate set of prints, for this purpose only, shall be kept at the job site at all times. It shall be required that these Drawings be up to date and be reviewed by the RPR at the time each progress bill is submitted. All deviations from the Drawings, exact locations and sizes of all utilities and electrical lines, equipment details, and all stub outs and connections for future expansion, shall be incorporated. Documentation of Record Drawings shall be included in other items of work and no separate payment will be made.

100-1.8 Material Testing and Retesting. All Quality Control testing shall be performed by the Contractor and submitted to the Engineer for acceptance as detailed in these Special Provisions and Technical Specifications. Quality Control Testing shall include but is not limited to:

A. Compaction testing for soils, underlying base course, and pavements.
B. Grade verification for soils.
C. Grade and smoothness verification for underlying base course and pavements.
D. Mix design conformance and other material testing required for asphaltic concrete.
E. Prequalification material testing for pavements.

The Contractor shall include all associated costs for Quality Control Testing in the Contract pay item for Contractor Quality Control Testing.

100-1.9 Schedule of Values. A schedule of value(s) shall be provided for each lump sum bid item within five (5) days of request, but not later than ten (10) working days before the first progress payment. The schedule of values shall be in the form of a detailed, itemized cost breakdown of the lump sum amount that includes the profit and overhead costs for each item including a line-by-line breakdown of labor and materials. All work to be performed by subcontractors shall be listed. The schedule of values, once established, will serve as the basis for estimating or evaluating the percentage of lump sum work completed for progress payments. Progress payments on Unit Price Work will be based on the number of units completed. The schedule of values may also be used to evaluate the impact of unbalanced pricing.

100-1.10 Phasing and Time Limitations. The overall time of completion for construction of this project (excluding Mobilization) is **Nine (9) working days**. Should this time schedule not be met, liquidated damages will be assessed in accordance with Section 100-1.11. Refer to Section 100-1.10.B for detailed time limitations on specific phases. A summary of contract time is divided as follows:

A. **Mobilization Element.** A NTP for the Mobilization Element shall be given immediately after award of the Contract. All work included in Mobilization shall be completed within **thirty (30) calendar days** prior to the NTP for Construction is issued. During this Element of the project, no work shall be conducted that in any way restricts Airport operations except as noted below. Mobilization work shall include, but not be limited to, the following:

1) Processing of required submittals including the Contractor's construction schedule.
2) Preparation and submission of the Safety Plan Compliance Document.
3) Preparation and submission of the Contractor Quality Control Program Document.
4) All prequalification testing, review, and approval.
5) Mix design preparation, review, and approval.
6) Procurement of airfield safety devices including low-profile barricades, flashing lights, flags, temporary signage, traffic cones, airfield light covers, and airfield guidance sign covers.
7) Procurement of long-lead materials.
8) All miscellaneous Mobilization efforts required to commence construction.

Prior to the commencement of work at the site, a preconstruction conference will be held at a mutually agreed time at the Airport, which shall be attended by the Contractor's project management team, including the superintendent, and all primary subcontractors. Other attendees

will include, but are not limited to, the Engineer, RPR, representatives of the Airport, FAA, ADOT, and other agency representatives, as appropriate. Unless previously submitted to the Engineer, the Contractor shall bring to the conference the following:

1) A preliminary construction schedule in accordance with Section 100-1.4.
2) Procurement schedule of equipment, materials, and items requiring long lead time.
3) List of Key Personnel with Telephone Numbers, Email Addresses, and Emergency Telephone Numbers.

The purpose of this conference is to identify key project personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include, but is not limited to, the following:

1) Project administration.
2) Contractor's schedule.
3) Closure periods and critical work sequencing.
4) Airport operational requirements.
5) Field decisions and change orders.
6) Use of project site, staging areas, security, haul routes, and housekeeping.
7) Major work priorities.

All preliminary work required in the Contract Documents and as determined by the Contractor to pursue an efficient sequence of construction to completion shall be completed during the Mobilization Element prior to receiving an NTP for construction.

B. Construction Element. A NTP for the Project shall be issued at the Airport's discretion after the Mobilization Element is complete and necessary permits issued. The Construction Element shall be performed in one phase and within the time limitations summarized below and in the CSPP.

Phase	**Requirement**
Phase 1	9 Working Days (Includes 9 Nightly Runway Closures from 9:00 PM to 6:00 AM)
Total Duration	**9 Working Days**

100-1.11 Liquidated Damages. If the approved time limitation for any phase of work is not met, liquidated damages per each calendar day or per each hour will be assessed in accordance with the following schedule of liquidated damages for failure to complete the work on time. The Airport, at its own discretion, may allow additional time for delays caused by factors beyond the Contractor's control.

Element / Phase	**Liquidated Damages**
Taxiway A4 Rehabilitation Project	$13,800 per Each Calendar Day $575 per Each Hour
Second Coat of Markings Marking	$575 per Each Hour

100-1.12 Material and Equipment Submittals. All materials and equipment used to construct this work shall be submitted to the Engineer for approval prior to ordering the materials and equipment. Manufacturer's catalogs (or excerpts thereof) and affidavits of compliance with the Contract Documents including Buy American certifications shall be submitted for all materials to be used on the project. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the

Drawings and Contract Documents. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion do not meet the system design and the standards and codes specified. Issuance of a NTP is dependent on the proper level of detail of these submittals. Contractor shall develop a detailed submittal log for all expected material and equipment submittals. The Submittal Log shall be submitted to the Engineer for approval prior to material and equipment submittals.

Alternate products may be approved by the Engineer upon submittal of the product information and are subject to the acceptance of the FAA. The Engineer will not consider an alternate product that does not have adequate demonstrated experience and meets all performance requirements of this specification. Contractor shall allow a minimum of ten (10) working days for evaluation of requests for substitution or deviation from the Contract Documents.

100-1.13 Barricades and Traffic Cones. The Contractor shall provide all low-profile barricades and traffic cones as shown on the CSPP for use during this project. The Contractor shall be responsible for determining the number of low-profile barricades and traffic cones needed for the project. The Contractor shall be responsible for placing, filling with water, maintaining and moving low-profile barricades and traffic cones as necessary during the project and as directed by the Airport or RPR. Low-profile barricades shall be safety orange in color and shall measure eight (8) feet in length, ten (10) inches in width and ten (10) inches in height. They shall be high impact, UV resistant, high-density polyethylene, equipped with orange / white reflective striping on each side and two (2) red flashing solar or battery powered hazard lights. The barricades shall continuously linked and filled with water. Additionally, the Contractor shall provide traffic cones as required to barricade hazardous areas at the project site and to place along designated haul routes. Traffic cones shall be florescent orange with reflective stripes and supplied with a weighted base. Traffic cones shall be spaced a maximum of ten (10) feet apart. All costs associated with barricades and traffic cones shall be included in the Contract pay item for Airfield Safety and Traffic Control. All barricades and traffic cones shall remain property of the Contractor.

100-1.14 Runway Closure Markers. The project has work occurring within the Runway Safety Area (RSA). Lighted runway closure markers will be supplied, placed, fueled, and maintained by the Airport. Work within the RSA may not commence until approved by Airport Operations.

100-1.15 Radio Communication with Air Traffic Control Tower. All traffic on the Airport is controlled by the Air Traffic Control Tower (ATCT) between the hours of 0600 to 2100. The Contractor shall have no direct contact with ATCT during the project. All communication with ATCT shall be coordinated with Airport Operations.

100-1.16 Access and Security.

A. Contractor Access. Contractor's primary access to the project site shall be via the Aircraft Operations Area (AOA) access gate at the south end of the airfield along 73rd Street, as shown on the project layout plan and CSPP. All Contractor material deliveries shall access the project site via the 73rd Street AOA access gate, as detailed in the CSPP. Contractor shall coordinate all material deliveries with Airport Operations. All approved haul routes on Airport property within the AOA are indicated on the CSPP. Any deviations to the haul routes by the Contractor will require review and approval by the Airport. All access points and haul routes shall be kept clean and free of debris. Dust control shall be maintained at all times. Traffic control across active airfield pavements shall be coordinated with the Airport. A full-time gate guard will be required during all hauling operations or when the gate cannot be secured. Damage to pavements, structures, gates, fences, utilities or other existing improvements shall be repaired by the Contractor at the Contractor's expense.

B. **Access Security Control.** The Contractor shall be responsible for maintaining Airport security at all locations designated for construction access. When not actively in use, the gates or temporary security fencing shall be kept closed and locked. During periods of operation, the gate must be secured after each vehicle enters and departs. A gate guard shall be posted and provided by the Contractor so that inadvertent entry onto the Airport by an unauthorized vehicle and/or pedestrian is prevented. All construction access points shall be kept clear of equipment and materials. The Contractor shall provide the gate guard with a list of authorized personnel for the project. The gate guard will be responsible for keeping a record of personnel access. At a minimum, the gate guard will record the company name, driver name, entrance time and exit time for each individual allowed access to the AOA. Airport badging is not required.

100-1.17 Application for Payment and Required Items. Applications for payment shall follow the standard City format based on the schedule of items included in the proposal forms. The Contractor shall also supplement the pay application with amounts being paid to subcontractors and the amounts being paid to DBE firms. Subcontractor and DBE amounts shall be delineated by bid items in the proposal forms.

100-1.18 Construction Water, Electricity, and Other Utilities. The source of construction water, electricity, or other utilities required for the project shall be coordinated by the Contractor. Contractor shall pay all applicable fees and make all necessary arrangements with the appropriate local utility to secure construction utility service for the duration of the contract, including identifying and coordination of an acceptable utility source for the project. No direct payment will be made for this work. The Contractor shall include all costs associated with construction utility service in other items of work.

100-1.19 Vacuum Sweeper Truck. All pavement surfaces used for hauling or otherwise become covered with dirt, debris, gravel, or FOD as a direct or indirect result of construction activities, shall be swept and vacuumed immediately. The Contractor shall maintain a vacuum sweeper truck without metal bristles onsite throughout the project duration. The vacuum sweeper shall include features consistent with TYMCO Model 600 or approved equivalent. The vacuum sweeper truck shall be included in the Contract pay item for Airfield Safety and Traffic Control.

100-1.20 Dust Control. Contractor shall complete a dust control application and obtain a permit from Maricopa County through the online dust portal. Contractor shall submit an electronic copy of the dust control permit to the RPR. Contractor shall control dust at all times during the project and coordinate with Airport Operations and RPR to determine what methods of controlling dust are acceptable and allowable on the jobsite. Contractor shall include all costs associated with dust control in the Contract pay item for Airfield Safety and Traffic Control.

100-1.21 Cooperation between Contractors. Construction may be underway by other forces and by other contractors within or adjacent to the limits of the work in this contract. The Contractor shall cooperate with all such other contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces.

Each Contractor shall be responsible to the other for any damage to work to persons or property caused to the other by his operations, and for loss caused the other due to his unnecessary delays or failure to finish the work within the time specified for completion.

100-1.22 Removal and Disposal of Waste. The Contractor is responsible for the cost to remove and dispose all waste products including excess material which will not be incorporated into the work under this contract, unless noted otherwise on the project plans. The waste product referred to herein shall become

property of the Contractor and disposed off Airport property. The cost to dispose of these materials including any associated hauling and environmental testing shall be included in the applicable bid item.

100-1.23 Construction Activity. Closure of the AOA will be required when work is conducted within 200 feet of the runway centerline and within 62.0 feet of the taxiway centerline.

Contractor shall submit to the Engineer in writing, a detailed work plan for each phase of the project. The work plan shall include, but not be limited to, sequence of removals, temporary electrical facilities, installation sequence of earthwork operations, paving sequence and marking application. The work plan shall include details for controlling construction equipment and vehicular movements within the AOA and on haul routes. This plan shall be submitted at the preconstruction conference. No work may commence until the work plan is approved by the Engineer.

Contractor shall be responsible for determining means and methods to meet the safety standards included in this section and in the project CSPP.

100-1.24 Cover Airfield Guidance Sign. Contractor shall cover select Airfield Guidance Signs within the project limits as shown on the plans and CSPP. Airfield Guidance Signs shall be covered with a Contractor supplied heavy black or brown tarp or fabric cut or folded to the width of the sign and secured with a minimum of two (2) ratchet straps per sign module. Material used to cover sign shall obscure light from sign at night. Tape is not allowed to be used to secure the cover to the sign. Cover and strap shall be approved by Airport Operations. No direct payment will be made for this work. Contractor shall include all costs associated with light and sign covers in the Contract pay item for Airfield Safety and Traffic Control.

100-1.25 Temporarily Remove and Reinstall Airfield Light Fixture. Contractor shall temporarily remove each taxiway edge light fixtures within the project limits as shown on the plans prior to asphalt pavement removal. The Contractor shall keep the Taxiway A circuit active and energized throughout the entire project. Taxiway edge light fixtures shall be removed and given to Airport Operations for storage during the project. After removing the light fixture, the base shall be covered with a temporary wooden blank cover secured to the base until completion of asphalt paving. Contractor shall confirm the number of light bases required to cover within the project area prior to the start of construction. Upon completion of asphalt paving, the Contractor shall coordinate with Airport Operations to obtain the salvaged taxiway edge light fixtures and reinstall the fixtures in their previous location. The Contractor shall complete a megger test on the Taxiway A electrical circuit prior to the start of construction and compare the megger test reading after the reinstallation of taxiway edge light fixtures. Any reductions in the megger readings shall be corrected by the Contractor at their own expense.

METHOD OF MEASUREMENT

100-2.1 Airfield Safety and Traffic Control will be measured as a lump sum item.

100-2.2 Construction Staking and Survey Layout will be measured as a lump sum item.

100-2.3 Temporarily Remove and Reinstall Airfield Light Fixture will be measured as the number of each light removed and reinstalled in the field during construction.

BASIS OF PAYMENT

100-3.1 Airfield Safety and Traffic Control will be paid for at the Contract lump sum price. This price shall include full compensation for all labor, materials, tools, equipment, CSPP compliance, SPCD preparation and compliance, low profile barricades, traffic cones, sign covers, and incidentals necessary to

complete the work as specified in the Contract Documents. Based upon the contract lump sum price for "Airfield Safety and Traffic Control" partial payments will be allowed as follows:

a. With first pay request, 50%.

b. After final inspection, project work area and staging area clean-up, and removal of all airfield safety and traffic control measures, the final 50%.

100-3.2 Construction Staking and Survey Layout will be paid for at the Contract lump sum and shall include all staking and survey required to construct the project to the lines and grades as indicated on the Plans to meet the specified tolerances and provide as-built grades for the finished surface. Based upon the contract lump sum price for "Construction Staking and Survey Layout" partial payments will be allowed as follows:

a. With first pay request, 50%.

b. After completion of as-builts, final inspection, project work area and staging area clean-up, and removal of all airfield safety and traffic control measures, the final 50%.

100-3.3 Temporarily Remove and Reinstall Airfield Light Fixture payment shall be paid at the Contract unit price per each. The price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item SP-100-3.1	Airfield Safety and Traffic Control – per lump sum
Item SP-100-3.2	Construction Staking and Survey Layout – per lump sum
Item SP-100-3.3	Temporarily Remove and Reinstall Airfield Light Fixture – per each

END OF ITEM SP-100

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Item SP-102 Crushed Aggregate Slope Protection Rock

DESCRIPTION

102-1.1 This item consists of a protection course composed of crushed aggregates constructed on a prepared base in accordance with these Specifications and in conformity to the dimensions and typical cross sections shown on the Plans. Existing crushed aggregate slope protection rock (CASPR) shall be salvaged from on-site material and reused as shown on the plans. Salvaged material will not require recertification.

MATERIALS

102-2.1 Aggregate. Aggregates shall consist of clean, sound, durable particles of crushed stone or crushed gravel and shall be free from coatings of clay, silt, organic matter, clay lumps or balls, or other materials or coatings. The color of the provided material shall match existing CASPR located at the Airport.

The crushed aggregate shall contain no more than 15 percent, by weight, of flat or elongated pieces as defined in ASTM D693 and shall have at least 60 percent by weight of particles with at least two fractured faces and 75 percent with at least one fractured face. The area of each face shall be equal to at least 75 percent of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

The percentage of wear shall not be greater than 40 percent when tested in accordance with ASTM C535. The sodium sulfate soundness loss shall not exceed 12 percent, after five cycles, when tested in accordance with ASTM C88.

102-2.2 Gradation Requirements. The gradation (job mix) of the final mixture shall fall within the design range indicated in Table 1, when tested in accordance with ASTM C117 and C136. The final gradation shall be continuously well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on an adjacent sieve or vice versa.

Table 1. Requirements for Gradation of CASPR

ASTM D448 – Size No. 24 (Modified)	
Sieve Size (inches)	Design Range Percentage by Weight Passing
3	100
2-3/4	100
2-1/2	90-100
2	45-80
1-1/2	25-60
3/4	0-10
1/2	0-5

102-2.3 Sampling and Testing. The Contractor shall take samples of the CASPR in accordance with ASTM D75 to verify initial CASPR requirements and gradation. Material shall meet the requirements in paragraph 102-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the RPR. A five-gallon sample of CASPR material shall be brought to the Airport to verify material color and gradation is comparable with existing onsite material. Onsite sample verification shall be completed as a part of the material prequalification efforts prior to construction.

CONSTRUCTION METHODS

102-3.1 Push Back and Salvage. Existing CASPR material temporarily pushed back for pavement rehabilitation, shall be salvaged and stockpiled at the grading limits, as shown on the plans. When salvaged and stockpiled, the Contractor shall not have any piles, ruts, or drop-off that exceed 3-inches within the Runway 3-21 Safety Area (RSA) or Taxiway A Object Free Area (TOFA), which is identified on the plans.

102-3.2 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be prepared, checked, and accepted by the RPR in accordance with Item P-152 before CASPR placement and spreading operations begin. In those areas on which CASPR is to be placed, the top 6 inches of subgrade shall be compacted to not less than 100% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D1557. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318. Re-proof rolling of the subgrade and/or subbase may be required if the Contractor fails to ensure proper drainage or protection of the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before CASPR is placed at the Contractor's expense. A pre-emergent herbicide shall be applied to the surface of the subgrade prior to placement of the CASPR. Pre-emergent herbicide shall be considered incidental to CASPR work and no separate measurement or payment shall be made.

102-3.3 Production. The aggregate shall be uniformly blended during crushing operations or mixed in a plant. The plant shall blend and mix the materials to meet the Specifications and to secure the proper moisture content. On-site salvaged aggregates shall not require remixing at a plant.

102-3.4 Hauling. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

102-3.5 Placement. CASPR shall be placed at a minimum depth of four (4) inches. The underlying subgrade and/or subbase should be cleaned of loose and foreign material prior to placement of CASPR. Upon completion of CASPR placement, Contractor will apply sufficient water to the entire surface area in order to settle all fines to the bottom of the course.

102-3.6 Finishing. The surface of the CASPR shall be finished by blading and rolling with automated equipment specifically designed for this purpose. The finished surface shall be rolled a minimum of three (3) passes with a steel wheel power roller weighing not less than 8 tons.

102-3.7 Surface Tolerances. In those areas on which CASPR is to be placed, the surface shall be tested for smoothness and accuracy of grade. Any portion lacking the required smoothness or failing in accuracy of grade shall be reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall be smooth with no bumps or ruts greater than =/- 2 inches.

b. Grade. The as-built grade shall be measured on at the match points every 100-feet and shall match the existing contours shown on the plans.

102-3.8 Thickness. Depth tests shall be made by test holes at least 3 inches in diameter that extend through the CASPR. The thickness of the CASPR shall be within +1 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost by adding new material of proper gradation, blended and recompacted to grade. The Contractor shall replace, at his expense, CASPR where depth tests have been taken. Additional test holes may be required to identify the limits of deficient areas.

102-3.9 Maintenance. CASPR shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. Any damage resulting to the CASPR from routing equipment over the CASPR shall be repaired by the Contractor at the Contractor's expense.

METHOD OF MEASUREMENT

102-4.1 The quantity of crushed aggregate slope protection rock, new, to be paid for will be determined by measurement of the number of square yards of material actually hauled in, placed, and accepted by the RPR as complying with the Plans and Specifications.

102-4.2 The quantity of crushed aggregate slope protection rock, salvaged, to be paid for will be determined by measurement of the number of square yards of material actually pushed back, windrowed, or stockpiled, salvaged, restored and accepted by the RPR as complying with the Plans and Specifications.

BASIS OF PAYMENT

102-5.1 Payment shall be made at the contract unit price per square yard for "Crushed Aggregate Slope Protection Rock, New." This price shall be full compensation for furnishing all materials, for hauling, preparing, and placing these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

102-5.2 Payment shall be made at the contract unit price per square yard for "Crushed Aggregate Slope Protection Rock, Salvaged". This price shall be full compensation for furnishing all materials, for preparing and placing these materials including removal and stockpiling, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item SP-102-5.1	Crushed Aggregate Slope Protection Rock, New – per square yard
Item SP-102-5.2	Crushed Aggregate Slope Protection Rock, Salvaged – per square yard

TESTING REQUIREMENTS

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Unit Weight of Aggregate
ASTM C88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Materials Finer than (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C535	Resistance to Abrasion of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Sieve or Screen Analysis of Fine and Coarse Aggregate
ASTM D75	Sampling Aggregate
ASTM D448	Standard Classification for Sizes of Aggregate for Road and Bridge Construction
ASTM D693	Crushed Stone, Crushed Slag, and Crushed Gravel for Dry- or Water-Bound Macadam Base Courses and Bituminous Macadam Base and Surface Courses of Pavements
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3)
ASTM D 4318	Liquid Limit, Plastic Limit, and Plasticity Index of Soils

END OF ITEM SP-102

Item SP-209 Prepare Underlying Base Course

DESCRIPTION

209-1.1 This item consists of the preparation of the underlying base course in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

MATERIALS

If additional or replacement base course material is required to complete the preparation of the underlying base course and / or to repair unsuitable subgrade areas, the material shall meet the requirements in paragraphs 209-2.1 and 209-2.2.

209-2.1 Base Course Material. Additional or replacement base course material shall consist of clean, sound, durable particles of crushed stone, crushed gravel and shall be free from coatings of clay, silt, organic material, clay lumps or balls or other deleterious materials or coatings. The method used to produce the crushed gravel shall result in the fractured particles in the finished product as consistent and uniform as practicable. Fine aggregate portion, defined as the portion passing the No. 4 sieve shall consist of fines from the coarse aggregate crushing operation. The fine aggregate shall be produced by crushing stone, or gravel that meet the coarse aggregate requirements for wear and soundness. Aggregate base material requirements are listed in the following table.

Base Course Material Requirements

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 45% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Percentage of Fractured Particles	Minimum 90% by weight of particles with at least two fractured faces and 98% with at least one fractured face[1]	ASTM D5821
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% maximum, by weight, of flat, elongated, or flat and elongated particles [2]	ASTM D4791
Clay lumps and friable particles	Less than or equal to 3 percent	ASTM C142
Fine Aggregate		
Liquid limit	Less than or equal to 25	ASTM D4318
Plasticity Index	Not more than five (5)	ASTM D4318

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

209-2.2 Gradation requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa.

Gradation of Base Course Material

Sieve Size	Design Range Percentage by Weight passing	Contractor's Final Gradation	Job Control Grading Band Tolerances[1] (Percent)
2 inch	100		0
1-1/2 inch	95-100		±5
1 inch	70-95		±8
3/4 inch	55-85		±8
No. 4	30-60		±8
No. 40[2]	10-30		±5
No. 200[2]	0-10		±3

[1] The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

[2] The fraction of material passing the No 200 sieve shall not exceed two-thirds the fraction passing the No 40 sieve.

209-2.3 Sampling and Testing.

a. Base course materials. The Contractor shall take samples of the aggregate base in accordance with ASTM D75 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in paragraph 209-2.1. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

b. Gradation requirements. The Contractor shall take at least two aggregate base samples per day in the presence of the Resident Project Representative (RPR) to check the final gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in paragraph 209-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the RPR.

CONSTRUCTION METHODS

209-3.1 Prepare underlying base course. The underlying base course shall be checked and accepted by the RPR before paving operations begin. After removal of existing asphalt pavement and excess base course material, the underlying base course shall be proof rolled to identify any weak areas in the subgrade. The underlying base course area shall be proof rolled with a 20-ton Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 150 psi in the presence of the RPR. Apply a minimum of 2 coverages, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be corrected in accordance with paragraph 209-3.2. After proof-rolling and unsuitable subgrade repairs are complete, the Contractor shall verify finished grades on the underlying base course with pavement elevations shown on the plans. Prior to placement of

the asphalt surface course, the Contractor shall submit elevations of the underlying base course to the Engineer for approval.

209-3.2 Repair unsuitable subgrade. If soft, yielding areas are identified, the underlying base course and subgrade shall be repaired in accordance with these specifications and detail shown in the plans. The RPR must witness the proof rolling and approve the proposed repair method prior to starting. The underlying base course shall be removed and salvaged for reuse. After the underlying base course is removed, the subgrade shall be excavated to a minimum depth of 12 inches and replaced with material meeting the requirements in paragraphs 209-2.1 and 209-2.2 or replaced with recycled asphalt pavement. The approved material shall be shaped to approved lines and grades and compacted to specified density requirements in accordance with paragraphs 209-3.3 through 209-3.9. After replacing the subgrade material, re-proof rolling of the finished subgrade shall be performed in accordance with paragraph 209-3.1. After proof rolling is complete and approved, the salvaged base course material shall be shaped to approved lines and grades and compacted to the specified density requirements in accordance with paragraphs 209-3.3 through 209-3.9.

209-3.3 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.5, the approved material may be transported directly to the placement.

209-3.4 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

The aggregate shall meet gradation and moisture requirements prior to compaction. The base course shall be constructed in lifts as established in the control strip, but not less than 4 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications at the Contractor's expense.

209-3.5 Compaction. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.

The field density of each compacted lift of approved replacement subgrade material shall be at least 95% of the maximum density of laboratory specimens prepared from samples of approved replacement subgrade material. The field density of each compacted lift of underlying base course material shall be at least 100% of the maximum density of laboratory specimens prepared from samples of the base material obtained from the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D1557. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D1557. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

209-3.6 Weather limitations. Material shall not be placed unless the ambient air temperature is at least 40°F and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

209-3.7 Maintenance. The base course shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification

requirements. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.8 Surface tolerances. After the underlying base course has been repaired and compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and recompacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +0 and -1/2 inch of the specified grade.

209-3.9 Acceptance sampling and testing. Underlying base course material shall be accepted for density and thickness on an area basis. Two tests shall be made for density and thickness for each repair area and two tests per 2,000 SY. Sampling locations will be determined on a random basis per ASTM D3665

a. Density. The RPR shall perform all density tests.

Each approved replacement subgrade area shall be accepted for density when the field density is at least 95% of the maximum density of laboratory specimens compacted and tested per ASTM D1557. Each underlying base course area shall be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens compacted and tested per ASTM D1557. The in-place field density shall be determined per ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. Depth tests shall be made by test holes at least 3 inches in diameter that extend through the base. If thickness is determined by survey, the Contractor shall survey before and after placement of the base course and submit certified survey results to the RPR for approval. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests or survey taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches, adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

209-4.1 The quantity of "Prepare Underlying Base Course" will be determined by measurement of the number of square yards of material actually constructed and accepted by the RPR in the field as complying with the plans and specifications.

209-4.2 The quantity of "Unsuitable Subgrade Repair" will be determined by measurement of the number of square yards of material actually constructed and accepted by the RPR as complying with the plans and specifications.

BASIS OF PAYMENT

209-5.1 Payment for "Prepare Underlying Base Course" shall be made at the contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

209-5.2 Payment for "Unsuitable Subgrade Repair" shall be made at the contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

Payment will be made under:

Item SP-209-5.1	Prepare Underlying Base Course - per square yard
Item SP-209-5.2	Unsuitable Subgrade Repair – per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D2167	Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method

ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4643	Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D7928	Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

American Association of State Highway and Transportation Officials (AASHTO)

M288	Standard Specification for Geosynthetic Specification for Highway Applications

END OF ITEM SP-209

SCOTTSDALE AIRPORT

Construction Safety and Phasing Plan

for

Taxiway A4 Rehabilitation Project

FAA AIP No.: 3-04-0032-046-2023

ADOT No.: E0XXXX

City Project No.: A102A

Prepared by:

Mead & Hunt

meadhunt.com

March 2023

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CONSTRUCTION SAFETY AND PHASING PLAN

1. OVERVIEW

The City of Scottsdale (City) is required to adhere to the standards contained in the various Federal Aviation Administration (FAA) Advisory Circular (AC) 150 series as part of the airport's grant assurance obligations in return for accepting federal funds under the Airport Improvement Program (AIP) for the design and construction of airport projects. The goal of this Construction Safety and Phasing Plan (CSPP) is to achieve and maintain a desirable level of operational safety during construction. This plan provides information, responsibilities, and procedures to implement the requirements of the contract safety provisions and FAA AC 150/5370-2G, *Operational Safety on Airports During Construction*.

Hazardous practices and marginal conditions created by construction activities can decrease, or jeopardize, operational safety on the Scottsdale Airport (Airport). To minimize disruption of normal aircraft operations and avoid situations that compromise the Airport's operational safety, all construction activity that occurs within the boundaries of the Airport must be carefully planned, scheduled, and coordinated with the City and FAA.

This CSPP is intended to provide general information to all contractors, subcontractors, or suppliers (Contractor) on the requirements and procedures for accident prevention, safety, and security at the Airport during the Taxiway A4 Rehabilitation Project (Project). Contractors shall conduct their operations in a manner that will provide safe working conditions for all personnel, in addition to protection of the Airport tenants and users who may be affected by the Project's construction activities.

Nothing contained in this CSPP is intended to relieve the Contractor of the obligations assumed by the Contractor under contract with the City, or as required by law. Safety must be an integral part of each job. Full participation, cooperation, and support are necessary to ensure the safety and health of all persons and property involved in the Project.

The purpose of marking, barricading, and lighting airside construction areas is to delineate potentially hazardous areas and prevent unauthorized incursions into the area by personnel, vehicles, and equipment during construction. Visible barricade lines will be established prior to construction activity within the Air Operations Area (AOA). All vehicles will be marked in accordance with FAA AC 150/5210-5D, *Painting, Marking, and Lighting of Vehicles Used on an Airport.*

Requirements and procedures in this CSPP may be altered on a case-by-case basis if determined by the City that safety is not compromised and the proposed alternative is more responsive to operational or Project needs. Any such alterations or deviations shall be at the sole discretion of the City.

The critical operational areas at the Airport are defined as follows:

1.1 The AOA, for the purpose of this document, is defined as any part of the Airport utilized for aircraft operations and includes any area inside the perimeter fence. (See *Attachment 1.*)

1.2 Runway Safety Area (RSA) and Taxiway Object Free Area (TOFA) / Taxilane Object Free Area (TLOFA), as described in FAA AC 150/5370-2G, are restricted areas. The dimensions are described in FAA AC 150/5300-13B, *Airport Design*.

2. AIRPORT CONTACT NUMBERS

The following are the contact persons and mobile numbers for this Project.

TITLE	NAME	MOBILE PHONE
Assistant Aviation Director	Chris Read	(480) 312-2674
Airport Operations	On-Duty Personnel	(480) 312-8478
Engineer of Record	Brad Mikulecky	(630) 995-6222
Construction Manager	Greg Mead	(602) 432-4621
Resident Project Representative (RPR)	TBD	TBD

Injuries are to be reported to the City and Airport Operations personnel immediately. Medical and Police assistance may be reached by calling 911. All mobile phone numbers should be placed on the Project critical phone number list that shall be kept in all Contractor supervisor vehicles.

3. PROJECT SCOPE OF WORK

The Project scope will consist of the rehabilitation of Taxiway A4 pavement and completed under one base bid. The taxiway pavement was originally constructed in 2010. The Project limits extend from the intersection of Runway 3-21 to the intersection of Taxiway A and Taxiway A4. A small portion of the existing crushed aggregate slope protection rock (CASPR) will be impacted during construction, with the Project limits extending eight feet outside the existing Taxiway A4 edge of pavement. As part of the 2018 Taxiway A Rehabilitation and Reconstruction Project (2018 Taxiway A Project), Taxiway A4 received preventative maintenance measures including crack repair and a P-608 seal coat. From 2018 to present, the Airport has completed three crack seal and seal coats on the Project area. The asphalt pavement is exhibiting signs of high severity weathering, low severity raveling, and low to medium severity longitudinal and transverse cracking.

Various piston, turboprop, and jet engine aircraft operate on Taxiway A4 and adjacent taxiways. The Project phasing has been staged to accommodate minimal disruption to aircraft operations in the area and optimize construction sequencing. The location of these improvements is depicted on Plan Sheet G-081. (See *Attachment 1.*)

4. CONSTRUCTION SAFETY AND PHASING PLAN REQUIREMENTS

The requirements outlined below correspond with the subjects contained in FAA AC 150/5370-2G, Chapter 2, Section 2.4. The FAA's Construction Safety and Phasing Plan Checklist was utilized in the preparation of this CSPP, and all items required on the checklist have been addressed.

4.1 Coordination

Airport staff will coordinate with the tenants and operators affected by this Project in advance of the start of construction. The airport traffic control tower (ATCT) will be included in the coordination of airfield facility temporary closures. Additional information regarding notification of construction activities is contained in Section 12 of this CSPP. The locations of these facilities are depicted in *Attachment 1.*

Prior to the start of construction, the Airport will host a mandatory preconstruction meeting with the Contractor and at least one representative from each of its subcontracting companies. The meeting will discuss all items listed on the Construction Safety and Phasing Plan Checklist and items in this CSPP, to include:

4.1.1 Submission of Contractor's preliminary construction schedule, barricade plan, list of equipment, list of subcontractors, Contractor's emergency phone number list, and items required by the Safety Plan Compliance Document (SPCD).

4.1.2 Identification of the Contractor's superintendent and a discussion of his authority and responsibilities.

4.1.3 Designation of the City representative responsible for notifying the Flight Service Station serving the Airport of the proposed start and completion dates of construction, or any circumstances requiring a Notice to Air Mission (NOTAM).

4.1.4 Scheduling of work and the need to perform certain items at various stages of the Project, including operational safety issues which might arise because of the proposed work.

4.1.5 Establishment of a desired date for issuance of a Notice to Proceed (NTP).

4.2 Contractor Progress Meetings

Progress meetings to discuss construction scheduling and safety issues will be held on a regular basis at the Airport for the duration of the Project. The agenda will include a standing item to discuss safety issues at these meetings.

4.3 Scope or Schedule Changes

After the initial approval of the Contractor's schedule, the construction schedule will be a standing agenda item for discussion at the construction progress meetings. Any changes to the Project scope of work or change of schedule will require approval by the City.

4.4 FAA Air Traffic Organization (ATO) Coordination

Airport staff will coordinate with ATCT before and during construction of this Project to verify construction activities are on schedule and progressing according to plan. Submittal of the Project CSPP will be in accordance with FAA requirements.

5. PHASING

This Project has been developed to minimize operational impact on aircraft operations at the Airport. The scope of work for this Project is described in Section 3 of this CSPP. The construction limits for each phase of work are shown on Plan Sheet G-081. (See *Attachment 1.*) A general description of the construction work and special phasing requirements are as follows.

5.1 Phase 1

Location	Taxiway A4, Runway 3-21, and Taxiway A
Total Duration	9 Working Days
Runway Closures	9 night closures of Runway 3-21 (Closed 2100 – 0600)
Operational Impact	Airport closed during construction
Contractor Restrictions	Night work between 2100 – 0600 required

Work Elements	Description:
	• Push back and salvage CASPR. • Remove and salvage taxiway edge light fixtures. • Cold mill existing asphalt pavement, full depth. • Prepare underlying base course. • Pave asphalt surface course. • Place new CASPR and restore salvaged CASPR. • Install salvaged taxiway edge light fixtures. • Apply new pavement markings.

Total contract time allowed for construction work shall be nine (9) working days.

6. AREAS AND OPERATIONS AFFECTED BY CONSTRUCTION

This CSPP presents possible safety problems that could occur during a typical airport construction project. Any of these safety problems could occur if this plan is not followed in any part of the Project areas. The rehabilitation of Taxiway A4 pavement will impact operations and facilities as described above. Nightly Airport closures will be required to accomplish the work. The work is not expected to impede firefighting access. Details depicting phasing limits, general barricade placement, access routes, and other information are contained in *Attachment 1*.

7. PROTECTION OF NAVIGATIONAL AIDS (NAVAIDS)

The Airport's Precision Approach Path Indicators (PAPIs) and Runway End Identifier Lights (REILs) are located outside of the Project areas and will not be affected while construction is taking place.

8. CONTRACTOR ACCESS

Maintaining control of construction personnel within the AOA is crucial for the safety of workers and aircraft. The Contractor's personnel will only be permitted access to the Airport at designated locations and will be restricted from entering all active Runway Object Free Areas (ROFA), Runway Object Free Zones (ROFZ), RSAs, TOFAs, and Taxilane Object Free Areas (TLOFA) when applicable. Contractor access and haul routes are depicted on the Project plan and contained in *Attachment 1*. The Contractor's personnel will not be allowed to leave the Project area unless escorted by Airport Operations personnel or escorted by personnel who have completed the Airport's vehicle driving course. Cones and barricades will be used to keep the Contractor's personnel from inadvertently entering areas outside the Project limits or haul routes. The Contractor will acknowledge and comply with the following requirements.

8.1 Location of Stockpiled Construction Materials

Stockpiled material must be stored in the staging yard until needed for placement. Stockpiled soils and aggregate materials shall be watered and consolidated as necessary to prevent airborne particulates. Material stockpile heights in excess of 15 feet will not be allowed.

8.2 Vehicle and Pedestrian Operations

No unauthorized entry to the AOA will be permitted. Workers and equipment will be restricted to the approved entry points and access routes to work areas. The Contractor shall provide a trained gate guard at all times when the access gate is not secured. The gate guard shall prevent any unauthorized

vehicles and pedestrians from entering the AOA. The gate guard shall also ensure that authorized construction and delivery vehicles are properly marked and lit prior to allowing them to enter the AOA.

8.2.1 Construction Equipment / Personnel Parking

Contractor employee parking shall be allowed in the open lot across the street from the 73rd Street airfield access gate, as shown in *Attachment 1*. No personal vehicles will be allowed in the AOA. Construction equipment will be parked at the designated staging areas when not in use. No construction equipment will be left unattended at the work locations.

8.2.2 Access and Haul Roads

The locations of construction traffic routing are depicted in the plan sheet, included as *Attachment 1*, and the Project plan set. Access to the work areas will be delineated with traffic cones or other approved traffic control devices.

8.2.3 Marking and Lighting of Vehicles

All Contractor and Airport Operations vehicles involved with this Project will comply with FAA AC 150/5210-5D by mounting a 3-foot by 3-foot orange and white checked flag and an amber beacon on the highest part of the vehicle while at the Airport. Vehicles and equipment operating at nighttime are required to use an amber beacon. All hauling vehicles are required to have a 3-foot by 3-foot orange and white checked flag at all times within AOA during daylight hours, and a flashing amber beacon on the highest part of the vehicle at all times within the AOA during nighttime operations.

8.2.4 Description of Proper Vehicle Operations

In the event that the Contractor leaves the closed Project area and gets disoriented, Contractor shall remain in place and call Airport Operations.

8.2.5 Required Escorts

No escorts for the daily work crews will be required during regular work shifts.

8.2.6 Requirement for Vehicle Drivers

The Contractor will be required to train all personnel in ground vehicle operations. This will be done for all vehicle drivers who will be at the Airport on a daily basis and not merely transitory, such as delivery vehicles. These daily drivers will be required to read the FAA Guide to Ground Vehicle Operations. The Contractor will be required to secure the signatures of all employees who have reviewed the guide prior to start of construction. All vehicle drivers must be aware of their environment at the Airport and confirm by personal observation that no aircraft are approaching their position (either in the air or on the ground) when crossing any area of the Airport open to aircraft operations.

8.2.7 Situational Awareness

The Contractor's personnel will be restricted to the closed areas in which work is to be performed. The Contractor shall train his personnel to recognize and avoid the hazards of jet blast when in proximity to active areas. The Contractor shall train its personnel to be aware of all aircraft that are operating in the area.

8.2.8 Two-Way Communication Procedure

This section is not applicable for this Project. Airport Operations personnel will communicate with ATCT during all construction operations.

8.2.9 Maintaining the Secured Area of the Airport Security

The access points and haul routes identified on Plan Sheet G-081 are the only access points approved for use by the Contractor. (See *Attachment 1.)* When not actively in use, the gates will be kept closed and locked. During periods of operation, the gates must be closed after each vehicle enters or departs, or a gate guard shall be posted at the access gates so that an inadvertent entry onto Airport property by an unauthorized vehicle and / or pedestrian is prevented.

9. WILDLIFE MANAGEMENT

The Contractor shall be required to remove any / all food or construction-related trash after each shift. The Contractor shall also ensure that their water supply tankers and lines are not leaking to prevent the attraction of birds or other animals to the site as a result of standing water.

10. FOREIGN OBJECT DEBRIS MANAGEMENT

Foreign Object Debris (FOD) management will be controlled by only allowing Contractor personnel to travel on the established haul routes. They will not be allowed to travel freely on the runway and taxiway system. The Contractor shall have a power vacuum sweeper available at all times when working on this Project. The Contractor shall continuously monitor and clean all haul routes and surrounding apron areas during their work shifts and at the direction of Airport Operations and the RPR. Airport Operations personnel will conduct inspections at the conclusion of each working day.

11. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

With the exception of fuel and other fluids for vehicles, there is no hazardous material associated with this Project. If the Contractor does spill a small amount of fuel or other fluid, they shall immediately contain and remove it from the Airport and legally dispose of it.

If the Contractor spills any fuel or other fluid in excess of five (5) gallons, Airport Operations personnel shall be immediately notified so that the Airport's spill procedures can be followed.

12. NOTIFICATION OF CONSTRUCTION ACTIVITIES

In order to maintain the desired levels of operational safety on airports during construction activities, Airport Operations personnel will follow the procedures listed below for the immediate notification of Airport Rescue and Fire Fighting (ARFF) personnel, Airport users, and the FAA of any condition adversely affecting operational safety during this Project.

12.1 List of Responsible Representatives (Project Directory)

Prior to the start of construction activities and after receipt of the Contractor's list of personnel, the Engineer will compile a list of all stakeholders for the Project to include applicable points of contact for the Airport, Engineer, and Contractor who will be permitted access to the work areas.

This Project Directory will include office contact phone numbers, email addresses, and 24-hour emergency point of contact mobile phone numbers. This list of critical phone numbers must be kept in all Contractor supervisor vehicles at all times. Airport Operations personnel shall also keep this list in their vehicles during the Project.

12.2 Notice to Air Missions (NOTAMs) Issuance

Airport personnel will issue all NOTAMs associated with this Project, in accordance with FAA AC 150/5200-28G, *Notice to Air Missions (NOTAMs) for Airport Operators*, as amended.

12.3 Emergency Notification Procedures

The City provides Fire and Police response for the Airport. Contacting these services for an emergency shall be done by calling 911.

12.4 Coordination with Fire Department Personnel

Scottsdale Fire Department personnel will be advised of the construction activity via email or face-to-face meetings. Fire services will be minimally affected.

12.5 Notifications to the FAA (Filing of Form 7460-1)

FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, will be prepared and submitted by the Engineer.

13. INSPECTION REQUIREMENTS

The Contractor's personnel and City representatives will be responsible for conducting inspections of work areas to ensure that those areas are safe for aircraft operations.

13.1 Daily Inspections

Airport Operations personnel shall conduct a post-construction inspection at the end of each shift. The SDL Special Inspection – Post Construction Form is included as *Attachment 3*.

The Contractor will be advised that Airport Operations will have the final authority to determine whether or not the Airport is safe for aircraft operations. Significant penalties have been established to ensure that the Contractor understands the seriousness of this issue.

Temporarily closed areas will only open after the Project area construction is complete. These areas will remain closed to all aircraft traffic from the time that construction in the Project area is started until it is completed and suitable for opening, as determined by Airport Operations personnel.

13.2 Final Inspections

A final inspection by Airport Operations will be required at the completion of each work shift prior to opening of the runway. Contractor shall work with Airport Operations to complete all work items required after final inspection.

14. UNDERGROUND UTILITIES

Known utilities are shown on the construction plans. The Contractor must comply with Arizona Blue Stake requirements. There are sanitary sewer and electrical utilities crossing the apron. The Contractor will be required to pothole at such locations for existing utility conflicts. If in the unlikely event a utility is disrupted, the Contractor is responsible for contacting that utility company and requesting the repair.

15. PENALTIES

If the Contractor's personnel fail to comply with any Airport rule or the provisions of this CSPP, the Project will be immediately stopped by Airport Operations personnel. Violations of the rules and regulations are subject to the Airport's enforcement policies, which include civil penalties of up to $250.00 per occurrence. The penalties also include the assessment of liquidated damages, in accordance with the contract, for failure to complete the Project on time.

16. SPECIAL CONDITIONS

Airport Operations personnel will be required to monitor the ATCT frequency while on the construction site. If an aircraft alert is issued by an inbound aircraft, Airport Operations personnel will contact the construction site supervisor, advise that construction be stopped, and immediately move all personnel off to the Airport perimeter fence line closest to them. The Contractor's personnel cannot resume work until Airport Operations personnel has issued the all clear.

17. RUNWAY AND TAXIWAY VISUAL AIDS

Runway and taxiway visual aids and NAVAIDs, as discussed in Section 7 of this CSPP, will not be impacted by the Project.

18. MARKINGS AND SIGNS FOR ACCESS ROUTES

Contractor haul routes will include the Airport ramp areas. Routes will be marked by traffic cones or other devices, as approved by the Airport. See *Attachment 1* for additional information.

19. HAZARD MARKING AND LIGHTING

The CSPP depicts general locations of anticipated construction barricade locations to identify work limits during each phase of the Project and provide pilots with recognizable limits of potential hazards. A detail depicting the barricade devices to be used is included on Plan Sheet G-091. (See *Attachment 1*.)

Airport Operations personnel will direct placement of all barricades and hazard markings to be used for the Project. The Contractor must prominently mark open trenches and excavations at the construction site, and light them with red omni-directional lights during hours of restricted visibility or darkness. The Contractor shall check lighting on the barricades for proper operation at least once per day, preferably at dusk.

20. PROTECTION OF SAFETY AREAS, OBJECT FREE AREAS, AND APPROACH AND DEPARTURE SURFACES

Runway and taxiway safety areas, Obstacle Free Zones (OFZ), Object Free Areas (OFA), and Approach / Departure Surfaces are described in FAA AC 150/5300-13B. When working in these areas, construction will be limited in accordance with the Project specifications.

20.1 Runway Safety Area (RSA)

The RSA has an established setback limit of 200 feet from the Runway 3-21 centerline and 1,000 feet from the runway threshold. The Contractor shall remain clear of the RSA at all times while the runway is open. When work is completed, there shall be no drop offs greater than 3 inches within the RSA. The Contractor shall create temporary slopes that do not exceed 5 percent at all drop offs in elevation.

20.2 Runway Object Free Area (ROFA)

The ROFA has an established setback limit of 400 feet from the Runway 3-21 centerline and 1,000 feet from the runway threshold.

20.3 Taxiway Safety Area (TSA)

The TSA has an established setback limit of 39.5 feet from the taxiway centerline. No construction of any taxiway open for aircraft operations will be permitted within the TSA.

20.4 Taxiway Object Free Area (TOFA)

The TOFA has an established setback limit of 62.0 feet from the taxiway centerline. No construction of any taxiway open for aircraft operations will be permitted within the TOFA.

20.5 Taxilane Object Free Area (TLOFA)

The TLOFA has an established setback limit of 55.0 feet from the taxilane centerline. No construction of any taxilane open for aircraft operations will be permitted within the TLOFA.

20.6 Obstacle Free Zones (OFZ)

The OFZ has an established setback limit of 200 feet from the Runway 3-21 centerline. The Contractor shall remain clear of the OFZ at all times while the runway is open.

20.7 Construction Activity in a Runway Approach / Departure Area

This Project does not require partial closure of the runway approach / departure area or the need to displace the existing runway threshold.

20.8 Coordination of RSA / TSA Adjustments

This Project does not require RSA / TSA adjustments.

20.9 Blasting Operations

This Project does not require blasting operations.

20.10 Open Trenches or Excavations

No open trenches, excavations, or stockpiled materials will be permitted within the taxiway / taxilane and RSAs while the associated taxiways / taxilanes or runway are open to aircraft operations, in accordance with Project specifications.

20.11 Covering of Excavations

Excavations within the taxiway / taxilane and RSAs that cannot be backfilled before the associated taxiway / taxilane or runway is reopened must be covered with steel plates capable of supporting a 100,000-pound dual wheel aircraft load.

20.12 Marking of Open Trenches or Excavation

At the end of each working shift, the Contractor shall clearly mark open trenches or excavation areas with barricades, in accordance with Project specifications.

20.13 Removal of Equipment

Construction equipment must be stored in the Project staging area at the end of each shift. The Contractor shall place all equipment not in use during the shift within the Project staging area.

20.14 Other Limitations on Construction

20.14.1 The Contractor must at all times conduct the work in conformance with requirements of the City and FAA.

20.14.2 The use of open flame welding or torches is prohibited unless approved by the Airport.

20.14.3 The use of blasting caps is not applicable to this Project.

20.14.4 The use of flare pots is not applicable to this Project.

20.14.5 The Contractor shall at all times conduct their work in a manner that does not create any hindrance, hazard, or obstacle to aircraft using the Airport.

20.14.6 The Airport environment requires a high degree of care to control debris and dust. Spilled material on active roadways and aircraft parking aprons shall be swept up immediately.

20.14.7 Sanitary facilities must be provided by the Contractor for use by the Contractor's employees. Public facilities at the Airport are not to be used. Sanitary facilities must be located at the Contractor's staging area, unless otherwise approved by the City.

20.14.8 Contractor vehicles will obey all posted speed limits on Airport roadways. The maximum speed when operating inside the Airport perimeter fence is 15 mph maximum, consistent with safety.

20.14.9 All personnel operating a motor vehicle on Airport property shall have a valid state-issued driver's license.

20.14.10 Use of audio earphones and headsets are prohibited on the Airport unless directly related to job requirements.

20.14.11 Beacons and flags must be maintained in good working condition, and flags shall be replaced if they become faded, discolored, or ragged.

20.14.12 Lighted barricades shall be maintained, kept in good working order, and replaced if they are not operating properly.

21. SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) OVERVIEW

The Contractor is required to read, acknowledge, and abide by this CSPP. Additionally, all required information for compliance will not be available until a construction award for the Project has been made by the City. The following section provides for supplemental information and acknowledgement of the requirements of this CSPP. The Contractor shall not duplicate information in the subject requirements as contained in this CSPP, and if no supplemental information is needed shall enter "No Supplemental Information." The Contractor shall provide the information and execute the acknowledgement statement as part of his Project submittals. Additional guidance is contained in FAA AC 150/5370-2G.

22. CONTRACTOR CONTACT NUMBERS AND SUPPLEMENTAL INFORMATION

General Contractor: _____
Address: _____
_____
Office Phone: _____
Fax: _____

Contractor Personnel

TITLE	NAME	MOBILE PHONE
Project Manager:	_____	_____
Project Superintendent:	_____	_____
Safety Officer:	_____	_____

Construction Schedule

The Notice to Proceed (NTP) Date is: _____

The Official Start Date is: _____

The Project Duration is: 9 Working Days

The Project Completion Date is: _____

Acknowledgement: I, _____, have read the **Taxiway A4 Rehabilitation Project** Construction Safety and Phasing Plan, approved on _____, and will abide by it as written and with the following additions as noted.

Supplemental Information: (Insert "No Supplemental Information" if none is needed.)

1. Coordination:
2. Phasing:
3. Areas and Operations Affected by Construction:
4. Protection of NAVAIDs:
5. Contractor Access:
6. Wildlife Management:
7. Foreign Object Debris Management:
8. Hazardous Material (HAZMAT) Management:
9. Notification of Construction Activities:
10. Inspection Requirements:
11. Underground Utilities:
12. Penalties:
13. Special Conditions:
14. Runway and Taxiway Visual Aids:
15. Marking and Signs for Access Routes:
16. Hazard Marking and Lighting:
17. Protection of Runway and Taxiway Safety Areas, Object Free Areas, and Obstacle Free Zones:
18. Other Limitations on Construction:

ATTACHMENTS

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ATTACHMENT 1

CONSTRUCTION SAFETY AND PHASING PLAN SHEETS

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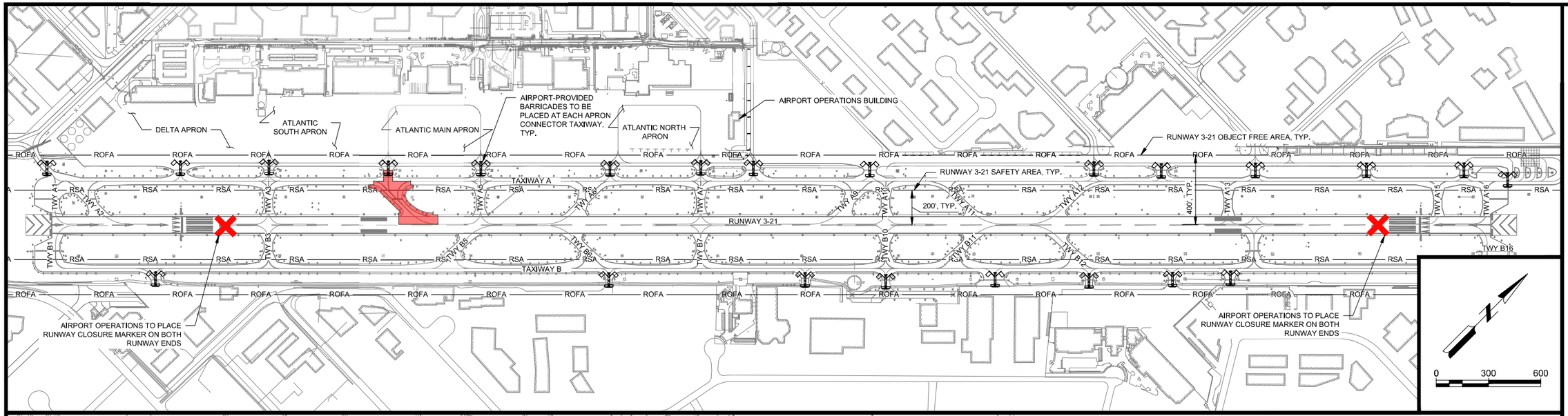

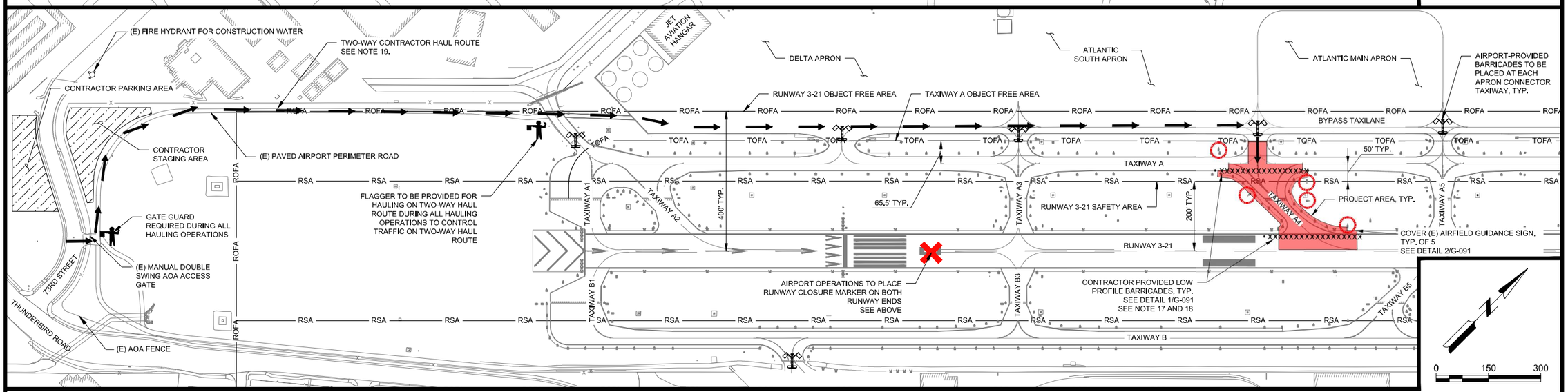

GENERAL PHASING NOTES:

1. RUNWAY CLOSURE MARKERS WILL BE PROVIDED, POSITIONED, MAINTAINED, AND FUELED BY THE AIRPORT.
2. ALL CONSTRUCTION VEHICLES AND EQUIPMENT OPERATING ON AIRPORT PROPERTY AT NIGHT SHALL BE PROVIDED WITH A 360 DEGREE FLASHING AMBER BEACON ATTACHED TO THE VEHICLE SO THAT THE LIGHTS WILL BE READILY VISIBLE.
3. ALL CONSTRUCTION VEHICLES AND EQUIPMENT PARKED WITHIN THE AOA AFTER A SHIFT IS COMPLETED SHALL BE EQUIPPED WITH A FLAG.
4. ALL HAUL TRUCKS SHALL BE EQUIPPED WITH A FLAG AND A 360 DEGREE FLASHING AMBER BEACON AT ALL TIMES WITHIN THE AOA.
5. CONTRACTOR SHALL MAINTAIN VEHICLE ACCESS ON THE PERIMETER SERVICE ROAD AT ALL TIMES DURING CONSTRUCTION.
6. ALL HAUL ROUTES NOT ON ACTIVE PAVEMENT SHALL BE DELINEATED WITH TRAFFIC CONES, UNLESS OTHERWISE APPROVED BY AIRPORT OPERATIONS STAFF.
7. ALL PAVEMENT USED FOR HAULING SHALL BE SWEPT/VACUUMED PRIOR TO OPENING TO AIRCRAFT TRAFFIC AFTER EACH SHIFT.
8. A VACUUM SWEEPER MUST BE MAINTAINED ONSITE FOR THE PROJECT DURATION AND BE CAPABLE OF PICKING UP DEBRIS ON PAVED SURFACES, ELGIN CROSSWIND OR EQUIVALENT. THE VACUUM SWEEPER IS REQUIRED TO HAVE NYLON BRISTLES. A VACUUM SWEEPER WITH METAL BRISTLES IS NOT ALLOWED.
9. PROJECT WORK IS WITHIN 200' OF THE RUNWAY CENTERLINE AND REQUIRES NIGHTLY AIRPORT CLOSURE TO COMPLETE THE PROJECT. THE RUNWAY CLOSURE SHALL BE FROM FROM 2100-0600 HOURS.
10. EXACT LOCATIONS OF THE PLACEMENT OF BARRICADES SHALL BE AS APPROVED BY THE AIRPORT.
11. PARKING FOR CONSTRUCTION PERSONNEL SHALL BE IN THE OPEN LOT ACROSS FROM THE 73RD STREET AOA ACCESS GATE, AS NOTED ABOVE.
12. PRIOR TO REOPENING THE RUNWAY AFTER NIGHT CLOSURES ALL OPEN TRENCHES AND EXCAVATIONS SHALL BE FILLED/COVERED ACCORDING TO THE CSPP, AND APPROVED BY THE AIRPORT.
13. ALL AIRFIELD GUIDANCE SIGNS SHALL BE COVERED AS NOTED ABOVE AND APPROVED BY THE AIRPORT.
14. AT THE END OF EACH WORK SHIFT, THE GROUND SURFACE WITHIN THE RSA AND TOFA SHALL NOT CONTAIN EDGES EXCEEDING 3 INCHES IN DEPTH OR SLOPES GREATER THAN 5%. CONTRACTOR SHALL BUILD TEMPORARY SLOPES AS NECESSARY TO MEET GRADING STANDARDS INSIDE THE PROJECT AREA. ALL COSTS TO BE INCLUDED IN THE AIRFIELD SAFETY AND TRAFFIC CONTROL BID ITEM.
15. CONTRACTOR SHALL PROTECT EXISTING ASPHALT PAVEMENT AND CASPR ALONG APPROVED HAUL ROUTES.
16. NO STOCKPILES GREATER THAN 15 FEET ARE ALLOWED IN THE STAGING AREA.
17. LOW PROFILE BARRICADES PLACED ALONG RUNWAY 3-21 SHALL NOT BE PLACED ON RUNWAY PAVEMENT. BARRICADES SHALL BE PLACED AT THE END OF EACH WORK SHIFT OUTSIDE THE RUNWAY EDGE STRIPE, CONTINUOUSLY LINKED, AND WATER-FILLED.
18. LOW PROFILE BARRICADES PLACED ALONG TAXIWAY A SHALL BE PLACED 20 FEET OFF THE TAXIWAY A CENTERLINE, CONTINUOUSLY LINKED, AND WATER-FILLED.
19. CONTRACTOR IS REQUIRED TO COMPACT AND ROLL OUT ALL TIRE MARKS IN THE CASPR ALONG TAXIWAY A4, PERIMETER ROAD,AND STAGING AREA AT THE COMPLETION OF THE PROJECT.

PROJECT ELEMENTS

DESCRIPTION:
- PUSH BACK AND SALVAGE CASPR (SP-102)
- REMOVE AND SALVAGE TAXIWAY EDGE LIGHT FIXTURES (SP-100)
- COLD MILL EXISTING ASPHALT PAVEMENT, FULL DEPTH (P-101)
- PREPARE UNDERLYING BASE COURSE (SP-209)
- PAVE ASPHALT SURFACE COURSE (P-401)
- PLACE NEW CASPR AND RESTORE SALVAGED CASPR (SP-102)
- INSTALL SALVAGED TAXIWAY EDGE LIGHT FIXTURES (SP-100)
- APPLY NEW PAVEMENT MARKINGS (P-620)

TOTAL DURATION:
- 9 WORKING DAYS

RUNWAY CLOSURES:
- 9 NIGHT CLOSURES OF RUNWAY 3-21 (2100-0600)
- PRIOR TO THE END OF EACH NIGHT CLOSURE SHIFT, BEFORE THE AIRPORT INSPECTION AND OPENING OF THE RUNWAY, THE CONTRACTOR SHALL BUILD TEMPORARY SLOPES AS NECESSARY TO MAINTAIN A GROUND SURFACE WITHIN THE RSA WHICH DOES NOT CONTAIN EDGES EXCEEDING 3 INCHES OR SLOPES GREATER THAN 5%.

OPERATIONAL IMPACT:
- TAXIWAY A4 WILL BE CLOSED FOR THE TOTAL DURATION.
- AIRPORT WILL BE CLOSED DURING NIGHT WORK SHIFTS.

PHASING REQUIREMENTS:
- CONTRACTOR SHALL BLACK OUT THE EXISITING TAXIWAY A4 CENTERLINE MARKING ON RUNWAY 3-21 AND TAXIWAY A.
- TAXIWAY EDGE LIGHTS ON TAXIWAY A4 SHALL BE REMOVED AND SALVAGED DURING CONSTRUCTION. THE LIGHT BASE SHALL BE COVERED TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING LIGHT BASE.
- CONTRACTOR SHALL OBSCURE AIRFIELD GUIDANCE SIGNS AS SHOWN ABOVE

LEGEND:

- PROJECT AREA
- CONTRACTOR STAGING AND PARKING AREA
- CONTRACTOR HAUL ROUTE
- XXXXXXX CONTRACTOR PROVIDED LOW PROFILE BARRICADES SEE DETAIL 1/G-091
- AIRPORT-PROVIDED LIGHTED RUNWAY CLOSURE MARKER
- AIRPORT-PROVIDED BARRICADE DURING RUNWAY CLOSURES
- COVER (E) AIRFIELD GUIDANCE SIGN SEE DETAIL 2/G-091

Mead & Hunt

Mead and Hunt, Inc.
8800 E Raintree Dr, Ste 285
Scottsdale, AZ 85260
phone: 480-718-1896
meadhunt.com

SCOTTSDALE AIRPORT
TAXIWAY A4 REHABILITATION

15000 N AIRPORT DRIVE
SCOTTSDALE, ARIZONA, 85260

ISSUED
90% SUBMITTAL

AIP NO.:	3-04-0032-046-2023
M&H NO.:	2886300-222849.01
DATE:	MARCH 2023
DESIGNED BY:	BJM
DRAWN BY:	BJM
CHECKED BY:	DPS

DO NOT SCALE DRAWINGS

SHEET CONTENTS
CONSTRUCTION SAFETY AND PHASING PLAN

SHEET NO. 6 of 13

G-081

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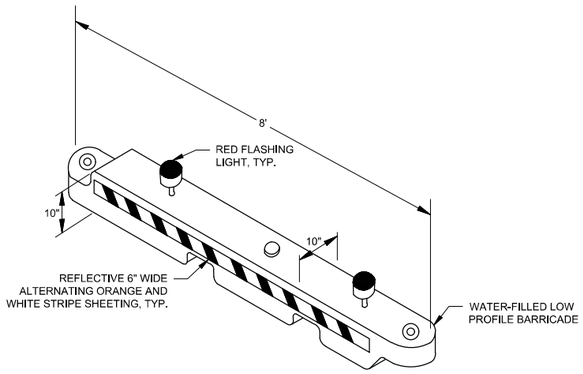
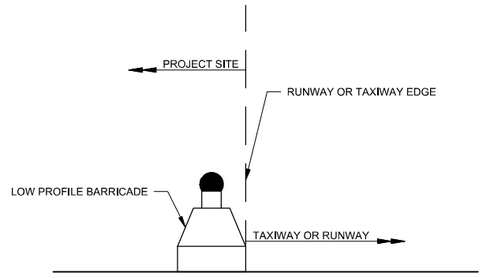
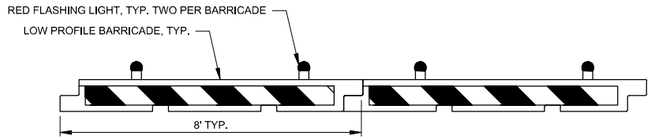


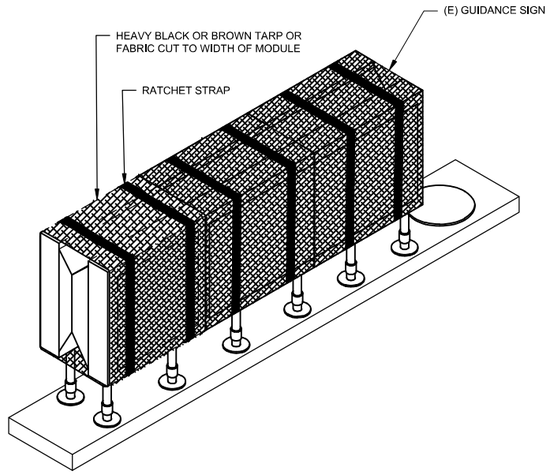




INTERLOCKED BARRICADES

NOTES:
1. CONTRACTOR SHALL DETERMINE THE NUMBER OF INTERLOCKED LOW PROFILE BARRICADES AND LIGHTS REQUIRED TO COMPLETE THE PROJECT BASED ON THE PHASING REQUIREMENTS SHOWN ON THESE PLANS. CONTRACTOR SHALL CONFIRM BARRICADE LOCATIONS AT THE PRE-CONSTRUCTION MEETING.
2. INSTALL LOW PROFILE BARRICADES WHERE INDICATED ON PLANS OR AS INSTRUCTED BY THE RPR OR AIRPORT OPERATIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING, MOVING, LIGHTING, AND MAINTAINING THE BARRICADES DURING THE ENTIRE PROJECT.
4. BARRICADES SHALL BE FILLED WITH WATER AT ALL TIMES DURING CONSTRUCTION AND WEIGHTED AGAINST JET BLAST.
5. INSTALL SOLAR/BATTERY POWERED LIGHTS EQUALLY SPACED PER EACH BARRICADE AS SHOWN ON THESE PLANS. LIGHTS SHALL MAINTAIN SUCH INTENSITY SO AS TO BE READILY IDENTIFIED FROM DISTANCES OF 200' OR GREATER DURING PERIODS OF DARKNESS.
6. BARRICADES SHALL BE PLACED ACROSS ENTIRE TAXIWAY PAVEMENT TO PREVENT AIRCRAFT AND VEHICLE ENTRANCE TO PROJECT AREA.
7. BARRICADES SHALL BE MAINTAINED IN GOOD CONDITION AND FREE OF LEAKS AT ALL TIMES. CONTRACTOR TO REPLACE LEAKING OR DAMAGED BARRICADES AT THEIR EXPENSE.

1 LOW PROFILE BARRICADE
NO SCALE



NOTES:
1. CONTRACTOR SHALL NOT USE TAPE TO SECURE COVER TO SIGN.
2. MINIMUM TWO (2) STRAPS TO BE USED TO COVER EACH SIGN MODULE.
3. STRAPS AND COVER TO BE APPROVED BY AIRPORT OPERATIONS.
4. CONTRACTOR SHALL MAINTAIN ITEMS USED TO COVER/OBSCURE AIRFIELD SIGN THROUGHOUT DURATION OF PHASE.
5. MATERIAL USED TO COVER SIGN SHALL OBSCURE LIGHT FROM SIGN AT NIGHT.
6. CONTRACTOR SHALL CONFIRM THE LOCATION AND SIZES OF AIRFIELD GUIDANCE SIGNS TO BE COVERED PRIOR TO START OF CONSTRUCTION.

2 AIRFIELD GUIDANCE SIGN COVER
NO SCALE

Mead & Hunt
Mead and Hunt, Inc.
8800 E Raintree Dr, Ste 285
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phone: 480-718-1896
meadhunt.com

SCOTTSDALE AIRPORT
TAXIWAY A4 REHABILITATION
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AIP NO.:
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DATE: MARCH 2023
DESIGNED BY: BJM
DRAWN BY: BJM
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SHEET CONTENTS
CONSTRUCTION SAFETY AND PHASING PLAN - DETAIL

SHEET NO. 7 of 13

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ATTACHMENT 2

DAILY SAFETY INSPECTION CHECKLIST

(for Contractor's use)

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CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project.

Potentially Hazardous Conditions

Item	Action Required	or	None
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.			☐
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.			☐
Runway resurfacing projects resulting in lips exceeding 3 in (7.6 cm) from pavement edges and ends.			☐
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.			☐
Equipment or material near NAV AIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.			☐
Tall and especially relatively low visibility units (that is, equipment with slim profiles) – cranes, drills, and similar objects – located in critical areas, such as OFZ and approach zones.			☐
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.			☐
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.			☐

Item	Action Required	or	None
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.			☐
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.			☐
Wildlife attractants – such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water – on or near airports.			☐
Obliterated or faded temporary markings on active operational areas.			☐
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.			☐
Failure to issue, update, or cancel NOT AMs about airport or runway closures or other construction related airport conditions.			☐
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.			☐
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport building.			☐
Lack of radio communications with construction vehicles in airport movement areas.			☐
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.			☐
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.			☐
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.			☐

Item	Action Required	or	None
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).			☐
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.			☐
Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.			☐
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.			☐
Site burning, which can cause possible obscuration.			☐
Construction work taking place outside designated work areas and out of phase.			☐

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ATTACHMENT 3

SDL (AIRPORT) SPECIAL INSPECTION SHEET
POST CONSTRUCTION

(for Airport's use)

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Log Entered | Entered By

Event Date/Time | Days Open

SDL SPECIAL INSPECTION - POST CONSTRUCTION

SPECIAL INSPECTION - POST CONSTRUCTION

(complete prior to reopening a portion of the air operations area)

Date of Inspection:

Time of Inspection:

Enter Satisfactory, Unsatisfactory, Corrected or Not Applicable

Pavement

F.O.D.

Other Deficiencies

Other

Markings

Retroreflectivity

Daytime Visibilty

Safety Areas

Ruts/Humps

Pavement Edges

Sign/Light Base Edges

Stockpiles

Barricades (removed)

Location of Deficiency/Actions Taken:

Certified Payroll Requirements – State of Arizona

Project Name: Taxiway A4 Rehabilitation
Project Number: 2886300-222849.01 — **Location:** Maricopa County — **FAA AIP No.** 3-04-0032-046-2023

Fringe Benefits Statement	All Fringe Benefits Statements must include every work classification name and number, group number, and step number for journeyman and apprentices to whom payroll is being provided on the job. They must be signed and dated by the payroll administrator and submitted before work on site or along with the first payroll. If an employee / employer is exempt from fringe benefits, it must be explained why fringe is not being provided. The payroll administration shall verify that the correct project name / number convention is included along with the current fringe rate effective date. This date may require annual update.
Certified Payroll Wage Hour Report **Use fillable Form DoL WHD WH-347**	All certified payroll must clearly indicate whether an individual is a journeyman or apprentice and include all vital information for verification, i.e., work classification number and name; group number or step number; hours worked on project; and base wage rate for straight time, overtime, and double-time. Per contractual obligation, all individuals must be paid the Davis-Bacon Act prevailing wage and benefit rates / General Decision wage rates or higher. It must be indicated if an employee did not work on site as a laborer or mechanic and solely provided supervision over other workers. These individuals are exempt from certified payroll. The correct naming convention for the project and project number(s) must be included and verified along with the appropriate 'work ending' week date. All consecutive weeks of either payroll or non-performance weeks must be accounted for as individual weekly reports. The 'Final' certified payroll report must be identified as such by the contractor or subcontractor payroll administrator.
Statement of Compliance	Each certified payroll work week report as well as each non-performance week report must be accompanied by a signed and dated Statement of Compliance (page 2 of the DoL WHD WH-347 form). All appropriate boxes must be checked in Section (4) and all notes regarding any exceptions are to be recorded on this form. Please verify that the correct naming convention for the project is included along with documentation of the appropriate 'work ending' week date.
Non-Performance Week(s)	Each consecutive week in which no work was performed on site must be documented with a signed and dated Statement of Non-Performance and Statement of Compliance. Extended periods of non-performance weeks may be submitted on one certified payroll form within a one-month period; however, individual weekly reports are recommended.
WDAs	Current Wage Deduction Authorization (WDA) forms signed and dated by the work must be submitted with certified payroll reports where the medical, dental, vision, 401K, child support, loans, and other payroll deductions are applicable. These authorized deductions exclude required tax and Social Security deductions. WDAs are required for verification in the certified payroll review process and are retained post-project.
Questions	The prime contractor is the first point of contact for all questions related to certified payroll reporting. A second point of contact is Zorra Ram Kaur, Mead & Hunt, Inc., via email at zorra.ramkaur@meadhunt.com or phone at 480-718-1896.

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DIVISION 3

FAA STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS

(Advisory Circular 150/5370-10H)

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DIVISION 3 – Part 1

FAA General Contract Provisions

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Part 1 – General Contract Provisions

Section 10 Definition of Terms

When 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 defined as follows:

Paragraph Number	Term	Definition
10-01	**AASHTO**	The American Association of State Highway and Transportation Officials.
10-02	**Access Road**	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	**Advertisement**	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	**Airport**	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; airport buildings and facilities located in any of these areas, and a heliport.
10-05	**Airport Improvement Program (AIP)**	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	**Air Operations Area (AOA)**	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
10-07	**Apron**	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	**ASTM International (ASTM)**	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	**Award**	The Owner's notice to the successful bidder of the acceptance of the submitted bid.

Paragraph Number	Term	Definition
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	**Certificate of Analysis (COA)**	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	**Certificate of Compliance (COC)**	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	**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 work within the scope of the contract and necessary to complete the project.
10-16	**Contract**	A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.
10-17	**Contract Item (Pay Item)**	A specific unit of work for which a price is provided in the contract.
10-18	**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.

Paragraph Number	Term	Definition
10-19	**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.
10-20	**Contractors Quality Control (QC) Facilities**	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	**Contractor Quality Control Program (CQCP)**	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	**Control Strip**	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.
10-23	**Construction Safety and Phasing Plan (CSPP)**	The overall plan for safety and phasing of a construction project developed by the airport operator or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
10-24	**Drainage System**	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
10-25	**Engineer**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.
10-26	**Equipment**	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.
10-27	**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 Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.

Paragraph Number	Term	Definition
10-28	**FAA**	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.
10-29	**Federal Specifications**	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.
10-30	**Force Account**	**a.** Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. **b.** Owner Force Account - Work performed for the project by the Owner's employees.
10-31	**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 and/or Resident Project Representative (RPR) 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 and/or RPR, 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.
10-32	**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.
10-33	**Major and Minor Contract Items**	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.
10-34	**Materials**	Any substance specified for use in the construction of the contract work.

Paragraph Number	Term	Definition
10-35	**Modification of Standards (MOS)**	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	**Notice to Proceed (NTP)**	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.
10-37	**Owner**	The term “Owner” shall mean the party of the first part or the contracting agency signatory to the contract. Where the term “Owner” is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is City of Scottsdale.
10-38	**Passenger Facility Charge (PFC)**	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	**Pavement Structure**	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.
10-40	**Payment bond**	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	**Performance bond**	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.
10-42	**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. Plans may also be referred to as 'contract drawings.’
10-43	**Project**	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	**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.

Paragraph Number	Term	Definition
10-45	**Proposal guaranty**	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	**Quality Assurance (QA)**	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	**Quality Control (QC)**	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	**Quality Assurance (QA) Inspector**	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	**Quality Assurance (QA) Laboratory**	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	**Resident Project Representative (RPR)**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor and acting directly or through an authorized representative.
10-51	**Runway**	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	**Runway Safety Area (RSA)**	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	**Safety Plan Compliance Document (SPCD)**	Details how the Contractor will comply with the CSPP.
10-54	**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.

Paragraph Number	Term	Definition
10-55	**Sponsor**	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	**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; navigational aids; buildings; vaults; and other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	**Subgrade**	The soil that forms the pavement foundation.
10-58	**Superintendent**	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.
10-59	**Supplemental Agreement**	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%: (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	**Surety**	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	**Taxilane**	A taxiway designed for low-speed movement of aircraft between aircraft parking areas and terminal areas.
10-62	**Taxiway**	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.
10-63	**Taxiway/Taxilane Safety Area (TSA)**	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.

Paragraph Number	Term	Definition
10-64	**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.
10-65	**Working day**	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	**Owner Defined terms**	None

END OF SECTION 10

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). The "Advertisement for Bids" included in the front of this Specifications 'Book' has been published at such places and at such times as required by local law or ordinances and is made a part of the "Contract Documents."

The Bid Advertisement provides the following information for Bidders:

- time and place for submitting sealed proposals;
- description of the proposed work;
- instructions about obtaining proposal forms, plans, and specifications;
- Contractor's requirements (license, registration, etc.);
- required Federal Provisions solicitation language;
- the proposal guaranty required; and
- the Owner's right to reject any and all bids.

See City of Scottsdale Purchasing Department website at https:eservices.scottsdaleaz.gov/solicitations to view current solicitations, construction plan holders/downloaders, bid proposal results (tabulations), intent to award, solicitation status reports, pending/in evaluation, and awarded information.

20-02 Qualification of bidders. Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

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

20-03 Contents of proposal forms. The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

Mobilization is limited to 10 percent of the total project cost.

A prebid conference is required on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements.

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

c. Documented record of Contractor default under previous contracts with the Owner.

d. Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 Interpretation of estimated proposal quantities. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and 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 to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection by bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own 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 their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, 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 which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their 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 where 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 their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral shall be made payable to the Owner.

20-11 Delivery of proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-12 Withdrawal or revision of proposals. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms,* of this section.

20-15 Discrepancies and Omissions. A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than 7 days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications, or interpretations of the bidding documents in any manner other than written addendum.

END OF SECTION 20

Section 30 Award and Execution of Contract

30-01 Consideration of proposals. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid 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 Section 20, paragraph 20-09, *Irregular Proposals*.

b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

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

30-02 Award of contract. The award of a contract, if it is to be awarded, shall be made within **120 calendar** days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

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 paragraph 30-07 *Approval of Contract*.

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals.* Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds.*

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 Execution of contract. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds,* of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

30-07 Approval of contract. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 Failure to execute contract. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract,* of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

END OF SECTION 30

Section 40 Scope of Work

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. 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 Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. 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 Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for 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 RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

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. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. 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 Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

b. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of 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 the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets, or highways.

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 Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

a. Use such material in another contract item, providing such use is approved by the RPR 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 RPR; or

c. Use such material for the Contractor's own temporary construction on site; or,

d. Use such material as intended by the terms of the contract.

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

Should the RPR 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 their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR 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 their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 Final cleanup. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

END OF SECTION 40

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Section 50 Control of Work

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to 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 RPR 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 their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR 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 RPR's written orders.

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 RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR 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. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions.

ORDER OF PRECEDENCE

1. Permits issued by jurisdictional regulatory agencies
2. Change Orders
3. Addenda
4. Contract/Agreement
5. Notice to Proceed
6. Project Specific Requirements for Airport Construction, Division 2
    - Part 1, Special Provisions for Airport Construction
    - Part 2, Construction Safety and Phasing Plan
7. Technical Specifications, Division 3 Parts 2-4 as applicable
8. FAA General Contract Provisions (AC 150-5370-10H), Division 3, Part 1
9. Federal Contract Provisions for FAA AIP Projects, Division 1
10. Drawings/Plans
11. Cited FAA Advisory Circulars
12. City of Scottsdale General Terms and Conditions
13. City of Scottsdale Construction Special Terms and Conditions
14. Any documents prepared by and on behalf of a third part that were not prepared specifically for this project; including the Greenbook Standard Specifications

50-05 Cooperation of Contractor. The Contractor shall be supplied with five hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their 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 their 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 RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work 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 their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

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

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades, and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): AutoCAD Civil3D Drawings, PNEZD text files, and stamped surveyed drawings.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees, or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their 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 RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR 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 RPR 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.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

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 RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

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 Section 70, paragraph 70-14, *Contractor's Responsibility for Work*.

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

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against 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, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

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

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

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

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR 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 RPR'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 recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR 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 RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. 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 RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR 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 RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR 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.

END OF SECTION 50

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Section 60 Control of Materials

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. 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 meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR 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 RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR 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 RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

The Contractor shall employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with Item C-100 Contractor Quality Control Program (CQCP).

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC 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. The COA is the manufacturer's COC and includes all applicable test results.

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 RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," 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.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

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

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

Should the RPR conduct plant inspections, the following conditions shall exist:

a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The RPR 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 RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location 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 RPR 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/ Resident Project Representative (RPR) field office. An Engineer/RPR field office is not required.

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. 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 and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. 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 RPR 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 their 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 RPR.

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 RPR has approved its use in the work.

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

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

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

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Section 70 Legal Regulations and Responsibility to Public

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans and is indicated as follows: Not Applicable

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety, and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their 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 their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic,* and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is on sheet(s) G-081 to G-091 of the project plans.

70-09 Use of explosives. The use of explosives is not permitted on 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/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

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

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

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

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

70-13 Opening sections of the work to traffic. If it is 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 must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. See Division 2 Project Specific Requirements for Airport Construction, Part 2, in the Project Specifications for specific CSPP requirements.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, 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 their expense.

The Contractor shall make their 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.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, 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 their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct, or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

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

- City of Scottsdale Facilities Department – Underground Fiber Optic Cable
- City of Scottsdale Airport – Underground Electrical Cable
- City of Scottsdale Water Department – Underground Water, Sewer and Stormwater Pipes
- Arizona Public Service (APS) – Primary and Secondary Underground and Overhead Electric
- Southwest Gas – Natural Gas
- CenturyLink – Internet, Phone, and TV
- Cox Communications – Internet, Phone, and TV

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

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed by Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR 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 RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their 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 their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

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

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, 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 their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work,* and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements. See City of Scottsdale Construction Special Terms and Conditions for project specific insurance requirements.

END OF SECTION 70

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Section 80 Execution and Progress

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

Should the Contractor elect to assign their 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.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within 10 days of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. 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 RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall

show all work items identified in the project proposal for each work area and shall include the project start date and end date.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a weekly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and 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 satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) and as listed below, 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. See Division 2 Project Specific Requirements for Airport Construction, Part 2, in the Project Specifications for specific CSPP requirements.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

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

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

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR 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 not cause injury to previously completed work, adjacent property, or existing airport facilities due to 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 otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR 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 RPR 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 RPR 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 paragraph.

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 the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time 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 written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR 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 or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The number of working days shall be stated in the proposal and contract and shall be known as the Contract Time.

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

80-07.1 Contract time based on working days. Contract time based on working days shall be calculated weekly by the Resident Project Representative (RPR). The RPR will furnish the Contractor a copy of their 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 weekly statement of contract time charged is based on the following considerations:

(1) Time will be charged for days on which the Contractor could proceed with scheduled work under construction at the time for at least six (6) hours with the normal work force employed on such items. When normal work force is a double-shift, use 12 hours; and when the normal work force is on a triple-shift, use 18 hours. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the scheduled work items 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 RPR will not make charges against the contract time prior to the effective date of the notice to proceed.

(3) The RPR will begin charges against the contract time on the first working day after the effective date of the notice to proceed.

(4) The RPR will not make charges against the contract time after the date of final acceptance as defined in Section 50, paragraph 50-14, Final Acceptance.

(5) The Contractor will be allowed one (1) week in which to file a written protest setting forth their own objections to the RPR'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 Section 20, paragraph 20-05, Interpretation of Estimated Proposal Quantities. 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.

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 paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional

engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract. See Division 2, Project Specific Requirements for Airport Construction, Part 1, Item SP-100 Special Provisions for Airport Construction for schedule of liquidated damages. The maximum construction time allowed for this Project shall be in accordance with Division 2, Project Specific Requirements for Airport Construction, Part 1, Item SP-100 Special Provisions for Airport Construction. Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the execution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner 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 RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

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

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

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

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

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

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their 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 RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

Section 90 Measurement and Payment

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

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

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

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.

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.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Measurement and Payment Terms

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. 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 RPR directs, and each truck shall bear a plainly legible identification mark.
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level

Term	Description
	capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60°F or will be corrected to the volume at 60°F using ASTM D1250 for asphalts. 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 asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton or hundredweight.
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. 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. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR 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 0.1% of the nominal rated capacity of the scale, but not less than one pound. The use of spring balances will not be permitted. In the event inspection reveals the scales have been “overweighing” (indicating more than correct weight) they will be immediately adjusted. All materials

Term	Description
	received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%. In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR 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. 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.
Rental Equipment	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 in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 *Payment for Extra Work*.
Pay Quantities	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 RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

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 Section 40, paragraph 40-02, *Alteration of Work and Quantities,* 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 their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items,* the RPR 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 RPR 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 RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR'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 RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. 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 for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-14. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR 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 paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.

b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the RPR 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 stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material 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 their 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 paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR 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 RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR'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 Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, 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 Section 50, paragraph 50-16, *Claims for Adjustments and Disputes,* or under the provisions of this paragraph, 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, except as noted. 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. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

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 the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Contractor Final Project Documentation. 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 RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturer 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 Section 40, paragraph 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(s).

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

m. Contractor Quality Control Summary Report. This document shall include all quality control tests results performed for the project compiled by specification section in chronological order. The report shall be submitted in PDF format.

END OF SECTION 90

DIVISION 3 – Part 2

FAA General Construction Items

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Item C-100 Contractor Quality Control Program (CQCP)

100-1 General. Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications, and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall establish a CQCP that will:

a. Provide qualified personnel to develop and implement the CQCP.

b. Provide for the production of acceptable quality materials.

c. Provide sufficient information to assure that the specification requirements can be met.

d. Document the CQCP process.

The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the Resident Project Representative (RPR). No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the RPR or Contractor as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Resident Project Representative (RPR), Contractor, subcontractors, testing laboratories, and Owner's representative must be held prior to start of construction. The QC/QA workshop will be facilitated by the Contractor. The Contractor shall coordinate with the Airport and the RPR on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

a. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.

b. Discussion of the QA program.

c. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.

d. Establish regular meetings to discuss control of materials, methods, and testing.

e. Establishment of the overall QC culture.

100-2 Description of program.

a. General description. The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

b. Contractor Quality Control Program (CQCP). The Contractor shall describe the CQCP in a written document that shall be reviewed and approved by the RPR prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the RPR for review and approval at least 10 calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the RPR prior to the Notice to Proceed (NTP).

The CQCP shall be organized to address, as a minimum, the following:

1. QC organization and resumes of key staff
2. Project progress schedule
3. Submittal schedule
4. Inspection requirements
5. QC testing plan
6. Documentation of QC activities and distribution of QC reports
7. Requirements for corrective action when QC and/or QA acceptance criteria are not met
8. Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

100-3 CQCP organization. The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of paragraphs 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall, as a minimum, consist of the following personnel:

a. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) must be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA must have a minimum of five (5) years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

(1) Professional Engineer with one (1) year of airport paving experience.

(2) Engineer-in-training with two (2) years of airport paving experience.

(3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.

(4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA must have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract plans and technical specifications. The CQCPA authority must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

b. QC technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher, and shall have a minimum of two (2) years of experience in their area of expertise.

The QC technicians must report directly to the CQCPA and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by paragraph 100-6.

(2) Performance of all QC tests as required by the technical specifications and paragraph100-8.

(3) Performance of tests for the RPR when required by the technical specifications.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing levels. The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

100-4 Project progress schedule. Critical QC activities must be shown on the project schedule as required by Section 80, paragraph 80-03, *Execution and Progress*.

100-5 Submittals schedule. The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

a. Specification item number

b. Item description

c. Description of submittal

d. Specification paragraph requiring submittal

e. Scheduled date of submittal

100-6 Inspection requirements. QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by paragraph 100-9.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

a. During plant operation for material production, QC test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment used in proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and used.

b. During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and used.

100-7 Contractor QC testing facility.

a. For projects that include Item P-401, Item P-403, and Item P-404, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

(1) Equipment Calibration and Checks;
(2) Equipment Calibration, Standardization, and Check Records;
(3) Test Methods and Procedures

b. For projects that include P-501, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM C1077, Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation:

(1) Test Methods and Procedures
(2) Facilities, Equipment, and Supplemental Procedures

100-8 QC testing plan. As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

a. Specification item number (e.g., P-401)

b. Item description (e.g., Hot Mix Asphalt Pavements)

c. Test type (e.g., gradation, grade, asphalt content)

d. Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (e.g., plant technician)

g. Control requirements (e.g., target, permissible deviations)

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The RPR shall be provided the opportunity to witness QC sampling and testing.

All QC test results shall be documented by the Contractor as required by paragraph 100-9.

100-9 Documentation. The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the RPR daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily inspection reports. Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous QC 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) Summary of any necessary corrective actions

(7) Safety inspection.

The daily inspection reports shall identify all QC inspections and QC tests 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 QC technician and the CQCPA. The RPR shall be provided at least one copy of each daily inspection report on the workday following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results must be archived.

b. Daily test reports. The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

(1) Technical specification item number and description

(2) Test designation

(3) Location
(4) Date of test
(5) Control requirements
(6) Test results
(7) Causes for rejection
(8) Recommended remedial actions
(9) Retests

Test results from each day's work period shall be submitted to the RPR prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically, the results must be archived.

100-10 Corrective action requirements. The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 Inspection and/or observations by the RPR. All items of material and equipment are subject to inspection and/or observation by the RPR at the point of production, manufacture, or shipment to determine if the Contractor, producer, manufacturer, or shipper maintains an adequate QC system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the RPR at the site for the same purpose.

Inspection and/or observations by the RPR does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

100-12 Noncompliance.

a. The Resident Project Representative (RPR) will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must take corrective action.

b. When QC activities do not comply with either the CQCP or the contract provisions or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the RPR will recommend the Owner take the following actions:

(1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors and/or

(2) Order the Contractor to stop operations until appropriate corrective actions are taken.

METHOD OF MEASUREMENT

100-13 Basis of measurement and payment. Contractor Quality Control Program (CQCP) is for the personnel, tests, facilities and documentation required to implement the CQCP. The CQCP will be paid as a lump sum with the following schedule of partial payments:

a. With first pay request, 50% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.

e. After final inspection and acceptance of project, the final 50%.

BASIS OF PAYMENT

100-14 Payment will be made under:

Item C-100-14.1 Contractor Quality Control Program (CQCP)

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

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Item C-102 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control

DESCRIPTION

102-1. This item shall consist of temporary control measures as shown on the plans or as ordered by the Resident Project Representative (RPR) during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of inlet protection or crushed aggregate slope protection rock (CASPR) and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2G, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed, and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

MATERIALS

102-2.1 Grass. Not used.

102-2.2 Mulches. Not used.

102-2.3 Fertilizer. Not used.

102-2.4 Slope drains. Not used.

102-2.5 Silt fence. Not used.

102-2.6 Inlet Protection. Not used.

102-2.7 Other. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project. All specified materials shall meet or exceed the requirements of Maricopa County Best Management Practices (BMPs). The crushed aggregate slope protection rock (CASPR) within the airport's infield will serve as the erosion and siltation control during the project.

CONSTRUCTION REQUIREMENTS

102-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The RPR shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

The Contractor shall be responsible for implementing and following the requirements of the State of Arizona, Arizona Pollutant Discharge Elimination System (AZPDES), Construction General Permit (CGP) Permit Number AZG2020-001 which authorizes stormwater discharges from large and small construction activities to waters of the U.S. either directly or by conveyance, such as Municipal Separate Storm Sewer System (MS4). A copy of the Arizona Department of Environmental Quality (ADEQ)

AZPDES General Permit for stormwater discharges associated with construction activity can be found at http://www.azdeq.gov/node/524. Useful information related to local stormwater controls and erosion control measures are presented in the current edition of the "Drainage Design manual for Maricopa County, Arizona – Erosion Control," published by the Flood Control District of Maricopa County.

102-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the RPR.

102-3.3 Construction details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The RPR shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the RPR.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the RPR. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the RPR, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The RPR may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

102-3.4 Installation, maintenance, and removal of silt fence. Not used.

102-3.5 Submitting a Notice of Intent. Prior to any construction activity, the Contractor shall prepare, submit, and obtain approval of a Stormwater Pollution Prevention Plan (SWPPP) in accordance with ADEQ permit requirements found at http://www.azdeq.gov/node/2328. A SWPPP is required prior to

submitting a Notice of Intent (NOI) for the AZPDES CGP. Contractors seeking authorization for stormwater discharges under the general permit shall submit a complete and accurate NOI form electronically via the myDEQ website at http://www.azdeq.gov/node/1143. The Contractor shall submit an electronic copy of the approved SWPPP and NOI to the RPR. In accordance with A.A.C R18-14-109, the operator shall pay the initial AZPDES water protection services fee for coverage under this permit at the time the NOI is submitted. The fee is based on the amount of acreage identified in the NOI, in accordance with A.A.C. R18-14-109, Table 6.

102-3.6 Terminating Coverage. To terminate permit coverage, the Contractor shall submit to ADEQ a complete and accurate notice of termination (NOT) electronically via the myDEQ website at http://www.azdeq.gov/node/1143. The Contractor shall submit an electronic copy of the approved NOT to the RPR.

The Contractor is responsible for meeting the terms and conditions of this permit until the construction site's authorization is terminated. The Contractor may submit a NOT form to ADEQ after any of the following conditions have been met:

- The Contractor has established final stabilization of all portions of the site for which the Contractor is responsible, in accordance with Part 3.4(2).
- Another Contractor who has a valid authorization number under this general permit or an individual AZPDES permit has assumed control over all areas of the site that have not been finally stabilized.
- The planned construction activity identified on the original NOI was never initiated (i.e., no grading or earthwork was ever started) and plans for construction have been permanently abandoned or indefinitely postponed.
- The Contractor has obtained coverage for the site under another AZPDES permit.
- The Contractor qualifies for one of the alternatives in Part 3.4(3) and submits the required documentation demonstrating compliance with the NOT in myNEQ.

METHOD OF MEASUREMENT

102-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the RPR and shall include preparation and approval of the SWPPP and NOI and installation of temporary erosion control devices. Prepare and Implement Stormwater Pollution Prevention Plan will be paid as a lump sum with the following schedule of partial payments:

a. With the first pay request, 50% with approval of the SWPPP, NOI, and installation of temporary erosion control devices (if used).

b. After final inspection, staging area clean-up and delivery of all project closeout materials, as required by Section 90, paragraph 90-11, Contractor Final Project Documentation, the final 50%.

102-4.2 Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

BASIS OF PAYMENT

102-5.1 Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the RPR and measured as provided in paragraph 102-4.1 will be paid for under:

Item C-102-5.1 Prepare and Implement Stormwater Pollution Prevention Plan – per lump sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33 *Hazardous Wildlife Attractants on or Near Airports*

AC 150/5370-2 *Operational Safety on Airports During Construction*

ASTM International (ASTM)

ASTM D6461 *Standard Specification for Silt Fence Materials*

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM C-102

Item C-105 Mobilization

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to 10 percent of the total project cost.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis-Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4 Engineer/RPR field office. An Engineer/RPR field office is not required.

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. With first pay request, 50%.

d. After Final Inspection, staging area clean-up and delivery of all Project Closeout materials as required by Section 90, paragraph 90-11, Contractor Final Project Documentation, the final 50%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105-6.1 Mobilization

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

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Item C-110 Method of Estimating Percentage of Material Within Specification Limits (PWL)

110-1 General. When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (X) and sample standard deviation (S_n) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index, Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

It is the intent of this section to inform the Contractor that, in order to consistently offset the Contractor's risk for material evaluated, production quality (using population average and population standard deviation) must be maintained at the acceptable quality specified or higher. In all cases, it is the responsibility of the Contractor to produce at quality levels that will meet the specified acceptance criteria when sampled and tested at the frequencies specified.

110-2 Method for computing PWL. The computational sequence for computing PWL is as follows:

a. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.

b. Locate the random sampling position within the sublot in accordance with the requirements of the specification.

c. Make a measurement at each location or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.

d. Find the sample average (X) for all sublot test values within the lot by using the following formula:

$$\mathbf{X = (x_1 + x_2 + x_3 + \ldots x_n) / n}$$

Where: X = Sample average of all sublot test values within a lot

$x_1, x_2, \ldots x_n$ = Individual sublot test values

n = Number of sublot test values

e. Find the sample standard deviation (S_n) by use of the following formula:

$$\mathbf{S_n = [(d_1^2 + d_2^2 + d_3^2 + \ldots d_n^2)/(n-1)]^{1/2}}$$

Where: S_n = Sample standard deviation of the number of sublot test values in the set

$d_1, d_2, \ldots d_n$ = Deviations of the individual sublot test values $x_1, x_2, \ldots$ from the average value X

that is: $d_1 = (x_1 - X)$, $d_2 = (x_2 - X) \ldots d_n = (x_n - X)$

n = Number of sublot test values

f. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

$$\mathbf{Q_L = (X - L) / S_n}$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L, using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

g. For double-sided specification limits (i.e., L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$\mathbf{Q_L = (X - L) / S_n}$$
and
$$\mathbf{Q_U = (U - X) / S_n}$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with Q_L and Q_U, using the column appropriate to the total number (n) of measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U. Determine the PWL by use of the following formula:

$$\mathbf{PWL = (P_U + P_L) - 100}$$

Where: P_L = percent within lower specification limit
P_U = percent within upper specification limit

EXAMPLE OF PWL CALCULATION

Project: Example Project

Test Item: Item P-401, Lot A.

A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A-1 = 96.60
A-2 = 97.55
A-3 = 99.30
A-4 = 98.35
n = 4

2. Calculate average density for the lot.

$X = (x_1 + x_2 + x_3 + \ldots x_n) / n$
$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$
X = 97.95% density

3. Calculate the standard deviation for the lot.

$S_n = [((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)) / (4 - 1)]^{1/2}$

$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$

$S_n = 1.15$

4. Calculate the Lower Quality Index Q_L for the lot. (L=96.3)

$Q_L = (X - L) / S_n$

$Q_L = (97.95 - 96.30) / 1.15$

$Q_L = 1.4348$

5. Determine PWL by entering Table 1 with $Q_L = 1.44$ and n= 4.

PWL = 98

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

A-1 = 5.00

A-2 = 3.74

A-3 = 2.30

A-4 = 3.25

2. Calculate the average air voids for the lot.

$X = (x_1 + x_2 + x_3 \ldots n) / n$

$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$

$X = 3.57\%$

3. Calculate the standard deviation S_n for the lot.

$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$

$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$

$S_n = 1.12$

4. Calculate the Lower Quality Index Q_L for the lot. (L= 2.0)

$Q_L = (X - L) / S_n$

$Q_L = (3.57 - 2.00) / 1.12$

$Q_L = 1.3992$

5. Determine P_L by entering Table 1 with $Q_L = 1.41$ and n = 4.

$P_L = 97$

6. Calculate the Upper Quality Index Q_U for the lot. (U= 5.0)

$Q_U = (U - X) / S_n$

$Q_U = (5.00 - 3.57) / 1.12$

$Q_U = 1.2702$

7. Determine P_U by entering Table 1 with $Q_U = 1.29$ and n = 4.

$P_U = 93$

8. Calculate Air Voids PWL

$PWL = (P_L + P_U) - 100$

$PWL = (97 + 93) - 100 = 90$

EXAMPLE OF OUTLIER CALCULATION (REFERENCE ASTM E178)

Project: Example Project

Test Item: Item P-401, Lot A.

A. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A arranged in descending order.

A-3 = 99.30

A-4 = 98.35

A-2 = 97.55

A-1 = 96.60

2. From ASTM E178, Table 1, for n=4 an upper 5% significance level, the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

a. For measurements greater than the average:

If (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-3, check if (99.30 - 97.95) / 1.15 is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

b. For measurements less than the average:

If (average - measurement)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-1, check if (97.95 - 96.60) / 1.15 is greater than 1.463.

Since 1.435 is less than 1.463, the value is not an outlier.

Note: In this example, a measurement would be considered an outlier if the density were:

Greater than (97.95 + 1.463 × 1.15) = 99.63%

OR

less than (97.95 - 1.463 × 1.15) = 96.27%.

Table 1. Table for Estimating Percent of Lot Within Limits (PWL)

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM E178	Standard Practice for Dealing with Outlying Observations

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DIVISION 3 – Part 3

FAA Technical Specifications

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Item P-101 Preparation/Removal of Existing Pavements

DESCRIPTION

101-1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

EQUIPMENT AND MATERIALS

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.1 Removal of existing pavement.

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

a. Concrete pavement removal. Not Used.

b. Asphalt pavement removal. Asphalt pavement to be removed shall be sawcut to the full depth of the asphalt pavement around the perimeter of the area to be removed. All asphalt pavement shall be removed and disposed off Airport property.

c. Repair or removal of Base, Subbase, and/or Subgrade. All failed material including surface, base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the RPR. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense.

101-3.2 Preparation of cracks prior to overlay/surface treatment. Not Used.

101-3.3 Removal of Foreign Substances/contaminates prior to overlay, seal coat, or remarking. Not Used.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair.

a. Repair of concrete spalls in areas to be overlaid with asphalt. Not Used.

b. Asphalt pavement repair. The Contractor shall repair all failed asphalt pavement as shown on the plans or as directed by the RPR. The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. Materials and methods of construction shall comply with the applicable sections of these specifications. All wastes shall be removed and disposed off Airport property.

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed off

Airport property. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

a. Patching. The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The RPR shall layout the area to be milled with a straightedge in increments of 1-foot widths. The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor's Expense.

b. Profiling, grade correction, or surface correction. The milling machine shall have a minimum width of 7 feet and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to remove the millings or cuttings from the pavement and load them into a truck. All millings shall be removed and disposed of off the Airport property.

c. Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed off the Airport property.

101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment. Existing asphalt pavements to be treated with a surface treatment shall be prepared as follows:

a. Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt pavement similar to that of the existing pavement in accordance with paragraph 101-3.4b.

c. Remove oil or grease that has not penetrated the asphalt pavement by scrubbing with a detergent and washing thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.

d. Clean pavement surface immediately prior to placing the surface treatment so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the RPR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

101-3.8 Preparation of Joints in Rigid Pavement prior to resealing. Not Used.

101-3.8.1 Removal of Existing Joint Sealant. Not Used.

101-3.8.2 Cleaning prior to sealing. Not Used.

101-3.8.3 Joint sealant. Not Used.

101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method used cleans the cracks and does not damage the pavement.

101-3.9.1 Preparation of Crack. Not Used.

101-3.9.2 Removal of Existing Crack Sealant. Not Used.

101-3.9.3 Crack Sealant. Crack sealant material and installation will be in accordance with ASTM D6690. There will be no separate payment for crack sealant. The Contractor shall include all costs associated in other items of work.

101-3.9.4 Removal of Pipe and other Buried Structures. Not Used.

METHOD OF MEASUREMENT

101-4.1 Cold Milling. The unit of measure for Pavement Removal, Cold Milling, Full Depth, shall be per square yard. The location and approximate depth of the cold milling shall be as shown on the plans. If the initial cut does not correct the condition, the Contractor shall re-mill the area and will be paid for the total depth of milling.

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P 101-5.1	Pavement Removal, Cold Milling, Full Depth – per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements.

ASTM International (ASTM)

ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

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Item P-152 Excavation, Subgrade, and Embankment

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature.

152-1.3 Unsuitable excavation. Unsuitable material shall be removed and disposed off Airport property. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction.

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed.

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be removed and disposed off Airport property.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, 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.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 6 inches, to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade.

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 RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

a. Blasting. Blasting shall not be allowed.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate or agree to any adjustments made to the original ground lines.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as

indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed off Airport property.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be disposed on Airport property as directed by the RPR, if required. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas on Airport property, if required.

a. Selective grading. When selective grading is indicated on the plans or directed by the RPR, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping unsuitable excavation. 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 until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Not Used.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable, and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the RPR. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans.

152-2.3 Borrow excavation. Not Used.

152-2.4 Drainage excavation. Not Used.

152-2.5 Preparation of cut areas or areas where existing pavement has been removed. In those areas on which existing pavement has been removed, the underlying base shall be proof rolled and compacted as indicated in P-152-2.9.

152-2.6 Preparation of embankment area. Not Used.

152-2.7 Control Strip. Not Used.

152-2.8 Formation of embankments. There are no embankments formed as part of this Project.

152-2.9 Proof rolling. The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. After removal of existing asphalt pavement and excavation and haul off of necessary underlying base on the taxiway shoulder is completed, the underlying base shall be proof rolled with a 20 ton Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 150 psi in the presence of the RPR. Apply a minimum of 2 coverages, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. No direct payment will be made for this work. The Contractor shall include all costs associated with in other items of work.

152-2.10 Compaction requirements. The subgrade under areas to receive crushed aggregate slope protection rock (CASPR) shall be compacted to a depth of 6 inches and to a density of not less than 95 percent of the maximum dry density as determined by ASTM D1557. The subgrade in unsuitable subgrade repair areas shall be compacted to a depth of 12 inches, or to the depth of full replacement, and to a density of not less than 95 percent of the maximum density as determined by ASTM D1557.

The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the 3/4 inch sieve, follow the methods in ASTM D1557. Two tests for moisture content and compaction will be taken per unsuitable subgrade repair area or two per 2,000 square yards. All quality assurance testing shall be done by the RPR.

The in-place field density shall be determined in accordance with ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

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 RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining, and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining, and removing haul roads or routes.

152-2.13 Surface Tolerances. The surface shall be tested for accuracy of grade. Any portion failing in accuracy of grade shall be scarified to a depth of at least 3 inches, reshaped and re-compacted to grade until the required accuracy are obtained and approved by the RPR. The Contractor shall perform all final grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface under paved areas shall not vary more than +/- ½ inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade under paved areas shall be measured on a 50-foot grid and shall be within +/- 0.10 feet of the specified grade. Under non-paved areas, the proposed grade shall match existing drainage patterns and not pond or hold water when flow tested.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to be placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. Not Used.

METHOD OF MEASUREMENT

152-3.1 No separate measurement for payment shall be made for unclassified excavation or subgrade preparation. Unclassified excavation and subgrade preparation shall be included in other items of work.

BASIS OF PAYMENT

152-4.1 No payment will be made separately or directly for unclassified excavation or subgrade preparation. Unclassified excavation and subgrade preparation shall be included in other items of work.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

ASTM International (ASTM)

ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Advisory Circulars (AC)

AC 150/5370-2	Operational Safety on Airports During Construction Software

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66	Design and Construction of Airport Pavements on Expansive Soils

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Item P-401 Asphalt Mix Pavement

DESCRIPTION

401-1.1 This item shall consist of pavement courses composed of mineral aggregate and asphalt binder mixed in a central mixing plant and placed on a prepared base or stabilized course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross-sections shown on the plans. Each course shall be constructed to the depth, typical section, and elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course.

MATERIALS

401-2.1 Aggregate. Aggregates shall consist of crushed stone, crushed gravel, screenings, natural sand, and mineral filler, as required. The aggregates should have no known history of detrimental pavement staining due to ferrous sulfides, such as pyrite. Coarse aggregate is the material retained on the No. 4 sieve. Fine aggregate is the material passing the No. 4 sieve.

a. Coarse aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from films of matter that would prevent thorough coating and bonding with the asphalt material and free from organic matter and other deleterious substances. Coarse aggregate material requirements are given in the table below.

Coarse Aggregate Material Requirements

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	1.0 % maximum	ASTM C142
Percentage of Fractured Particles	Minimum 75% by weight of particles with at least two fractured faces and 85% with at least one fractured face[1]	ASTM D5821
Flat, Elongated, or Flat and Elongated Particles	8% maximum, by weight, of flat, elongated, or flat and elongated particles at 5:1 [2]	ASTM D4791

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

b. Fine aggregate. Fine aggregate shall consist of clean, sound, tough, durable, angular shaped particles produced by crushing stone, or gravel and shall be free from coatings of clay, silt, or other objectionable matter. Natural (non-manufactured) sand may be used to obtain the gradation of the fine aggregate blend or to improve the workability of the mix. Fine aggregate material requirements are listed in the table below.

Fine Aggregate Material Requirements

Material Test	Requirement	Standard
Liquid limit	25 maximum	ASTM D4318
Plasticity Index	4 maximum	ASTM D4318
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	1.0 % maximum	ASTM C142
Sand equivalent	45 minimum	ASTM D2419
Natural Sand	0% to 15% maximum by weight of total aggregate	ASTM D1073

c. Sampling. ASTM D75 shall be used in sampling coarse and fine aggregate.

401-2.2 Mineral filler. Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of ASTM D242.

Mineral Filler Requirements

Material Test	Requirement	Standard
Plasticity Index	4 maximum	ASTM D4318

401-2.3 Asphalt binder. Asphalt binder shall conform to ASTM D6373 Performance Grade (PG) 76-22.

Asphalt Binder PG Plus Test Requirements

Material Test	Requirement	Standard
Elastic Recovery	75% minimum	ASTM D6084[1]

[1] Follow procedure B on RTFO aged binder.

401-2.4 Anti-stripping agent. Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond specifications. Anti-strip shall be an approved material of the Department of Transportation of the State in which the project is located.

COMPOSITION

401-3.1 Composition of mixture(s). The asphalt mix shall be composed of a mixture of aggregates, filler and anti-strip agent if required, and asphalt binder. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

401-3.2 Job mix formula (JMF) laboratory. The laboratory used to develop the JMF shall possess a current certificate of accreditation, listing D3666 from a national accrediting authority and all test methods required for developing the JMF; and be listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Resident Project Representative (RPR) prior to start of construction.

401-3.3 Job mix formula (JMF). No asphalt mixture shall be placed until an acceptable mix design has been submitted to the RPR for review and accepted in writing. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

When the project requires asphalt mixtures of differing aggregate gradations and/or binders, a separate JMF shall be submitted for each mix. Add anti-stripping agent to meet tensile strength requirements.

The JMF shall be prepared by an accredited laboratory that meets the requirements of paragraph 401-3.2. The asphalt mixture shall be designed using procedures contained in Asphalt Institute MS-2 Mix Design Manual, 7th Edition. Samples shall be prepared and compacted using a Marshall compactor in accordance with ASTM D6926.

Should a change in sources of materials be made, a new JMF must be submitted to the RPR for review and accepted in writing before the new material is used. After the initial production JMF has been approved by the RPR and a new or modified JMF is required for whatever reason, the subsequent cost of the new or modified JMF, including a new control strip when required by the RPR, will be borne by the Contractor.

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

The JMF shall be submitted in writing by the Contractor at least 30 days prior to the start of paving operations. The JMF shall be developed within the same construction season using aggregates proposed for project use.

The JMF shall be dated, and stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items as a minimum:

- Manufacturer's Certificate of Analysis (COA) for the asphalt binder used in the JMF in accordance with paragraph 401-2.3. Certificate of asphalt performance grade is with modifier already added, if used and must indicate compliance with ASTM D6373. For plant modified asphalt binder, certified test report indicating grade certification of modified asphalt binder.
- Manufacturer's Certificate of Analysis (COA) for the anti-stripping agent if used in the JMF in accordance with paragraph 401-2.4.
- Certified material test reports for the course and fine aggregate and mineral filler in accordance with paragraphs 401-2.1.
- Percent passing each sieve size for individual gradation of each aggregate cold feed and/or hot bin; percent by weight of each cold feed and/or hot bin used; and the total combined gradation in the JMF.
- Specific Gravity and absorption of each coarse and fine aggregate.
- Percent natural sand.
- Percent fractured faces.
- Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).
- Percent of asphalt.
- Number of blows.

- Laboratory mixing and compaction temperatures.
- Supplier-recommended field mixing and compaction temperatures.
- Plot of the combined gradation on a 0.45 power gradation curve.
- Graphical plots of air voids, voids in the mineral aggregate (VMA), and unit weight versus asphalt content. To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.
- Tensile Strength Ratio (TSR).
- Type and amount of Anti-strip agent when used.
- Asphalt Pavement Analyzer (APA) results.
- Date the JMF was developed. Mix designs that are not dated or which are from a prior construction season shall not be accepted.

Table 1. Asphalt Design Criteria

Test Property	Value	Test Method
Number of blows	75	
Air voids (%)	3.5	ASTM D3203
Percent voids in mineral aggregate (VMA), minimum	See Table 2	ASTM D6995
Tensile Strength Ratio (TSR)[1]	Not less than 80 at a saturation of 70-80%	ASTM D4867
Asphalt Pavement Analyzer (APA)[3]	Less than 10 mm @ 4000 passes	AASHTO T340 at 250 psi hose pressure at 64°C test temperature

[1] Test specimens for TSR shall be compacted at 7 ± 1.0 % air voids. In areas subject to freeze-thaw, use freeze-thaw conditioning in lieu of moisture conditioning per ASTM D4867.

[2] AASHTO T340 at 100 psi hose pressure at 64°C test temperature may be used in the interim. If this method is used the required Value shall be less than 5 mm @ 8000 passes.

[3] Where APA not available, use Hamburg Wheel test (AASHTO T-324) 10mm @ 20,000 passes at 50°C.

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 2 when tested in accordance with ASTM C136 and ASTM C117.

The gradations in Table 2 represent the limits that shall determine the suitability of aggregate for use from the sources of supply; be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa.

Table 2. Aggregate - Asphalt Pavements

Sieve Size	Percentage by Weight Passing Sieve
	Gradation 2
1 inch	**--**
3/4 inch	**100**
1/2 inch	**90-100**
3/8 inch	**72-88**
No. 4	**53-73**
No. 8	**38-60**
No. 16	**26-48**
No. 30	**18-38**
No. 50	**11-27**
No. 100	**6-18**
No. 200	**3-6**
Minimum Voids in Mineral Aggregate (VMA)[1]	**15.0**
Asphalt Percent:	
Stone or gravel	**5.0-7.5**
Recommended Minimum Construction Lift Thickness	**2 inch**

[1]To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition.

401-3.4 Reclaimed asphalt pavement (RAP). Not Used.

401-3.5 Control Strip. A control strip is not required.

CONSTRUCTION METHODS

401-4.1 Weather limitations. The asphalt shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 3. The temperature requirements may be waived by the RPR, if requested; however, all other requirements including compaction shall be met.

Table 3. Surface Temperature Limitations of Underlying Course

Mat Thickness	Base Temperature (Minimum)
	°F
3 inches or greater	40
Greater than 2 inches but less than 3 inches	45

401-4.2 Asphalt plant. Plants used for the preparation of asphalt shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M156 including the following items.

a. Inspection of plant. The RPR, or RPR's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.

b. Storage bins and surge bins. The asphalt mixture stored in storage and/or surge bins shall meet the same requirements as asphalt mixture loaded directly into trucks. Asphalt mixture shall not be stored in storage and/or surge bins for a period greater than twelve (12) hours. If the RPR determines there is an excessive heat loss, segregation, or oxidation of the asphalt mixture due to temporary storage, temporary storage shall not be allowed.

401-4.3 Aggregate stockpile management. Aggregate stockpiles shall be constructed in a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed, and batched separately at the asphalt batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used.

A continuous supply of materials shall be provided to the work to ensure continuous placement.

401-4.4 Hauling equipment. Trucks used for hauling asphalt shall have tight, clean, and smooth metal beds. To prevent the asphalt from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the RPR. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

401-4.4.1 Material transfer vehicle (MTV). Not required.

401-4.5 Asphalt pavers. Asphalt pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of asphalt that will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface. The asphalt paver shall be equipped with a control system capable of automatically maintaining the specified screed grade and elevation.

If the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued.

The paver shall be capable of paving to a minimum width specified in paragraph 401-4.12.

401-4.6 Rollers. The number, type, and weight of rollers shall be sufficient to compact the asphalt to the required density while it is still in a workable condition without crushing of the aggregate, depressions or other damage to the pavement surface. Rollers shall be in good condition, clean, and capable of operating

at slow speeds to avoid displacement of the asphalt. All rollers shall be specifically designed and suitable for compacting asphalt concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used.

401-4.7 Density device. The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall supply a qualified technician during all paving operations to calibrate the gauge and obtain accurate density readings for all new asphalt. These densities shall be supplied to the RPR upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.8 Preparation of asphalt binder. The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt binder to the mixer at a uniform temperature. The temperature of unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325°F when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F when added to the aggregate.

401-4.9 Preparation of mineral aggregate. The aggregate for the asphalt shall be heated and dried. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350°F when the asphalt binder is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

401-4.10 Preparation of Asphalt mixture. The aggregates and the asphalt binder shall be weighed or metered and mixed in the amount specified by the JMF. The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in ASTM D2489, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer. The moisture content of all asphalt upon discharge shall not exceed 0.5%.

401-4.11 Application of Tack Coat. Immediately before placing the asphalt mixture, the underlying course shall be cleaned of all dust and debris.

A tack coat shall be applied in accordance with Item P-603 to all vertical and horizontal asphalt and concrete surfaces prior to placement of the first and each subsequent lift of asphalt mixture.

401-4.12 Laydown plan, transporting, placing, and finishing. Prior to the placement of the asphalt, the Contractor shall prepare a laydown plan with the sequence of paving lanes and width to minimize the number of cold joints; the location of any temporary ramps; laydown temperature; and estimated time of completion for each portion of the work (milling, paving, rolling, cooling, etc.). The laydown plan and any modifications shall be approved by the RPR.

Deliveries shall be scheduled so that placing and compacting of asphalt is uniform with minimum stopping and starting of the paver. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to approximately ambient temperature. The Contractor, at their expense, shall be responsible for repair of any damage to the pavement caused by hauling operations.

Contractor shall survey each lift of asphalt surface course and certify to RPR that every lot of each lift meets the grade tolerances of paragraph 401-6.2d before the next lift can be placed.

Edges of existing asphalt pavement abutting the new work shall be saw cut and the cut off material and laitance removed. Apply a tack coat in accordance with P-603 before new asphalt material is placed against it.

The speed of the paver shall be regulated to eliminate pulling and tearing of the asphalt mat. Placement of the asphalt mix shall begin along the centerline of a crowned section or on the high side of areas with a one way slope unless shown otherwise on the laydown plan as accepted by the RPR. The asphalt mix shall be placed in consecutive adjacent lanes having a minimum width of 12 feet except where edge lanes require less width to complete the area. Additional screed sections attached to widen the paver to meet the minimum lane width requirements must include additional auger sections to move the asphalt mixture uniformly along the screed extension.

The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least one foot; however, the joint in the surface top course shall be at the centerline of crowned pavements. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the asphalt may be spread and luted by hand tools.

The RPR may at any time, reject any batch of asphalt, on the truck or placed in the mat, which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or overheated asphalt mixture. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the RPR, and if it can be demonstrated in the laboratory, in the presence of the RPR, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

Areas of segregation in the surface course, as determined by the RPR, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of the construction lift thickness as specified in paragraph 401-3.3, Table 2 for the approved mix design. The area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet long.

401-4.13 Compaction of asphalt mixture. After placing, the asphalt mixture shall be thoroughly and uniformly compacted by self-propelled rollers. The surface shall be compacted as soon as possible when the asphalt has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any surface defects and/or displacement occurring as a result of the roller, or from any other cause, shall be corrected at the Contractor's expense.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross-section, and the required field density is obtained. To prevent adhesion of the asphalt to the roller, the wheels shall be equipped with a scraper and kept moistened with water as necessary.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with approved power tampers.

Any asphalt that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

401-4.14 Joints. The formation of all joints shall be made to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid asphalt except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. In both methods, all contact surfaces shall be coated with an asphalt tack coat before placing any fresh asphalt against the joint.

Longitudinal joints which have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°F; or are irregular, damaged, uncompacted or otherwise defective shall be cut back with a cutting wheel or pavement saw a maximum of 3 inches to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material and any laitance produced from cutting joints shall be removed from the project. Asphalt tack coat in accordance with P-603 shall be applied to the clean, dry joint prior to placing any additional fresh asphalt against the joint. All cold joints and joints where new pavement meets existing pavement shall be crack sealed with a material that meets ASTM D6690. The cost of this work shall be considered incidental to the cost of the asphalt.

401-4.15 Saw-cut grooving. Saw-cut grooving is not required.

401-4.16 Diamond grinding. Diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive.

Diamond grinding shall be performed with a machine designed specifically for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with a sufficient number of blades to create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32 inch higher than the bottom of the grinding cut. The actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Equipment or grinding procedures that cause ravels, aggregate fractures, spalls, or disturbance to the pavement will not be permitted. Contractor shall demonstrate to the RPR that the grinding equipment will produce satisfactory results prior to making corrections to surfaces. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. The Contractor shall apply a surface treatment approved by the RPR to all areas that have been subject to grinding.

401-4.17 Nighttime paving requirements. The Contractor shall provide adequate lighting during any nighttime construction. A lighting plan shall be submitted by the Contractor and approved by the RPR prior to the start of any nighttime work. All work shall be in accordance with the approved CSPP and lighting plan.

CONTRACTOR QUALITY CONTROL (CQC)

401-5.1 General. The Contractor shall develop a Contractor Quality Control Program (CQCP) in accordance with Item C-100. No partial payment will be made for materials without an approved CQCP.

401-5.2 Contractor quality control (QC) facilities. The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The RPR will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

401-5.3 Contractor QC testing. The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to these specifications and as set forth in the approved CQCP. The testing program shall include, but not necessarily be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A QC Testing Plan shall be developed as part of the CQCP.

a. Asphalt content. A minimum of two tests shall be performed per day in accordance with ASTM D6307 or ASTM D2172 for determination of asphalt content. When using ASTM D6307, the correction factor shall be determined as part of the first test performed at the beginning of plant production; and as part of every tenth test performed thereafter. The asphalt content for the day will be determined by averaging the test results.

b. Gradation. Aggregate gradations shall be determined a minimum of twice per day from mechanical analysis of extracted aggregate in accordance with ASTM D5444, ASTM C136, and ASTM C117.

c. Moisture content of aggregate. The moisture content of aggregate used for production shall be determined a minimum of once per day in accordance with ASTM C566.

d. Moisture content of asphalt. The moisture content shall be determined once per day in accordance with AASHTO T329 or ASTM D1461.

e. Temperatures. Temperatures shall be checked, at least four times per day, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the asphalt at the plant, and the asphalt at the job site.

f. In-place density monitoring. The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density in accordance with ASTM D2950.

g. Smoothness for Contractor Quality Control.

The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than 1/4 inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues.

The Contractor may use a 12-foot straightedge, a rolling inclinometer meeting the requirements of ASTM E2133 or rolling external reference device that can simulate a 12-foot straightedge approved by the RPR. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer or external reference device is used, the data may be evaluated using the FAA profile program, ProFAA, or FHWA ProVal, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the plans.

(1) Transverse measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet or more often as determined by the RPR. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

(2) Longitudinal measurements. Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet; and at the third points of paving lanes when widths of paving lanes are 20 ft or greater. When placement abuts previously placed material the first measurement shall start with one half the length of the straight edge on the previously placed material.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4 inch shall be corrected with diamond grinding per paragraph 401-4.16 or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in paragraph 401-6.1d(3). Areas that have been ground shall be sealed with a surface treatment approved by the RPR. To avoid the surface treatment creating any conflict with runway or taxiway markings, it may be necessary to seal a larger area.

Control charts shall be kept to show area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

h. Grade. Grade shall be evaluated daily to allow adjustments to paving operations when grade measurements do not meet specifications. As a minimum, grade shall be evaluated prior to and after the placement of the first lift and after placement of the surface lift.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and plans. The final surface of the pavement will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch vertically and 0.1 feet laterally. The documentation will be provided by the Contractor to the RPR within 24 hours.

Areas with humps or depressions that exceed grade or smoothness criteria and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2 inch less than the thickness specified on the plans. Grinding shall be in accordance with paragraph 401-4.16.

The Contractor shall repair low areas or areas that cannot be corrected by grinding by removal of deficient areas to the depth of the final course plus 1/2 inch and replacing with new material. Skin patching is not allowed.

401-5.4 Sampling. When directed by the RPR, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

401-5.5 Control charts. The Contractor shall maintain linear control charts for both individual measurements and range (i.e. difference between highest and lowest measurements) for aggregate gradation, asphalt content, and VMA. The VMA for each day will be calculated and monitored by the QC laboratory.

Control charts shall be posted in a location satisfactory to the RPR and kept current. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and Suspension Limits applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a problem and the Contractor is not taking satisfactory corrective action, the RPR may suspend production or acceptance of the material.

a. Individual measurements. Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation, asphalt content, and VMA. The control charts shall use the job mix formula target values as indicators of central tendency for the following test parameters with associated Action and Suspension Limits:

Control Chart Limits for Individual Measurements

Sieve	Action Limit	Suspension Limit
3/4 inch	±6%	±9%
1/2 inch	±6%	±9%
3/8 inch	±6%	±9%
No. 4	±6%	±9%
No. 16	±5%	±7.5%
No. 50	±3%	±4.5%
No. 200	±2%	±3%
Asphalt Content	±0.45%	±0.70%
Minimum VMA	-0.5%	-1.0%

b. Range. Control charts shall be established to control gradation process variability. The range shall be plotted as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of n = 2. Should the Contractor elect to perform more than two tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for n = 3 and by 1.27 for n = 4.

Control Chart Limits Based on Range

Sieve	Suspension Limit
1/2 inch	11%
3/8 inch	11%
No. 4	11%
No. 16	9%
No. 50	6%
No. 200	3.5%
Asphalt Content	0.8%

c. Corrective Action. The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:

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

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

401-5.6 QC reports. The Contractor shall maintain records and shall submit reports of QC activities daily to the RPR, in accordance with Item C-100.

MATERIAL ACCEPTANCE

401-6.1 Acceptance sampling and testing. Unless otherwise specified, all acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the RPR at no cost to the Contractor except that coring as required in this section shall be completed and paid for by the Contractor.

a. Quality assurance (QA) testing laboratory. The QA testing laboratory performing these acceptance tests will be accredited in accordance with ASTM D3666. The QA laboratory accreditation will be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing will be listed on the lab accreditation.

b. Lot size. A standard lot will be equal to one day's production divided into approximately equal sublots of between 200 to 300 tons. When only one or two sublots are produced in a day's production, the sublots will be combined with the production lot from the previous or next day.

Where more than one plant is simultaneously producing asphalt for the job, the lot sizes will apply separately for each plant.

c. Asphalt air voids. Plant-produced asphalt will be tested for air voids on a sublot basis.

(1) Sampling. Material from each sublot shall be sampled in accordance with ASTM D3665. Samples shall be taken from material deposited into trucks at the plant or at the job site in accordance with ASTM D979. The sample of asphalt may be put in a covered metal tin and placed in an oven for not less than 30 minutes nor more than 60 minutes to maintain the material at or above the compaction temperature as specified in the JMF.

(2) Testing. Air voids will be determined for each sublot in accordance with ASTM D3203 for a set of three compacted specimens prepared in accordance with ASTM D6926.

d. In-place asphalt mat and joint density. Each sublot will be tested for in-place mat and joint density as a percentage of the theoretical maximum density (TMD).

(1) Sampling. The Contractor will cut minimum 5 inch diameter samples in accordance with ASTM D5361. The Contractor shall furnish all tools, labor, and materials for cleaning, and filling the cored pavement. Laitance produced by the coring operation shall be removed immediately after coring, and core holes shall be filled within one day after sampling in a manner acceptable to the RPR.

(2) Bond. Each lift of asphalt shall be bonded to the underlying layer. If cores reveal that the surface is not bonded, additional cores shall be taken as directed by the RPR to determine the extent of unbonded areas. Unbonded areas shall be removed by milling and replaced at no additional cost as directed by the RPR.

(3) Thickness. Thickness of each lift of surface course will be evaluated by the RPR for compliance to the requirements shown on the plans after any necessary corrections for grade. Measurements of thickness will be made using the cores extracted for each sublot for density

measurement. The maximum allowable deficiency at any point will not be more than 1/4 inch less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, will not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sublot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the RPR to circumscribe the deficient area.

(4) Mat density. One core shall be taken from each sublot. Core locations will be determined by the RPR in accordance with ASTM D3665. Cores for mat density shall not be taken closer than one foot from a transverse or longitudinal joint. The bulk specific gravity of each cored sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each sublot sample by the TMD for that sublot.

(5) Joint density. One core centered over the longitudinal joint shall be taken for each sublot that has a longitudinal joint. Core locations will be determined by the RPR in accordance with ASTM D3665. The bulk specific gravity of each core sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each joint density sample by the average TMD for the lot. The TMD used to determine the joint density at joints formed between lots will be the lower of the average TMD values from the adjacent lots.

401-6.2 Acceptance criteria.

a. General. Acceptance will be based on the implementation of the Contractor Quality Control Program (CQCP) and the following characteristics of the asphalt and completed pavements: air voids, mat density, joint density, and grade.

b. Air Voids and Mat density. Acceptance of each lot of plant produced material for mat density and air voids will be based on the percentage of material within specification limits (PWL). If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment will be determined in accordance with paragraph 401-8.1.

c. Joint density. Acceptance of each lot of plant produced asphalt for joint density will be based on the PWL. If the PWL of the lot is equal to or exceeds 90%, the lot will be considered acceptable. If the PWL is less than 90%, the Contractor shall evaluate the reason and act accordingly. If the PWL is less than 80%, the Contractor shall cease operations and until the reason for poor compaction has been determined. If the PWL is less than 71%, the pay factor for the lot used to complete the joint will be reduced by five (5) percentage points. This lot pay factor reduction will be incorporated and evaluated in accordance with paragraph 401-8.1.

d. Grade. The final finished surface of the pavement shall be surveyed to verify that the grade elevations and cross-sections shown on the plans do not deviate more than 1/2 inch vertically or 0.1 feet laterally.

Cross-sections of the pavement shall be taken at a minimum 50-foot longitudinal spacing, at all longitudinal grade breaks, and at start and end of each lane placed. Minimum cross-section grade points shall include grade at centerline, ± 25 feet of centerline, and edge of runway or taxiway pavement as shown on the pavement elevation plan.

The survey and documentation shall be stamped and signed by a licensed surveyor. Payment for sublots that do not meet grade for over 25% of the sublot shall not be more than 95%.

e. Profilograph roughness for QA Acceptance. Not Used.

401-6.3 Percentage of material within specification limits (PWL). The PWL will be determined in accordance with procedures specified in Item C-110. The specification tolerance limits (L) for lower and (U) for upper are contained in Table 4.

Table 4. Acceptance Limits for Air Voids and Density

Test Property	Pavements Specification Tolerance Limits	
	L	**U**
Air Voids Total Mix (%)	2.0	5.0
Mat Density (%)	92.8	-
Joint density (%)	90.5	--

a. Outliers. All individual tests for mat density and air voids will be checked for outliers (test criterion) in accordance with ASTM E178, at a significance level of 5%. Outliers will be discarded, and the PWL will be determined using the remaining test values. The criteria in Table 4 is based on production processes which have a variability with the following standard deviations: Surface Course Mat Density (%), 1.30; Base Course Mat Density (%), 1.55; Joint Density (%), 1.55.

The Contractor should note that (1) 90 PWL is achieved when consistently producing a surface course with an average mat density of at least 94.5% with 1.30% or less variability, (2) 90 PWL is achieved when consistently producing a base course with an average mat density of at least 94.0% with 1.55% or less variability, and (3) 90 PWL is achieved when consistently producing joints with an average joint density of at least 92.5% with 1.55% or less variability.

401-6.4 Resampling pavement for mat density.

a. General. Resampling of a lot of pavement will only be allowed for mat density, and then, only if the Contractor requests same, in writing, within 48 hours after receiving the written test results from the RPR. A retest will consist of all the sampling and testing procedures contained in paragraphs 401-6.1d and 401-6.2b. Only one resampling per lot will be permitted.

(1) A redefined PWL will be calculated for the resampled lot. The number of tests used to calculate the redefined PWL will include the initial tests made for that lot plus the retests.

(2) The cost for resampling and retesting shall be borne by the Contractor.

b. Payment for resampled lots. The redefined PWL for a resampled lot will be used to calculate the payment for that lot in accordance with Table 5.

c. Outliers. Check for outliers in accordance with ASTM E178, at a significance level of 5%.

401-6.5 Leveling course. Not Used.

METHOD OF MEASUREMENT

401-7.1 Measurement. Asphalt shall be measured by the number of tons of asphalt used in the accepted work. Batch weights or truck scale weights will be used to determine the basis for the tonnage.

BASIS OF PAYMENT

401-8.1 Payment. Payment for a lot of asphalt meeting all acceptance criteria as specified in paragraph 401-6.2 shall be made based on results of tests for mat density and air voids. Payment for acceptable lots shall be adjusted according to paragraph 401-8.1c for mat density and air voids; and paragraph 401-6.2c for joint density, subject to the limitation that:

a. The total project payment for plant mix asphalt pavement shall not exceed 100 percent of the product of the contract unit price and the total number of tons of asphalt used in the accepted work.

b. The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

c. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with Table 5. A pay factor shall be calculated for both mat density and air voids. The lot pay factor shall be the higher of the two values when calculations for both mat density and air voids are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either mat density or air voids is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both mat density and air voids are less than 100%. If PWL for joint density is less than 71% then the lot pay factor shall be reduced by 5% but be no higher than 95%.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 401-8.1a. Payment in excess of 100% for accepted lots of asphalt shall be used to offset payment for accepted lots of asphalt pavement that achieve a lot pay factor less than 100%.

Payment for sublots which do not meet grade in accordance with paragraph 401-6.2d after correction for over 25% of the sublot shall be reduced by 5%.

Table 5. Price adjustment schedule[1]

Percentage of material within specification limits (PWL)	Lot pay factor (percent of contract unit price)
96 – 100	106
90 – 95	PWL + 10
75 – 89	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject [2]

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment above 100% shall be subject to the total project payment limitation specified in paragraph 401-8.1a.

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

d. Profilograph Roughness. Not Used.

401-8.1 Payment.

Payment will be made under:

Item P-401-8.1 Asphalt **SURFACE** Course – per ton

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D242	Standard Specification for Mineral Filler for Bituminous Paving Mixtures
ASTM D946	Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D979	Standard Practice for Sampling Asphalt Paving Mixtures
ASTM D1073	Standard Specification for Fine Aggregate for Asphalt Paving Mixtures
ASTM D1188	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
ASTM D2172	Standard Test Method for Quantitative Extraction of Bitumen from Asphalt Paving Mixtures
ASTM D1461	Standard Test Method for Moisture or Volatile Distillates in Asphalt Paving Mixtures
ASTM D2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D2489	Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures

ASTM D2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
ASTM D2950	Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D3203	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D3381	Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4552	Standard Practice for Classifying Hot-Mix Recycling Agents
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D4867	Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D5361	Standard Practice for Sampling Compacted Asphalt Mixtures for Laboratory Testing
ASTM D5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6084	Standard Test Method for Elastic Recovery of Bituminous Materials by Ductilometer
ASTM D6307	Standard Test Method for Asphalt Content of Hot Mix Asphalt by Ignition Method
ASTM D6373	Standard Specification for Performance Graded Asphalt Binder
ASTM D6752	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method
ASTM D6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
ASTM D6995	Standard Test Method for Determining Field VMA based on the Maximum Specific Gravity of the Mix (Gmm)
ASTM E11	Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves
ASTM E178	Standard Practice for Dealing with Outlying Observations

ASTM E950	Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference
ASTM E2133	Standard Test Method for Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M156	Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
AASHTO T329	Standard Method of Test for Moisture Content of Hot Mix Asphalt (HMA) by Oven Method
AASHTO T324	Standard Method of Test for Hamburg Wheel-Track Testing of Compacted Asphalt Mixtures
AASHTO T 340	Standard Method of Test for Determining the Rutting Susceptibility of Hot Mix Asphalt (APA) Using the Asphalt Pavement Analyzer (APA)

Asphalt Institute (AI)

Asphalt Institute Handbook MS-26, Asphalt Binder

Asphalt Institute MS-2 Mix Design Manual, 7th Edition

AI State Binder Specification Database

Federal Highway Administration (FHWA)

Long Term Pavement Performance Binder Program

Advisory Circulars (AC)

AC 150/5320-6	Airport Pavement Design and Evaluation

FAA Orders

5300.1	Modifications to Agency Airport Design, Construction, and Equipment Standards

Software

FAARFIELD

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Item P-603 Emulsified Asphalt Tack Coat

DESCRIPTION

603-1.1 This item shall consist of preparing and treating an asphalt or concrete surface with asphalt material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

603-2.1 Asphalt materials. The asphalt material shall be an emulsified asphalt as specified in ASTM D3628 as an asphalt application for tack coat appropriate to local conditions. The emulsified asphalt shall not be diluted. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt material to the Resident Project Representative (RPR) before the asphalt material is applied for review and acceptance. The furnishing of COA for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

CONSTRUCTION METHODS

603-3.1 Weather limitations. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50°F or above; the temperature has not been below 35°F for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

603-3.2 Equipment. The Contractor shall provide equipment for heating and applying the emulsified asphalt material. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour or seven hundred (700) feet per minute.

The equipment will be tested under pressure for leaks and to ensure proper set-up before use to verify truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application, spray-bar height and pressure and pump speed, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use.

The distributor truck shall be equipped with a minimum 12-foot spreader spray bar with individual nozzle control with computer-controlled application rates. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

The distributor truck shall be equipped to effectively heat and mix the material to the required temperature prior to application as required. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Do not overheat or over mix the material.

The distributor shall be equipped with a hand sprayer.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the RPR.

A power broom and/or power blower suitable for cleaning the surfaces to which the asphalt tack coat is to be applied shall be provided.

603-3.3 Application of emulsified asphalt material. The emulsified asphalt shall not be diluted. Immediately before applying the emulsified asphalt tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

The emulsified asphalt material shall be uniformly applied with an asphalt distributor at the rates appropriate for the conditions and surface specified in the table below. The type of asphalt material and application rate shall be approved by the RPR prior to application.

Emulsified Asphalt

Surface Type	Residual Rate, gal/SY	Emulsion Application Bar Rate, gal/SY
New asphalt	0.02-0.05	0.03-0.07
Existing asphalt	0.04-0.07	0.06-0.11
Milled surface	0.04-0.08	0.06-0.12
Concrete	0.03-0.05	0.05-0.08

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the RPR. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed. When the tack coat has been disturbed by the Contractor, tack coat shall be reapplied at the Contractor's expense.

603-3.4 Freight and waybills The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

603-4.1 The emulsified asphalt material for tack coat shall be measured by the ton. Volume shall be corrected to the volume at 60°F in accordance with ASTM D1250. The emulsified asphalt material paid for will be the measured quantities used in the accepted work, provided that the measured quantities are not 10% over the specified application rate. Any amount of emulsified asphalt material more than 10% over the specified application rate for each application will be deducted from the measured quantities, except for irregular areas where hand spraying of the emulsified asphalt material is necessary. Water added to emulsified asphalt will not be measured for payment.

BASIS OF PAYMENT

603.5-1 Payment shall be made at the contract unit price per ton of emulsified asphalt material. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-603-5.1	Emulsified Asphalt Tack Coat – per ton

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END ITEM P-603

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Item P-620 Runway and Taxiway Marking

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms "paint" and "marking material" as well as "painting" and "application of markings" are interchangeable throughout this specification.

MATERIALS

620-2.1 Materials acceptance. The Contractor shall furnish manufacturer's certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer's surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

620-2.2 Marking materials.

Table 1. Marking Materials

Paint[1]				Glass Beads[2]	
Type	**Color**	**Fed Std. 595 Number**	**Application Rate Maximum**	**Type**	**Application Rate Minimum**
Waterborne Type II	Yellow	33538 or 33655	115 ft^2/gal	I	7 lb/gal
	Yellow	33538 or 33655	115 ft^2/gal	III	10 lb/gal
	Black	37038	115 ft^2/gal	No Beads	No Beads
	White	37925	115 ft^2/gal	I	7 lb/gal

[1] See paragraph 620-2.2a

[2] See paragraph 620-2.2b

a. Paint. Paint shall be waterborne in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

Waterborne**.** Paint shall meet the requirements of Federal Specification TT-P-1952F, Type II. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

b. Reflective media. Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A and Type III as noted on the plans.

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.

Glass beads shall not be used in black paint.

CONSTRUCTION METHODS

620-3.1 Weather limitations. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

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 with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

620-3.3 Preparation of surfaces. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminates that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

a. Preparation of new pavement surfaces. The area to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface.

b. Preparation of pavement to remove existing markings. Not Used.

c. Preparation of pavement markings prior to remarking. Prior to remarking existing markings, loose existing markings must be removed minimizing damage to the pavement surface, with a method approved by the RPR. After removal, the surface shall be cleaned of all residue or debris.

Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

620-3.4 Layout of markings. The proposed markings shall be laid out in advance of the paint application. Layout of markings shall include intermediate marks no greater than 2 feet for straight sections and 1 foot on curved sections. The locations of markings to receive glass beads shall be shown

on the plans. After application of markings, the layout of the markings shall not be visible. If visible, the Contractor shall black out all survey marks or layout markings.

620-3.5 Application. A period of 48 hours shall elapse between placement of asphalt surface course or seal coat and application of the initial coat of white, black, and yellow markings. A period of 30 days shall elapse between placement of surface course or seal coat and application of the final coat of white and yellow markings, and the single coat of black markings. 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 RPR.

The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet, and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	Tolerance
36 inch or less	±1/2 inch
greater than 36 inch to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inch
greater than 60 feet	±3 inch

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

620-3.6 Application--preformed thermoplastic airport pavement markings. Not Used.

620-3.7 Control strip. Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the RPR. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads (per Table 1) that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

620-3.8 Retro-reflectance. Not Used.

620-3.9 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 reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the RPR. 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 measured by the number of square feet of painting performed in accordance with the specifications and accepted by the RPR. Pavement marking shall include surface preparation and reflective media. Pavement marking shall include two coats of paint and reflective media for the initial and final application.

BASIS OF PAYMENT

620-5.1 This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item complete in place and accepted by the RPR in accordance with these specifications. Payment for pavement marking shall be made at the contract price for the number of square feet of painting required for two coats, including a remobilization onto the Airport for the application of the second coat of pavement markings a minimum of 30 days after completion of paving operations.

Payment will be made under:

Item P-620-5.1	Pavement Markings, Yellow with Reflective Media, Type I – per square foot
Item P-620-5.2	Pavement Markings, Yellow with Reflective Media, Type III – per square foot
Item P-620-5.3	Pavement Markings, Black – per square foot
Item P-620-5.4	Pavement Markings, White with Reflective Media, Type I – per square foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E303	Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer

ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Code of Federal Regulations (CFR)

40 CFR Part 60, Appendix A-7, Method 24	Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings
29 CFR Part 1910.1200	Hazard Communication

Federal Specifications (FED SPEC)

FED SPEC TT-B-1325D	Beads (Glass Spheres) Retro-Reflective
FED SPEC TT-P-1952F	Paint, Traffic and Airfield Marking, Waterborne
FED STD 595	Colors used in Government Procurement

Commercial Item Description

A-A-2886B	Paint, Traffic, Solvent Based

Advisory Circulars (AC)

AC 150/5340-1	Standards for Airport Markings
AC 150/5320-12	Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces

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DIVISION 4
SUPPLEMENTAL DOCUMENTS

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DIVISION 4

SUPPLEMENTAL DOCUMENT 1
2010 Geotechnical Evaluation Report

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Wilcox Professional Services
1055 South 63rd Avenue
Phoenix, Arizona 85043
Phone No. (602) 442-0667
Fax No. (602) 442-0669

Airport Infrastructure Development
Geotechnical Exploration
Scottsdale Airport Runway/Taxilane Rehabilitation

Prepared for:
City of Scottsdale
15000 N. Airport Drive,
Scottsdale, AZ 85260

November 2010
Project No. 30326.00091

November 21, 2010

Wilcox
PROFESSIONAL SERVICES
CREATING INDUSTRY LEADING RESULTS
1055 S 63rd Avenue
Phoenix, Arizona 85043
t 602.442.0667 | f.602.442.0669

City of Scottsdale
7506 E. Indian School Rd
Scottsdale, AZ 85251

Subject: **Geotechnical Subsurface Exploration**
Scottsdale Airport Runway Rehabilitation
15000 N. Airport Drive,
Scottsdale, Arizona 85260
Wilcox Project No. 30326.00091

Wilcox Professional Services, LLC has completed this geotechnical exploration for the subject project located in Scottsdale, Arizona. The results of our exploration, along with the boring location map, laboratory test results, and recommendations are attached.

We appreciate the opportunity to provide these services for you. If you have any questions, please do not hesitate to contact us.

Sincerely,
WILCOX PROFESSIONAL SERVICES, LLC
Prepared by,

Garrit B. Erickson
Geotechnical Project Manager
EGS Geologic

Submitted by,

EXPIRES 12/31/12

John H. Erion Jr, P.E.
Senior Engineer
EGS Geologic

Table of Contents

1. General

1.1 Introduction

This report was prepared for the City of Scottsdale for the Scottsdale Airport. It describes the soil conditions, laboratory findings and pavement recommendations for the rehabilitation of the pavement for Runway 3-21 and new construction of circulation taxiways.

1.2 Project Description

This project will consist of the structural rehabilitation of the center 75 feet of the runway and installation of a uniform surface course for the entire 100 foot width of the runway and shall include a connector taxiway from the Kilo Ramp to Taxiway Alpha (Scottsdale Air Center Connector, approximately 800 square yards); Greenway Bypass Taxiway (approximately 1,500 square yards); Taxiway 'A-4' (approximately 2,200 square yards); and Delta Ramp Taxilane expansion (approximately 2,300 square yards). The project will be funded by Federal Aviation Administration (FAA) and the Arizona Department of Transportation grants-in-aid. Pavement recommendations will be for 75,000-pound dual wheel configuration aircraft consistent with the approved Master Plan for Scottsdale Airport.

1.3 Field Investigation

Runway 3-21

Six borings were drilled within Runway 3-21. Two additional borings were drilled in the Overruns at the ends of the runway. The borings were drilled at the locations as shown on the accompanying site plan (Appendix A) on May 11, 2009. The asphalt concrete surface was cored and removed from all test borings within Runway 3-21 and the overruns. The thicknesses of the pavement layers were measured and recorded. Field Drilling was observed by an experienced geotechnical technician, who visually classified soil samples and prepared field logs of each boring. The soils encountered were sampled for laboratory testing.

The borings were drilled with a truck mounted drill rig equipped with a rotary head. Conventional, continuous flight, 6.5 inch hollow-stem augers were used to advance the borings. Representative samples were obtained utilizing a Shelby tube sampler. The Shelby tube sampler utilized in this investigation measured three inches outside diameter and was driven into the subsurface soil employing a cathead hammer drop system. Brass rings lined the inside of the sampler, which were later extruded for the purpose of laboratory testing. Sampling depths, intervals and blow counts of the penetrating sampler were recorded and are located on the soil boring logs in Appendix B. Bag samples of soil at varying depths were also obtained during the field investigation. Testing was performed to predict CBR values of the aggregate base course at each test boring location. Test pits were patched with quick set Portland cement concrete to match the elevation of the existing pavement. Drilling personnel did not encounter groundwater table during our field investigation.

Circulation Taxiways

An additional four soil samples were taken for laboratory analysis at the general locations for the proposed circulation taxiway construction on February 11, 2010. See Appendix A for locations of borings B1A - B4A.

Samples were also obtained from a stockpile located near sample location B2A, since the material is a potential source of fill material for the Greenway Bypass Taxiway.

Boring logs, which include soil descriptions, stratifications, classifications based on the Unified Soil Classification System and sample types and depths, are included in Appendix B. All depths in this report are referenced from the existing ground surface at the time of boring operations.

1.4 Laboratory Testing

Representative samples obtained during the field investigation were subjected to the following laboratory analyses:

Test	Sample Type	Purpose of Test
Sieve Analysis and Atterburg Limits (ASTM D 422 & D 698)	Native Soils	Soil Classification
California Bearing Ratio (ASTM 1883)	Remolded Native	Soil strength
Moisture Density Relations (ASTM D 698)	Native Soils	Density
Swell	Native Soils	Swell potential
Consolidation	Undisturbed Native Soil	In-Situ Soil Conditions
Core height	Asphalt concrete core	Section verification

Refer to Appendix C of this report for the complete results of the laboratory testing.

1.5 Site Description and Conditions

It is our understanding from the existing records that the runway has been in place in its current configuration since 1982 with the southerly 4,800 feet originally constructed in 1967. The most recent runway pavement, consisting of an asphalt rubber overlay, was constructed in 1999. A history of the existing pavement structures at the airport is included in Appendix 'E'.

The runway has two parallel Taxiways on each side of the runway and a drainage system which collects storm water runoff through a series of inlets and storm drains and conveys this runoff to off airport locations. The new pavement construction proposed for the project will include a taxiway connection to the north apron and Taxiway 'A'; a bypass taxiway connected to the north end of the main apron; a taxiway connecting to the runway (Taxiway A-4); and a widening/strengthening of a taxilane connected to the south end of the main apron (Delta Ramp).

2 Geologic Conditions

2.1 Soil Profile

Selective soils samples were tested for gradation and Atterberg limits. This information was used to classify the soil according to the Unified Soil Classification system. As shown on the accompanying laboratory test results, the native Runway sub-soils profile to the depths explored consists primarily of sandy soils with gravel distributed in a relatively uniform manner across the site. The native Circulation Taxiways surface and sub-soils consist primarily of Clayey Silty Sands (CL-ML) with gravel of low plasticity extending to depths explored. Laboratory test results are provided in Appendix C.

2.2 Laboratory CBR

Soil borings and samples indicted that the in situ soils exhibit extensive carbonate cementation, increasing the in place CBR values. Laboratory CBR values for the remolded samples were found to have the value of 8 and 10 as tested per ASTM D 1883 for the sample collected from the runway borings, and a value of 9 for the Circulation Taxiway soils.

2.3 Expansion Potential

Circulation Taxiway laboratory test results indicate PI values of 6 to 7, (per Note 1 of Table 3-4 of FAA AC 150/5320-6E, soil is considered to be cohesive since P.I. $\geq$ 3). Testing on runway soils indicate a low swell potential.

2.4 Drainage

Due to adverse effect on structures, it is highly recommended that the pavement section bearing soils not be exposed to moisture infiltration or moisture content fluctuations. Pavement runoff should be collected and discharged away from the pavement. Drainage of surface water away from the pavement should be provided during construction as well as through out the life of the pavement.

3 Pavement Analysis and Design

3.1 Proposed Development

This project will include the design and rehabilitation of approximately 8250 lineal feet of the center seventy-five feet of runway pavement. The pavement design will include two pavement recommendations, one to be applied to the north section of the runway and the other to be applied to the south section of the runway.

This project also includes the design of new pavements for the circulation taxiways and taxilane widening. These pavement designs will include one pavement structural section and an alternative based on consideration of local conditions.

3.2 Local Condition Considerations

As allowed by FAA AC 150/5320-6E, local soil conditions and practices can be considered for final pavement design. The results of laboratory tests, field investigation and classification of the sub-soils as well as a report titled *Pavement Evaluation Report to Accompany Request for Prior Permission (PPR) Scottsdale Airport, Scottsdale, Arizona December 10,2009* were used as the basis for the conclusions and recommendations presented in this report.

3.3 Pavement Design

Pavement designs were developed consistent with Federal Aviation Administration Standards found in Advisory Circular 150/5320-6E, Chapter 3, and the FAA's airport pavement design software FAARFIELD. The fleet mix utilized for input to the design software was established in the above referenced 2009 report. An annual percentage of growth was input based on the most recent FAA Terminal Area Forecast for Scottsdale Airport. Frost conditions were not considered due to the location of Scottsdale Airport. All design calculations are included in Appendix 'D'.

3.3.1 Runway 3-21

The CBRs selected for runway pavement designs were consistent with those presented in the December 10, 2009 report previously referred which included consideration of non destructive testing data for determination of the existing elastic modulus of the sub grade. The CBR value input for the original south 4,800 feet was 13 and a CBR of 12 was input for the runway extension section, (north 3,450 feet). The minimum pavement structural sections based on replacement of the existing bituminous surfacing in the center 75 feet results in the following calculations:

Runway 3 (South 4,800 lineal feet)

Type	Thickness (inches)	Modulus (psi)
P-401/P-403 HMA Surface	6	200,000
P-209 Cr Ag	8.05	46,186
Subgrade	0	19,500

Total thickness to the top of subgrade = 14.05 inches

Runway 21 (North 3,450 lineal feet)

Type	Thickness (inches)	Modulus (psi)
P-401/P-403 HMA Surface	6	200,000
P-209 Cr Ag	8.85	46,186
Subgrade	0	18,150

Total thickness to the top of subgrade = 14.85 inches

3.3.2 Taxiway/Taxilane

Construction of the circulation taxiways is spread across a wide area of the airport, as shown in Appendix A. From the laboratory testing previously described and due to historic variability's of remolded soils samples throughout the airport, a CBR of 8 was selected for design calculations. The minimum pavement structural section results in the following.

Type	Thickness (inches)	Modulus (psi)
P-401/P-403 HMA Surface	4	200,000
P-209 Cr Ag	15.58	48,061
Subgrade	0	12,000

Total thickness to the top of subgrade = 19.58 inches

3.3.3 Recommended Rehabilitation Pavement Sections Runaway 3-21

Based on the construction history, shown in Appendix F and the core samples obtained from the runway pavement, the following existing pavement structures were found:

Area	Existing AC (inches)	Existing ABC (inches)
Runway 3	10	8
Runway 21	5.5	7

Based on the design parameters and the condition of the existing pavement, the following flexible pavement sections are recommended.

Runway 3 (South 4,800 lineal feet)

Recommended Section:

Type	Thickness (inches)	Action
P-401/P-403 HMA Surface	6.00	Remove & Replace
Existing AC	4	To Remain
P-209 Cr Ag	8	To Remain

As shown above, the existing pavement structure exceeds the required minimum calculated section. Hot mix asphalt surfacing should be constructed with a 2 inch surface course per Item P-401, and 4 inches of base course per Item P-403.

Runway 21 (North 3,450 lineal feet) Alternative Section:

Since the required minimum section exceeds the existing structural section for this portion of the runway, an alternative section was considered to enable pavement rehabilitation without removal and replacement of base course and soils materials. Item P-301 was input as a stabilized layer and the following minimum section resulted.

Type	Thickness (inches)	Modulus (psi)
P-401/P-403 HMA Surface	6.00	200,000
P-301 SCB	4.39	250,000
Subgrade	0	18,150

Total thickness to the top of subgrade = 10.39 inches

We recommend increasing the minimum thickness of Item P-301 to conform to the specified acceptance testing criteria resulting in the following.

Recommended Section:

Type	Thickness (inches)	Action
P-401/P-403 HMA Surface	6.00	Remove & Replace
P-301 SCB	6.00	Stabilize in place

Hot mix asphalt surfacing should be constructed with a 2 inch surface course per Item P-401, and 4 inches of base course per Item P-403. A stress absorbing membrane should be constructed between the stabilized course and hot mix asphalt surfacing to retard reflective cracking. A rubberized small aggregate interlayer conforming to the Arizona Department of Transportation Specification Item 410 has proven successful in this application on past projects at the airport.

3.3.4 Recommended Pavement Sections Circulation Taxiways

Based on the design parameters and site conditions, the following flexible pavement section is recommended for new construction of the SAC Connector and Taxiway A-4.

Recommended Section SAC Connector & A-4:

Type	Thickness (inches)	Item
HMA Surface Course	2.00	P-401
HMA Base Course	2.50	P-403
Crushed Aggregate Base	15.00	P-209

Due to the location of Taxiway A-8 Bypass and the Delta Ramp Taxilane widening, a stabilized subgrade section is proposed in accordance with paragraph 206 of FAA AC 150/5320-6E. The taxiway A-8 Bypass is located in an area that has had historic problems with saturated and unstable subgrade soils that has required stabilization on recent projects. Significant surface water runoff occurs from the Delta Ramp which exits over the edge of the proposed area of construction. Due to the potential for moisture infiltration during construction and to provide a stable construction platform, Item P-301 was input as a stabilized layer and the following section was calculated.

Type	Thickness (inches)	Modulus (psi)
P-401/P-403 HMA Surface	4.50	200,000
P-209 Cr Ag	4.00	127,299
P-301 SCB	4.12	250,000

Total thickness to the top of subgrade = 12.62 inches

We recommend increasing the minimum depicted thickness of Items P-209 and P-301 to ensure constructability of the desired section and to conform to the specified acceptance testing criteria and to ensure a stable construction platform resulting in the following recommended section for Taxiway A-8 Bypass and Delta Ramp Taxilane widening.

Recommended Section A-8 Bypass & Delta Ramp Taxilane Widening:

Type	Thickness (inches)	Item
HMA Surface Course	2.00	P-401
HMA Base Course	2.50	P-403
Crushed Aggregate Base	6.00	P-209
Soil Cement Base Course	8.00	P-301

3.3.5 Miscellaneous Pavements

It is our understanding that miscellaneous pavements will be constructed as part of this project to included taxiway shoulders, a section of the airport service road and reconstruction of existing blast pads at each end of the runway. Design procedures for airfield shoulders are contained in Advisory Circular AC 150/5320-6E, Chapter 7 for airports that accommodate Design Group III or higher aircraft. Since Scottsdale Airport serves Design Group II aircraft, we would recommend the minimum section listed in Chapter 7 for pavement design of these pavements. This section would consist of:

Type	Thickness (inches)	Item
HMA Surface Course	3.00	P-403
Aggregate Base Course	6.00	P-208

4 Construction Standards

4.1 General

Construction of the proposed improvements should conform in general to the applicable items as specified in FAA Advisory Circular AC 150/5370-10E *Standards for Specifying Construction of Airports.*

4.1.1 Excavation and Embankment (Item P-152)

Excavation and Embankment should be constructed in accordance with FAA 150/5370-10E specifications and the applicable drawings.

The subgrade under areas to be paved should be compacted to a depth and to a density per Table 3-4 from AC 150/5320-6E, Chapter 3, Section 2 for cohesive soils. The upper six inches of the subgrade intended for use by aircraft shall be compacted to a uniform average density of at least 95 percent in accordance with ASTM D-1557.

The upper six inches of the subgrade for blast pads, shoulders, service road pavements and other areas not intended for regular use by aircraft could be compacted to a uniform average density of not less than 95 percent in accordance with ASTM D-698.

Any fill material required for the construction of any portion of the work, borrow and native soil, shall consist of material approved by the engineer.

4.1.2 Aggregate Base Course (Items P-209 & P-208)

Crushed aggregate course should be constructed in accordance with Item P-209 and compacted to a uniform average density of 100 percent in accordance with ASTM D-1557 for pavement areas intended for use by aircraft.

Areas not intended for regular use by aircraft should be constructed in accordance with Item P-208. As allowed in AC 150/5320-6E, Chapter 7, local standards for base course materials possessing qualities similar to FAA standard specifications may be used for

these areas. Untreated Base Course constructed in accordance with the Uniform Standard Specifications for Public Works Construction distributed by the Maricopa Association of Governments would be equivalent to Item P-208 in our opinion.

4.1.3 Plant Mix Bituminous Pavement (Item P-401 and Item P-403)

The plant mix bituminous pavement for the surface course should be constructed in accordance with Item P-401 of FAA AC 150/5370-10E specifications and the applicable drawings. Maximum aggregate size should be specified as ¾ inch for lifts not exceeding three inches. The mix design should be performed using the Marshall method with 75 blows per specimen face. Asphalt cement should comply with the requirements for PG 70-10 binder in accordance with AASHTO MP1-93, Specification for Performance Graded Asphalt Binder. A tack coat should be applied in accordance with FAA Item P-603 between lifts of asphalt concrete.

The plant mix bituminous pavement for the base course should be constructed in accordance with Item P-403 of FAA AC 150/5370-10E specifications and the applicable drawings. Maximum aggregate size should be specified as ¾ inch for lifts not exceeding three inches. Item P-403 may be specified as surface course for paved areas not intended for use by aircraft. The mix design should be performed using the Marshall method with 75 blows per specimen face. Asphalt cement should comply with the requirements for PG 70-10 binder in accordance with *AASHTO MP1-93, Specification for Performance Graded Asphalt Binder.*

4.1.4 Soil Cement Base Course (Item P-301)

Soil cement base course should be constructed in accordance with Item P-301. For estimation of cement content purposes based on soil classification, FHW-IP-80-2 *"Soil Stabilization in Pavement Structures A User's Manual, Volume 2 Mixture Design Considerations"* Table 21 and ACI 230.1R-09 "*Report on Soil Cement*" Table 4-1 indicate a value of 10 percent by weight of soil for AASHTO Classification A-4 soils.

The final cement content of the soil cement mix should be determined by performing a soil cement mix design.

4.1.5 Stress Absorbing Membrane Interlayer (SAMI)

For hot mix bituminous pavements constructed immediately above a cement stabilized layer (P-301), a stress absorbing membrane interlayer (SAMI) conforming to the *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction* Section 410 Asphalt Rubber Stress-Absorbing Membrane should be constructed. Asphalt-Rubber should conform to the requirements of Section 1009 of these specifications with gradation Type B.

5 Limitations

The recommendations contained in this report are based on the assumption that the soil conditions do not deviate appreciably from those disclosed by the sample locations. Should unusual material or conditions be encountered during construction, the geotechnical engineer should be notified so that he may make supplemental recommendations if this should be required. This report is issued with the understanding that it is the responsibility of the owner to see that its provisions are carried out or brought to the attention of those concerned.

The scope of services for this project does not include any environmental assessment of the site or identification of contaminated or hazardous materials or conditions.

The findings of this report are considered valid as of the present date. However, changes in the conditions of the site can occur with the passage of time, whether due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

Definition of Terminology

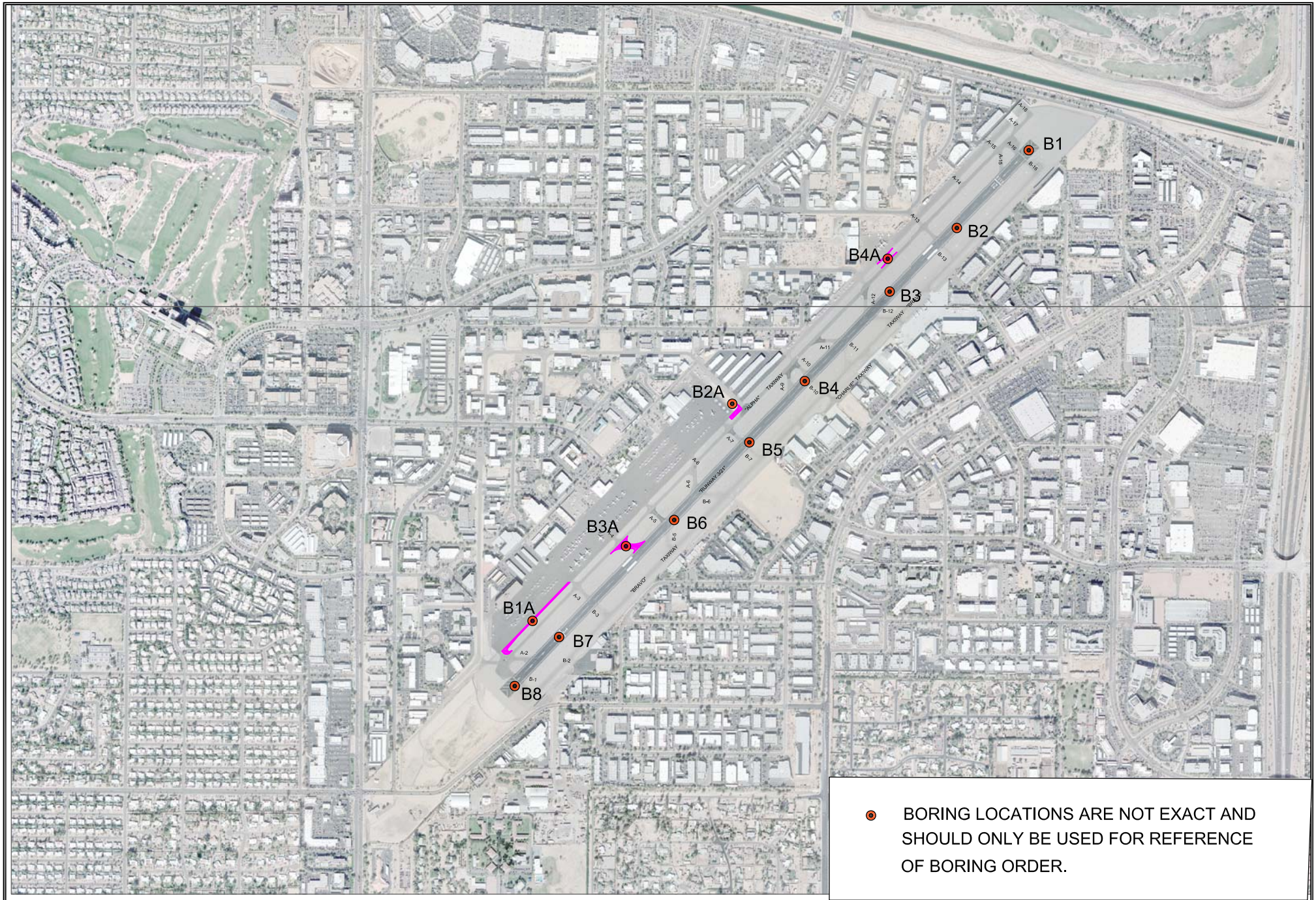
Allowable Soil Bearing Capacity	The recommended maximum contact stress developed at the interface of the foundation element and the supporting material.
Aggregate Base Course (ABC)	A sand and gravel mixture of specified gradation, used for slab and pavement support.
Backfill	A specified material placed and compacted in a confined area.
Base Course	A layer of specified material placed on a subgrade.
Bench	A horizontal surface in a sloped deposit.
Caisson	A concrete foundation element cased in a circular excavation that may have an enlarged base. Sometimes referred to as a Cast-In-Place pier.
Concrete Slabs-On-Grade	A concrete surface layer cast directly upon ABC, crushed gravel or subgrade.
Controlled Compacted Fill	Engineered fill. Specific material placed and compacted to specified density and/or moisture conditions under observation of a representative of a soil engineer.

Crushed Gravel	Relatively clean crushed gravel with a small amount of fines.
Differential Settlement	Unequal settlement between or within foundation elements of a structure.
Expansive Potential	The potential of a soil to increase in volume due to the absorption of moisture.
Fill	Materials deposited by the action of man.
Finish Grade	The final grade created as a part of the project.
Heave	Upward movement due to expansion.
Native Grade	The naturally occurring ground surface.
Native Soil	Naturally occurring on-site soil.
Over-Excavate	Vertical zone of soil removal and recompaction required for adequate foundation or slab support.
Rock	A natural aggregate of mineral grains connected by strong and permanent cohesive forces. Usually requires drilling, wedging, blasting, or other methods of extraordinary force for excavation.

Scarify	To mechanically loosen soil or break down the existing soil structure.
Settlement	Download movement of the soil mass and structure due to vertical loading.
Soil	Any unconsolidated material composed of disintegrated vegetable or mineral matter that can be separated by gently mechanical means, such as agitation in water.
Strip	To remove from present location

APPENDIX A

Sample Location Exhibit



Mark	Description	Date	By	Appr.

Wilcox Professional Services

SD1-20

Designed by:		Date:	Rev.
Dwn by:	Ckd by:	Design file no.	
Reviewed by:		Scale:	
WPS Project #: 30326.00091		Client Project #: AIP –23	

Project Information:
SCOTTSDALE AIRPORT
AIRFIELD IMPROVEMENTS
SAMPLE LOCATIONS

Sheet Title:

Sheet reference number:

APPENDIX B

Boring Logs

Wilcox Professional Services
1055 South 63rd Avenue
Phoenix, Arizona 85043
Telephone: (602) 442-0667
Fax: (602) 442-0669

BORING NUMBER B1

CLIENT Scottsdale Airport
PROJECT NAME AOS 09-04-Airfield Improvements
PROJECT NUMBER 30326.00091.01
PROJECT LOCATION Scottsdale, AZ
DATE STARTED 5/17/09 **COMPLETED** 5/17/09
GROUND ELEVATION **HOLE SIZE** 6.5
DRILLING CONTRACTOR Wilcox Professional Services
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING None
LOGGED BY JL **CHECKED BY** GBE
AT END OF DRILLING None
NOTES
AFTER DRILLING None

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					0.3 3" AC
	AU 0540	LL = 24 PL = 17 Fines = 27%	GC-GM		1.5 ABC to 1.5 ft Silty Clayey Gravel 3.0
					Bottom of hole at 3.0 feet.

GENERAL BH / TP / WELL 30326.00091.01.GPJ GINT US LAB.GDT 8/17/09

Wilcox Professional Services
1055 South 63rd Avenue
Phoenix, Arizona 85043
Telephone: (602) 442-0667
Fax: (602) 442-0669

BORING NUMBER B2

CLIENT Scottsdale Airport
PROJECT NAME AOS 09-04-Airfield Improvements
PROJECT NUMBER 30326.00091.01
PROJECT LOCATION Scottsdale, AZ
DATE STARTED 5/17/09 **COMPLETED** 5/17/09
GROUND ELEVATION _____ **HOLE SIZE** 6.5
DRILLING CONTRACTOR Wilcox Professional Services
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING None
LOGGED BY JL **CHECKED BY** GBE
AT END OF DRILLING None
NOTES
AFTER DRILLING None

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				LL = 25 PL = 16 Fines = 36%			0.5 5.5 inches of AC 1.5 ABC to 1.5 ft
	ST 0542	100	9-8	MC = 3%	SC		Clayey Sand, moist 4.0
5	AU 0541						Well Graded Sand with some Clay
	ST 0543	100	15-15	MC = 12% DD = 111 pcf	SW		
10							10.0 Bottom of hole at 10.0 feet.

GENERAL BH / TP / WELL 30326.00091.01.GPJ GINT US LAB.GDT 8/17/09

Wilcox Professional Services
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Phoenix, Arizona 85043
Telephone: (602) 442-0667
Fax: (602) 442-0669

BORING NUMBER B3

CLIENT Scottsdale Airport
PROJECT NAME AOS 09-04-Airfield Improvements
PROJECT NUMBER 30326.00091.01
PROJECT LOCATION Scottsdale, AZ
DATE STARTED 5/17/09 **COMPLETED** 5/17/09
GROUND ELEVATION _____ **HOLE SIZE** 6.5
DRILLING CONTRACTOR Wilcox Professional Services
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING None
LOGGED BY JL **CHECKED BY** GBE
AT END OF DRILLING None
NOTES _____
AFTER DRILLING None

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				LL = 25 PL = 18 Fines = 31%	GC-GM		0.5 5.5 Inches of AC 1.5 ABC to approximately 1.5 ft
	ST 0545	100	3-3	MC = 8% DD = 101 pcf	SC-SM		Silty Clayey Sand
5	AU 0544						
	ST 0546	100	3-3	MC = 11% DD = 98 pcf			6.5
					SC-SM		Silty Clayey Sand with fine grained Gravel 8.0
10					SC		Clayey Sand, contains some carbonate cementation 10.0
							Bottom of hole at 10.0 feet.

GENERAL BH / TP / WELL 30326.00091.01.GPJ GINT US LAB.GDT 8/17/09

Wilcox Professional Services
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Phoenix, Arizona 85043
Telephone: (602) 442-0667
Fax: (602) 442-0669

BORING NUMBER B4

CLIENT Scottsdale Airport
PROJECT NAME AOS 09-04-Airfield Improvements
PROJECT NUMBER 30326.00091.01
PROJECT LOCATION Scottsdale, AZ
DATE STARTED 5/17/09 **COMPLETED** 5/17/09
GROUND ELEVATION **HOLE SIZE** 6.5
DRILLING CONTRACTOR Wilcox Professional Services
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING None
LOGGED BY JL **CHECKED BY** GBE
AT END OF DRILLING None
NOTES
AFTER DRILLING None

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				LL = 27 PL = 17 Fines = 48%			0.5 Approx 5.5 inches of AC 1.5 ABC to approx 1.5 feet Clayey Sand
	ST 0548	100	3-3	MC = 10% DD = 91 pcf			
5	AU 0547						
	ST 0549	100	3-4	MC = 5% DD = 108 pcf	SC		
10							10.0 Bottom of hole at 10.0 feet.

GENERAL BH / TP / WELL 30326.00091.01.GPJ GINT US LAB.GDT 8/17/09

Wilcox Professional Services
1055 South 63rd Avenue
Phoenix, Arizona 85043
Telephone: (602) 442-0667
Fax: (602) 442-0669

BORING NUMBER B5

CLIENT Scottsdale Airport
PROJECT NAME AOS 09-04-Airfield Improvements
PROJECT NUMBER 30326.00091.01
PROJECT LOCATION Scottsdale, AZ
DATE STARTED 5/17/09 **COMPLETED** 5/17/09
GROUND ELEVATION _____ **HOLE SIZE** 6.5
DRILLING CONTRACTOR Wilcox Professional Services
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING None
LOGGED BY JL **CHECKED BY** GBE
AT END OF DRILLING None
NOTES _____
AFTER DRILLING None

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
		LL = 25 PL = 18 Fines = 35%			0.7 8 inches of AC
					14 inches of ABC
		MC = 14% DD = 111 pcf			2.0 Silty Clayey Sand
5		MC = 18% DD = 90 pcf Increased gravel content	SC-SM		
10					10.0 Bottom of hole at 10.0 feet.

GENERAL BH / TP / WELL 30326.00091.01.GPJ GINT US LAB.GDT 8/17/09

Wilcox Professional Services
1055 South 63rd Avenue
Phoenix, Arizona 85043
Telephone: (602) 442-0667
Fax: (602) 442-0669

BORING NUMBER B6

CLIENT Scottsdale Airport
PROJECT NAME AOS 09-04-Airfield Improvements
PROJECT NUMBER 30326.00091.01
PROJECT LOCATION Scottsdale, AZ
DATE STARTED 5/17/09 **COMPLETED** 5/17/09
GROUND ELEVATION **HOLE SIZE** 6.5
DRILLING CONTRACTOR Wilcox Professional Services
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING None
LOGGED BY JL **CHECKED BY** GBE
AT END OF DRILLING None
NOTES
AFTER DRILLING None

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0		LL = 27 PL = 18 Fines = 41%		0.7	8 inches of AC
				2.0	ABC to approx 2 feet
	AU 0553		SC		Clayey Sand
5				5.0	
			SC-SM		Silty Clayey Sand
10				10.0	
					Bottom of hole at 10.0 feet.

GENERAL BH / TP / WELL 30326.00091.01.GPJ GINT US LAB.GDT 8/17/09

Wilcox Professional Services
1055 South 63rd Avenue
Phoenix, Arizona 85043
Telephone: (602) 442-0667
Fax: (602) 442-0669

BORING NUMBER B7

CLIENT Scottsdale Airport
PROJECT NAME AOS 09-04-Airfield Improvements
PROJECT NUMBER 30326.00091.01
PROJECT LOCATION Scottsdale, AZ
DATE STARTED 5/17/09 **COMPLETED** 5/17/09
GROUND ELEVATION _____ **HOLE SIZE** 6.5
DRILLING CONTRACTOR Wilcox Professional Services
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING None
LOGGED BY JL **CHECKED BY** GBE
AT END OF DRILLING None
NOTES _____
AFTER DRILLING None

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS AND REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				LL = 28 PL = 18 Fines = 47%			0.7 8 inches of AC ABC to 2 ft 2.0 Clayey Sand
	ST 0555	100	11-11				
5	AU 0554						
	ST 0556	100	9-8	MC = 10% DD = 96 pcf Increased gravel content at 7 ft	SC		
10							10.0 Bottom of hole at 10.0 feet.

GENERAL BH / TP / WELL 30326.00091.01.GPJ GINT US LAB.GDT 8/17/09

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1055 South 63rd Avenue
Phoenix, Arizona 85043
Telephone: (602) 442-0667
Fax: (602) 442-0669

BORING NUMBER B8

CLIENT Scottsdale Airport
PROJECT NAME AOS 09-04-Airfield Improvements
PROJECT NUMBER 30326.00091.01
PROJECT LOCATION Scottsdale, AZ
DATE STARTED 5/17/09 **COMPLETED** 5/17/09
GROUND ELEVATION **HOLE SIZE** 6.5
DRILLING CONTRACTOR Wilcox Professional Services
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING None
LOGGED BY JL **CHECKED BY** GBE
AT END OF DRILLING None
NOTES
AFTER DRILLING None

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					0.3 3" AC
	AU 0557	LL = 25 PL = 18 Fines = 48%			ABC to 2 ft
	GB 0558	Fines = 38%	SC-SM		2.0 Silty Clayey Sand 3.0
					Bottom of hole at 3.0 feet.

GENERAL BH / TP / WELL 30326.00091.01.GPJ GINT US LAB.GDT 8/17/09

APPENDIX C

Laboratory Results

Wilcox

Wilcox Professional Services
1055 S. 63rd Avenue
Phoenix, Arizona 85043
Phone: (602) 442-0667
FAX: (602) 442-0669

Summary

Client:	Wilcox-Design	Job No.:	30326.00091
Project Name:	Scottsdale Airport	Lab No.:	10-0056
Sample Location:		Date Received:	2/12/2010
		Sampled By:	TLP
Material:	Native Subgrade	Date Sampled:	2/12/2010
Material Source:	Longterm Parking Lot	Submitted By:	K. Ritter

AASHTO T27, T11

Sieve	% Pass	Specs
3"		
2-1/2"	100	
2"	100	
1-1/2"	100	
1"	94	
3/4"	92	
1/2"	88	
3/8"	85	
1/4"	80	
#4	76	
#8	69	
#10	68	
#16	61	
#30	53	
#40	50	
#50	47	
#100	42	
#200	36.6	

AASHTO T89/T90

PLASTICITY INDEX

Liquid Limit	**26**
Plastic Limit	**19**
Plasticity Index	**7**

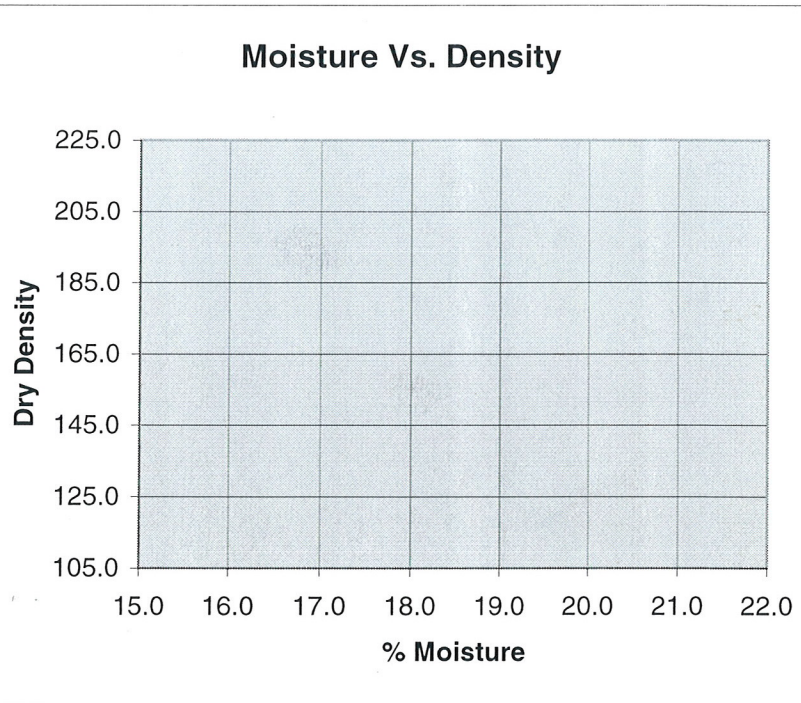
Percent Swell of Soil

% Swell	**N/A**

ASTM D 698 / 1557

Moisture Density (Proctor)

Max. Dry Density	
Opt Moisture %	
% Rock	



Remarks:

Tested By: K. Ritter
Test Date: 2/20/2010
Checked By:
Reviewed By:

Wilcox

Wilcox Professional Services
1055 S. 63rd Avenue
Phoenix, Arizona 85043
Phone: (602) 442-0667
FAX: (602) 442-0669

Summary

Client:	Wilcox-Design	Job No.:	30326.00091
Project Name:	Scottsdale Airport	Lab No.:	10-0057
Sample Location:		Date Received:	2/12/2010
		Sampled By:	TLP
Material:	Native Subgrade	Date Sampled:	2/12/2010
Material Source:	Rehab. Runway @ SAC Connector	Submitted By:	K. Ritter

AASHTO T27, T11

Sieve	% Pass	Specs
3"		
2-1/2"	100	
2"	100	
1-1/2"	100	
1"	100	
3/4"	98	
1/2"	92	
3/8"	87	
1/4"	81	
#4	77	
#8	69	
#10	68	
#16	61	
#30	54	
#40	51	
#50	48	
#100	43	
#200	38.4	

AASHTO T89/T90

PLASTICITY INDEX

Liquid Limit	**27**
Plastic Limit	**21**
Plasticity Index	**6**

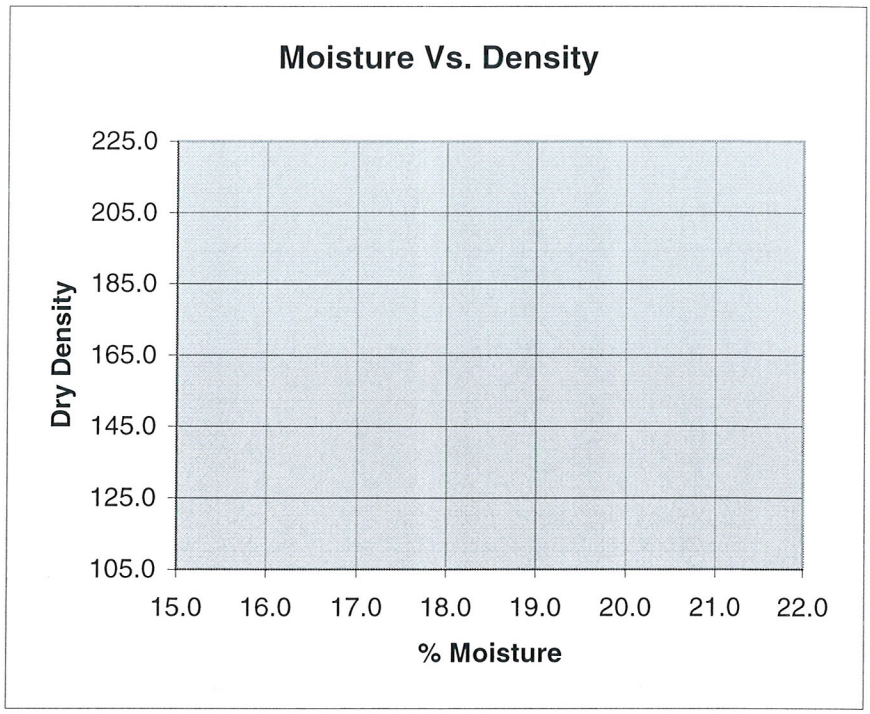
Percent Swell of Soil

% Swell	**N/A**

ASTM D 698 / 1557

Moisture Density (Proctor)

Max. Dry Density	
Opt Moisture %	
% Rock	



Remarks:

Tested By: K. Ritter
Test Date: 2/20/2010
Checked By:
Reviewed By:

Wilcox Professional Services
1055 S. 63rd Avenue
Phoenix, Arizona 85043
Phone: (602) 442-0667
FAX: (602) 442-0669

Summary

Client:	Wilcox-Design	Job No.:	30326.00091
Project Name:	Scottsdale Airport	Lab No.:	10-0058
Sample Location:		Date Received:	2/12/2010
		Sampled By:	TLP
Material:	Native Subgrade	Date Sampled:	2/12/2010
Material Source:	Rehab. Runway @ Taxiway A-4	Submitted By:	K. Ritter

AASHTO T27, T11

Sieve	% Pass	Specs
3"		
2-1/2"	100	
2"	100	
1-1/2"	100	
1"	91	
3/4"	90	
1/2"	88	
3/8"	88	
1/4"	84	
#4	81	
#8	75	
#10	73	
#16	67	
#30	61	
#40	59	
#50	57	
#100	54	
#200	48.8	

AASHTO T89/T90

PLASTICITY INDEX

Liquid Limit	**26**
Plastic Limit	**19**
Plasticity Index	**7**

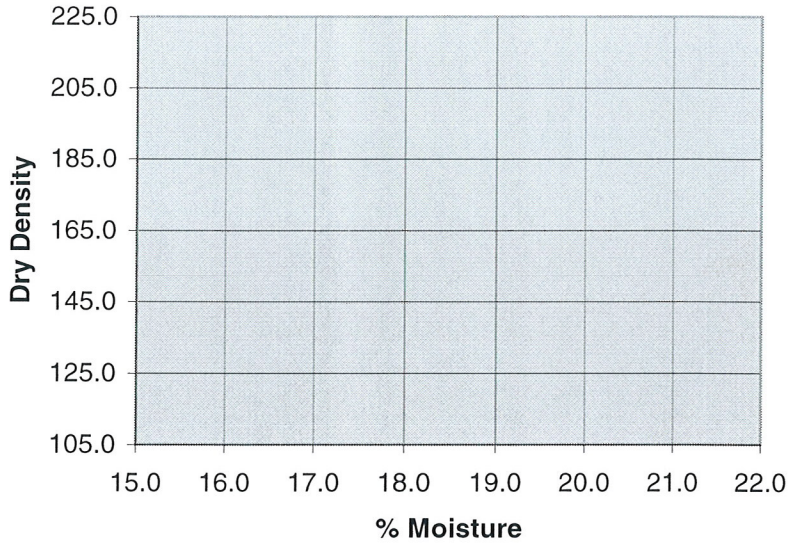
Percent Swell of Soil

% Swell	**N/A**

ASTM D 698 / 1557

Moisture Density (Proctor)

Max. Dry Density	
Opt Moisture %	
% Rock	



Remarks:

Tested By: K. Ritter
Test Date: 2/20/2010
Checked By:
Reviewed By:

Wilcox Professional Services
1055 S. 63rd Avenue
Phoenix, Arizona 85043
Phone: (602) 442-0667
FAX: (602) 442-0669

Summary

Client:	Wilcox-Design	Job No.:	30326.00091
Project Name:	Scottsdale Airport	Lab No.:	10-0059
Sample Location:		Date Received:	2/12/2010
		Sampled By:	TLP
Material:	Native Subgrade	Date Sampled:	2/12/2010
Material Source:	Rehab. Runwy @ Delta Ramp Taxi	Submitted By:	K. Ritter

AASHTO T27, T11

Sieve	% Pass	Specs
3"		
2-1/2"	100	
2"	100	
1-1/2"	100	
1"	100	
3/4"	100	
1/2"	99	
3/8"	98	
1/4"	95	
#4	91	
#8	84	
#10	83	
#16	77	
#30	71	
#40	69	
#50	67	
#100	63	
#200	56.3	

AASHTO T89/T90

PLASTICITY INDEX

Liquid Limit	**26**
Plastic Limit	**19**
Plasticity Index	**7**

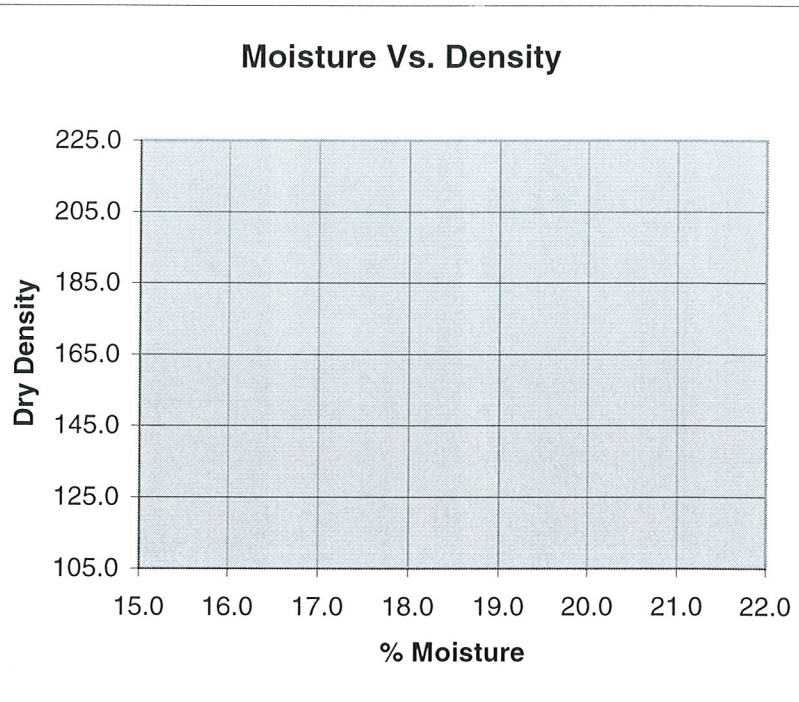
Percent Swell of Soil

% Swell	**N/A**

ASTM D 698 / 1557

Moisture Density (Proctor)

Max. Dry Density	
Opt Moisture %	
% Rock	



Remarks:

Tested By: K. Ritter
Test Date: 2/20/2010
Checked By:
Reviewed By:

Wilcox Professional Services
1055 S. 63rd Avenue
Phoenix, Arizona 85043
Phone: (602) 442-0667
FAX: (602) 442-0669

Summary

Client:	Wilcox-Design	Job No.:	31326.00091
Project Name:	Scottsdale Airport	Lab No.:	10-0059
Sample Location:		Date Received:	2/12/2010
		Sampled By:	JR/TLP
Material:	Native Subgrade	Date Sampled:	2/12/2010
Material Source:	Various locations along runway	Submitted By:	JR/TLP

AASHTO T27, T11

Sieve	% Pass	Specs
3"		
2-1/2"		
2"		
1-1/2"		
1"		
3/4"		
1/2"		
3/8"		
1/4"		
#4		
#8		
#10		
#16		
#30		
#40		
#50		
#100		
#200		

AASHTO T89/T90

PLASTICITY INDEX

Liquid Limit	**NP**
Plastic Limit	**NP**
Plasticity Index	**NP**

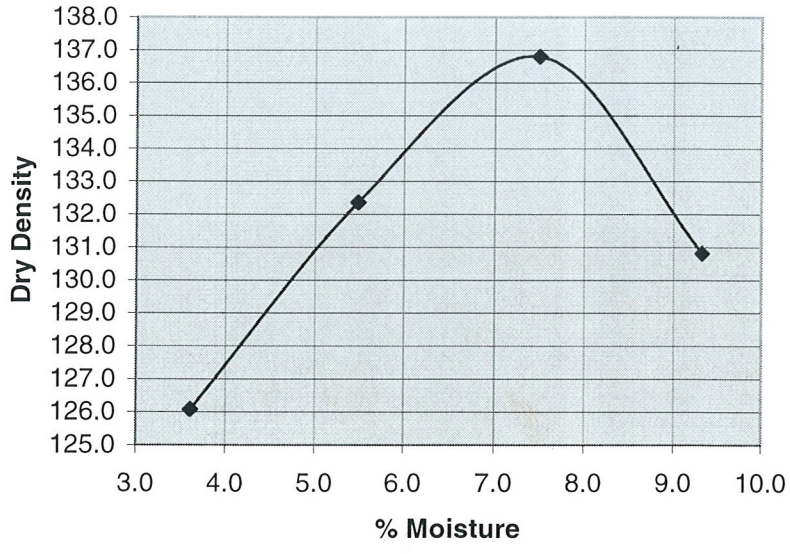
Percent Swell of Soil

% Swell	**N/A**

ASTM D 698 / 1557

Moisture Density (Proctor)

Max. Dry Density	**136.8**
Opt Moisture %	**7.5**
% Rock	**5**



Remarks:

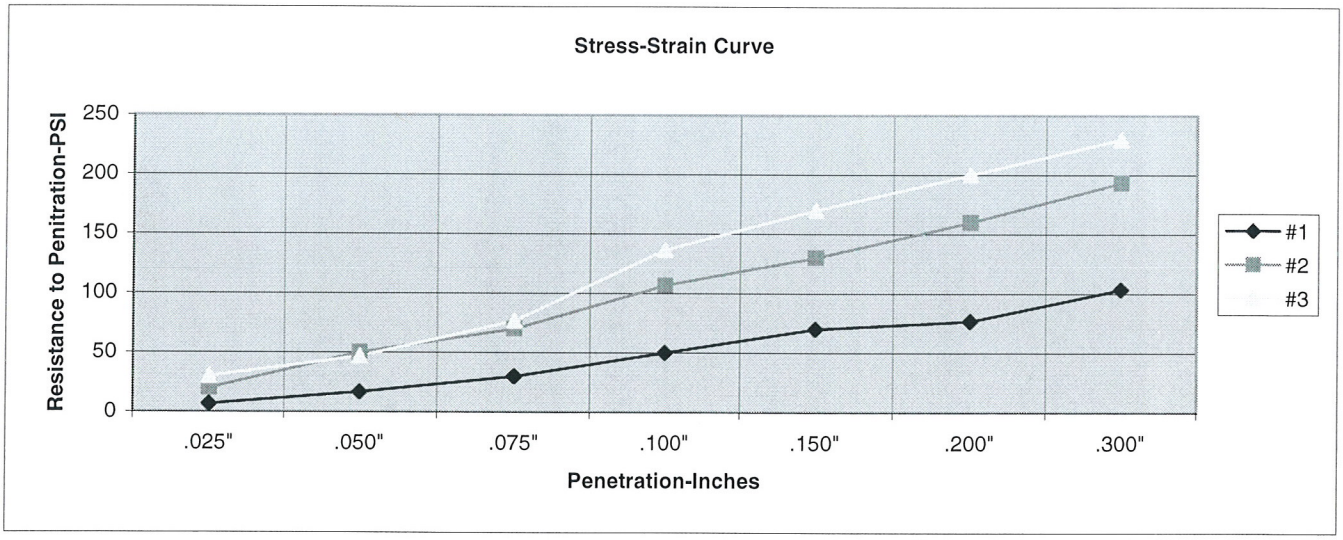
Tested By: K. Ritter
Test Date: 3/9/2010
Checked By:
Reviewed By:

Wilcox Professional Services
3130 N. 35th Avenue
Phoenix, Arizona 85017
Phone: (602) 442-0667
FAX: (602) 442-0669

Summary

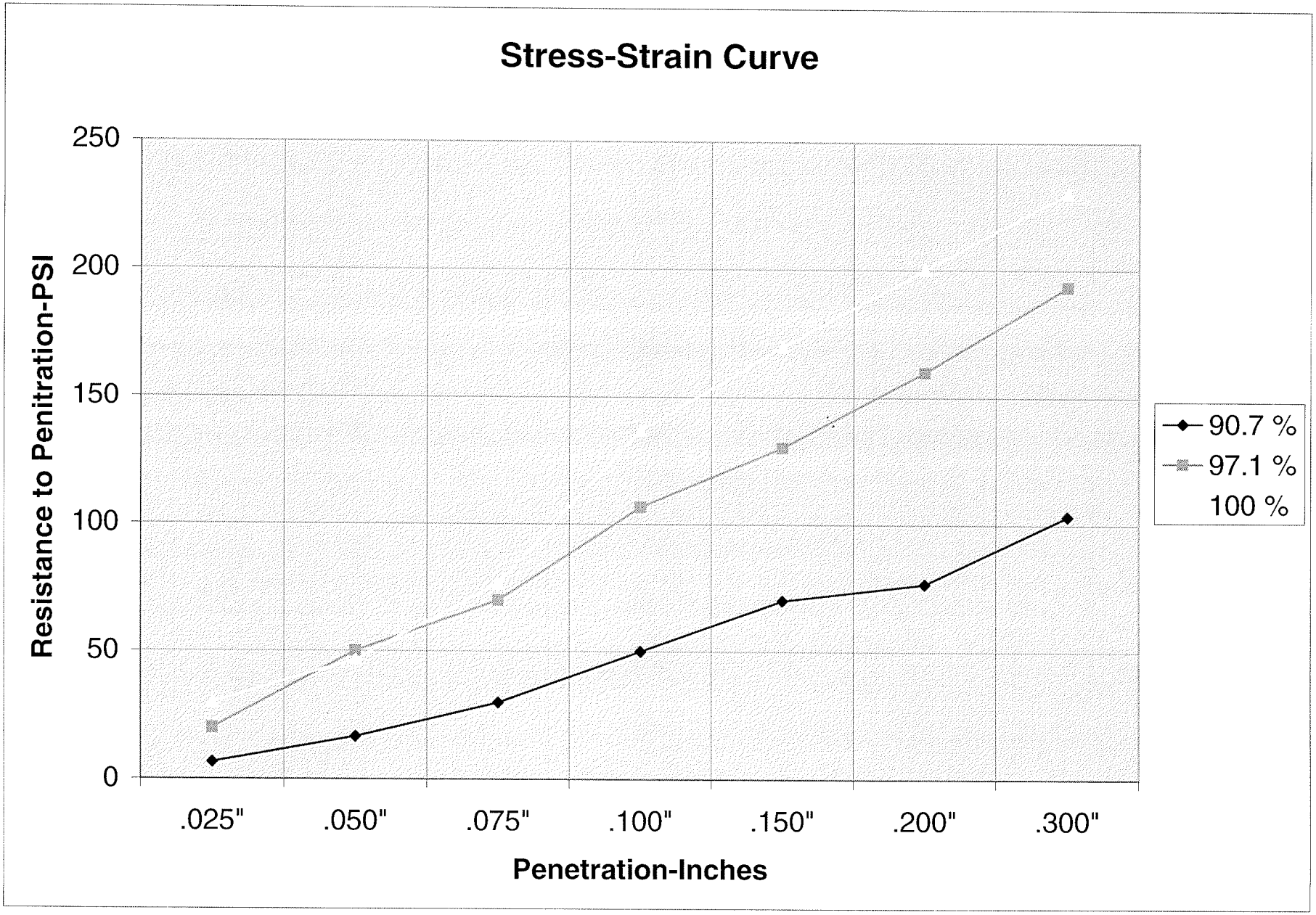
Client:	Wilcox-Design	Job No.:	31326.00091
Project Name:	Scottsdale Airport	Lab No.:	10-0059
Sample Location:	4 locations along the Rehab. Rnwy.	Date Received:	2/12/2010
Material:	Native Subgrade	Sampled By:	JBR
Material Source:	Lab # 10-0056 to #10-0059 Comb.	Date Sampled:	2/12/2010
		Submitted By:	JBR

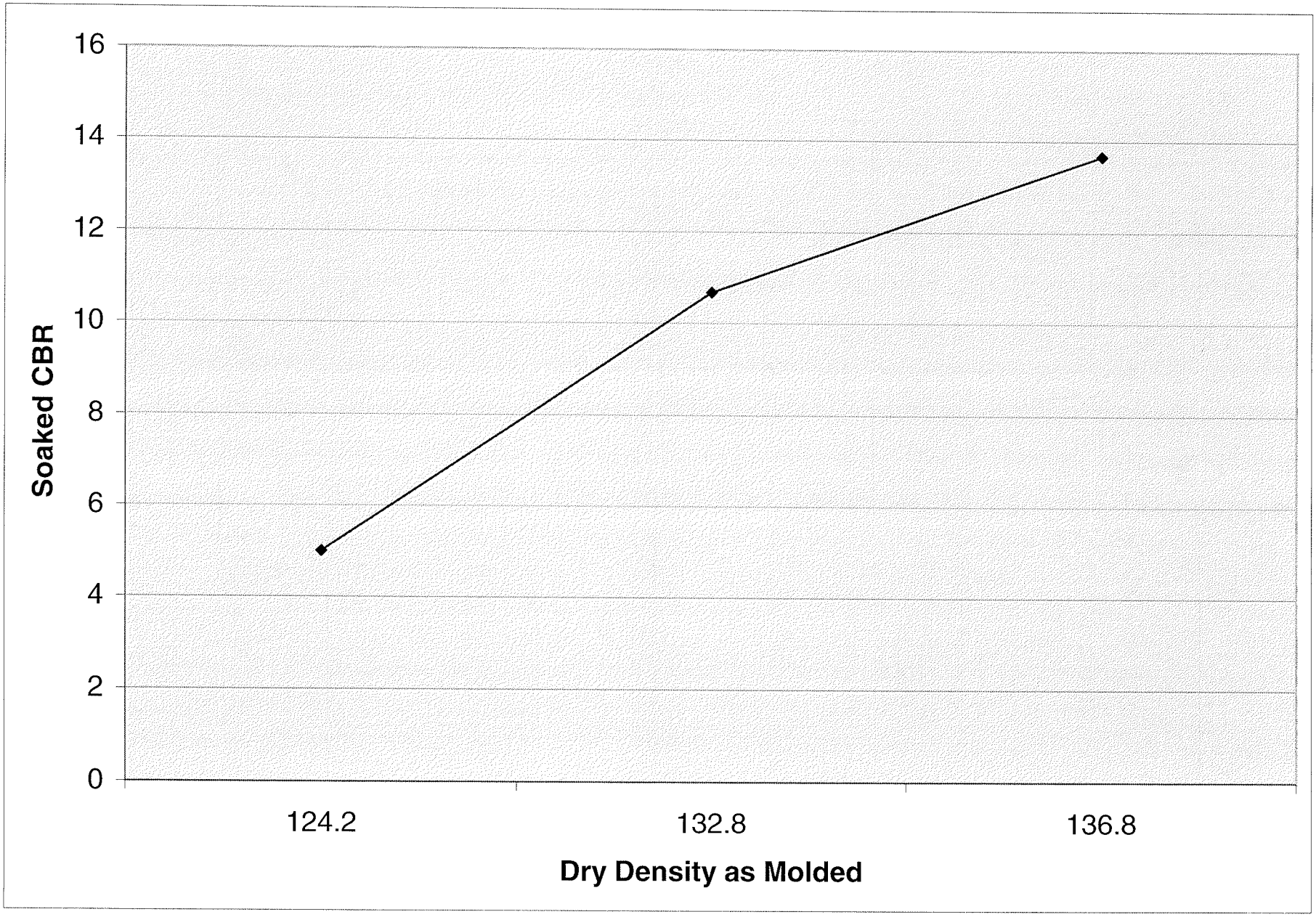
#1	#2	#3
AASHTO T 193-99	**AASHTO T 193-99**	**AASHTO T 193-99**
California Bearing Ratio %	California Bearing Ratio %	California Bearing Ratio %
5	11	14
Compaction Effort	Compaction Effort	Compaction Effort
10	25	56
Dry Density as Molded %	Dry Density as Molded %	Dry Density as Molded %
90.8	97.1	100.0
Moisture Content as Molded %	Moisture Content as Molded %	Moisture Content as Molded %
7.7	7.2	7.1
Percent Swell of Soil	Percent Swell of Soil	Percent Swell of Soil
0.2	0.3	0.4



Remarks:

Tested By: Keith Ritter
Test Date: 3/12/2010
Checked By:
Reviewed By:


Stress-Strain Curve
Resistance to Penitration-PSI
250
200
150
100
50
0
.025"
.050"
.075"
.100"
.150"
.200"
.300"
Penetration-Inches
90.7 %
97.1 %
100 %


16
14
12
10
8
6
4
2
0
Soaked CBR
124.2
132.8
136.8
Dry Density as Molded

Inches	Load Reading	LBF	PSI	CBR %
.025"	.0015	20		
.050"	.0058	50		
.075"	.0094	90		
.100"	.0151	150		
.150"	.0212	210		
.200"	.0238	230		
.300"	.0325	310		

Max Dry Density Corrected	136.8
Opt. Moisture %	7.5

Number of Blows	10
Trial No.	
Water Added (ml)	
Water Added (%)	
Wt of Sample & Mold (g)	21324.1
Wt of Mold (g)	16776.8
Wt of Sample (g)	4547.3
Volume of Mold, Cu. Ft.	0.075
WET DENSITY (PCF)	133.7
DRY DENSITY (PCF)	124.2
Moisture Sample Wet (g)	447.3
Moisture Sample Dry (g)	415.5
MOISTURE (%)	7.7

Dry Density % 90.8

31.8

453.6 34.02

% Swell= 0.2

125 100 75 50 25 0

Inches	Load Reading	LBF	PSI	CBR %
.025"	.0065	60		
.050"	.0156	150		
.075"	.0210	210		
.100"	.0331	320		
.150"	.0402	390		
.200"	.0498	480		
.300"	.0600	580		

Max Dry Density Corrected	136.8
Opt. Moisture %	7.5

Number of Blows	25
Trial No.	
Water Added (ml)	
Water Added (%)	
Wt of Sample & Mold (g)	9077.9
Wt of Mold (g)	4233.8
Wt of Sample (g)	4844.1
Volume of Mold, Cu. Ft.	0.075
WET DENSITY (PCF)	142.4
DRY DENSITY (PCF)	132.8
Moisture Sample Wet (g)	544.7
Moisture Sample Dry (g)	508
MOISTURE (%)	7.2

Dry Density % 97.1

453.6 34.02

% Swell= 0.3

Inches	Load Reading	LBF	PSI	CBR %
.025"	.0093	90		
.050"	.0148	140		
.075"	.0236	230		
.100"	.0423	410		
.150"	.0522	510		
.200"	.0626	600		
.300"	.0713	690		

Max Dry Density Corrected	136.8
Opt. Moisture %	7.5

Number of Blows	56
Trial No.	
Water Added (ml)	
Water Added (%)	
Wt of Sample & Mold (g)	9171.7
Wt of Mold (g)	4186.8
Wt of Sample (g)	4984.9
Volume of Mold, Cu. Ft.	0.075
WET DENSITY (PCF)	146.5
DRY DENSITY (PCF)	136.8
Moisture Sample Wet (g)	493.1
Moisture Sample Dry (g)	460.4
MOISTURE (%)	7.1

Dry Density % 100.0

453.6 34.02

% Swell= 0.4

APPENDIX D

Pavement Design Calculations

FAARFIELD - Airport Pavement Design (V 1.302, 3/11/09)

Section ACAggrega~01 in Job ScottsdaleRwy.
Working directory is C:\Program Files\FAA\FAARFIELD

Original Runway Section

The structure is New Flexible. Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 02/09/10 at 10:54:47.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Surface	6.00	200,000	0.35	0
2	P-209 Cr Ag	8.05	46,186	0.35	0
3	Subgrade	0.00	19,500	0.35	0

Total thickness to the top of the subgrade = 14.05 in

Airplane Information

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Sngl Whl-3	3,000	25,000	1.00
2	Sngl Whl-5	5,000	25,000	1.00
3	Sngl Whl-10	10,000	23,035	1.00
4	Sngl Whl-15	15,000	1,393	1.00
5	Dual Whl-75	75,000	120	1.00
6	Challenger-CL-604	48,200	489	1.00
7	Citation-VI/VII	23,200	848	1.00
8	Falcon-50	38,800	493	1.00
9	Falcon-900	45,500	649	1.00
10	Falcon-2000	35,000	1,634	1.00
11	Gulfstream-G-II	66,000	42	1.00
12	Gulfstream-G-III	70,200	237	1.00
13	Gulfstream-G-IV	75,000	357	1.00
14	Gulfstream-G-V	75,000	100	1.00
15	Hawker-800XP	28,120	1,481	1.00
16	Learjet-35A/65A	18,000	4,238	1.00
17	Sabreliner-60	20,372	31	1.00

Additional Airplane Information

Subgrade CDF

No.	Name	CDF Contribution	CDF Max for Airplane	P/C Ratio
1	Sngl Whl-3	0.00	0.00	4.31
2	Sngl Whl-5	0.00	0.00	4.07
3	Sngl Whl-10	0.00	0.00	3.68
4	Sngl Whl-15	0.00	0.00	3.43
5	Dual Whl-75	0.01	0.02	1.81
6	Challenger-CL-604	0.00	0.00	2.08
7	Citation-VI/VII	0.00	0.00	2.75
8	Falcon-50	0.00	0.00	2.36
9	Falcon-900	0.01	0.01	2.26
10	Falcon-2000	0.00	0.00	2.38
11	Gulfstream-G-II	0.02	0.02	2.11
12	Gulfstream-G-III	0.25	0.25	2.12
13	Gulfstream-G-IV	0.64	0.64	2.12
14	Gulfstream-G-V	0.07	0.07	1.97
15	Hawker-800XP	0.00	0.00	2.40
16	Learjet-35A/65A	0.00	0.00	2.59
17	Sabreliner-60	0.00	0.00	3.87

FAARFIELD - Airport Pavement Design (V 1.302, 3/11/09)

Section ACAggrega~01 in Job ScottsdaleRwy.
Working directory is C:\Program Files\FAA\FAARFIELD

Runway Extension Section (Stabilized)

The structure is New Flexible. Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 02/09/10 at 10:59:39.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Surface	6.00	200,000	0.35	0
2	P-301 SCB	4.39	250,000	0.20	0
3	Subgrade	0.00	18,150	0.35	0

Total thickness to the top of the subgrade = 10.39 in

Airplane Information

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Sngl Whl-3	3,000	25,000	1.00
2	Sngl Whl-5	5,000	25,000	1.00
3	Sngl Whl-10	10,000	23,035	1.00
4	Sngl Whl-15	15,000	1,393	1.00
5	Dual Whl-75	75,000	120	1.00
6	Challenger-CL-604	48,200	489	1.00
7	Citation-VI/VII	23,200	848	1.00
8	Falcon-50	38,800	493	1.00
9	Falcon-900	45,500	649	1.00
10	Falcon-2000	35,000	1,634	1.00
11	Gulfstream-G-II	66,000	42	1.00
12	Gulfstream-G-III	70,200	237	1.00
13	Gulfstream-G-IV	75,000	357	1.00
14	Gulfstream-G-V	75,000	100	1.00
15	Hawker-800XP	28,120	1,481	1.00
16	Learjet-35A/65A	18,000	4,238	1.00
17	Sabreliner-60	20,372	31	1.00

Additional Airplane Information

Subgrade CDF

No.	Name	CDF Contribution	CDF Max for Airplane	P/C Ratio
1	Sngl Whl-3	0.00	0.00	5.39
2	Sngl Whl-5	0.00	0.00	5.00
3	Sngl Whl-10	0.00	0.00	4.42
4	Sngl Whl-15	0.00	0.00	4.06
5	Dual Whl-75	0.01	0.02	1.94
6	Challenger-CL-604	0.00	0.00	2.26
7	Citation-VI/VII	0.00	0.00	3.12
8	Falcon-50	0.00	0.00	2.62
9	Falcon-900	0.00	0.00	2.50
10	Falcon-2000	0.00	0.00	2.64
11	Gulfstream-G-II	0.02	0.02	2.31
12	Gulfstream-G-III	0.24	0.24	2.31
13	Gulfstream-G-IV	0.62	0.62	2.31
14	Gulfstream-G-V	0.09	0.09	2.13
15	Hawker-800XP	0.00	0.00	2.67
16	Learjet-35A/65A	0.00	0.00	2.91
17	Sabreliner-60	0.00	0.00	4.71

FAARFIELD - Airport Pavement Design (V 1.302, 3/11/09)

Section ACAggrega~01 in Job ScottsdaleRwy. Runway Extension
Working directory is C:\Program Files\FAA\FAARFIELD\

The structure is New Flexible. Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 02/09/10 at 10:58:07.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Surface	6.00	200,000	0.35	0
2	P-209 Cr Ag	8.85	45,237	0.35	0
3	Subgrade	0.00	18,150	0.35	0

Total thickness to the top of the subgrade = 14.85 in

Airplane Information

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Sngl Whl-3	3,000	25,000	1.00
2	Sngl Whl-5	5,000	25,000	1.00
3	Sngl Whl-10	10,000	23,035	1.00
4	Sngl Whl-15	15,000	1,393	1.00
5	Dual Whl-75	75,000	120	1.00
6	Challenger-CL-604	48,200	489	1.00
7	Citation-VI/VII	23,200	848	1.00
8	Falcon-50	38,800	493	1.00
9	Falcon-900	45,500	649	1.00
10	Falcon-2000	35,000	1,634	1.00
11	Gulfstream-G-II	66,000	42	1.00
12	Gulfstream-G-III	70,200	237	1.00
13	Gulfstream-G-IV	75,000	357	1.00
14	Gulfstream-G-V	75,000	100	1.00
15	Hawker-800XP	28,120	1,481	1.00
16	Learjet-35A/65A	18,000	4,238	1.00
17	Sabreliner-60	20,372	31	1.00

Additional Airplane Information

Subgrade CDF

No.	Name	CDF Contribution	CDF Max for Airplane	P/C Ratio
1	Sngl Whl-3	0.00	0.00	4.14
2	Sngl Whl-5	0.00	0.00	3.91
3	Sngl Whl-10	0.00	0.00	3.55
4	Sngl Whl-15	0.00	0.00	3.32
5	Dual Whl-75	0.01	0.02	1.78
6	Challenger-CL-604	0.00	0.00	2.04
7	Citation-VI/VII	0.00	0.00	2.68
8	Falcon-50	0.00	0.00	2.32
9	Falcon-900	0.01	0.01	2.22
10	Falcon-2000	0.00	0.00	2.33
11	Gulfstream-G-II	0.02	0.02	2.08
12	Gulfstream-G-III	0.25	0.25	2.08
13	Gulfstream-G-IV	0.65	0.65	2.08
14	Gulfstream-G-V	0.06	0.06	1.94
15	Hawker-800XP	0.00	0.00	2.35
16	Learjet-35A/65A	0.00	0.00	2.53
17	Sabreliner-60	0.00	0.00	3.73

FAARFIELD - Airport Pavement Design (V 1.302, 3/11/09)

Section ACAggrega~01 in Job ScottsdaleRwy. **Taxiway A-4 & SAC Connector**
Working directory is C:\Program Files\FAA\FAARFIELD\

The structure is New Flexible. Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 03/09/10 at 10:40:46.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Surface	4.50	200,000	0.35	0
2	P-209 Cr Ag	14.93	47,289	0.35	0
3	Subgrade	0.00	12,000	0.35	0

Total thickness to the top of the subgrade = 19.43 in

Airplane Information

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Sngl Whl-3	3,000	25,000	1.00
2	Sngl Whl-5	5,000	25,000	1.00
3	Sngl Whl-10	10,000	23,035	1.00
4	Sngl Whl-15	15,000	1,393	1.00
5	Dual Whl-75	75,000	120	1.00
6	Challenger-CL-604	48,200	489	1.00
7	Citation-VI/VII	23,200	848	1.00
8	Falcon-50	38,800	493	1.00
9	Falcon-900	45,500	649	1.00
10	Falcon-2000	35,000	1,634	1.00
11	Gulfstream-G-II	66,000	42	1.00
12	Gulfstream-G-III	70,200	237	1.00
13	Gulfstream-G-IV	75,000	357	1.00
14	Gulfstream-G-V	75,000	100	1.00
15	Hawker-800XP	28,120	1,481	1.00
16	Learjet-35A/65A	18,000	4,238	1.00
17	Sabreliner-60	20,372	31	1.00

Additional Airplane Information

Subgrade CDF

No.	Name	CDF Contribution	CDF Max for Airplane	P/C Ratio
1	Sngl Whl-3	0.00	0.00	3.35
2	Sngl Whl-5	0.00	0.00	3.20
3	Sngl Whl-10	0.00	0.00	2.97
4	Sngl Whl-15	0.00	0.00	2.81
5	Dual Whl-75	0.02	0.03	1.66
6	Challenger-CL-604	0.00	0.00	1.86
7	Citation-VI/VII	0.00	0.00	2.35
8	Falcon-50	0.00	0.00	2.08
9	Falcon-900	0.00	0.00	2.00
10	Falcon-2000	0.00	0.00	2.09
11	Gulfstream-G-II	0.02	0.02	1.89
12	Gulfstream-G-III	0.25	0.25	1.89
13	Gulfstream-G-IV	0.63	0.63	1.89
14	Gulfstream-G-V	0.08	0.08	1.78
15	Hawker-800XP	0.00	0.00	2.10
16	Learjet-35A/65A	0.00	0.00	2.23
17	Sabreliner-60	0.00	0.00	3.09

FAARFIELD - Airport Pavement Design (V 1.302, 3/11/09)

Section ACAggrega~01 in Job ScottsdaleRwy. **Delta Ramp & A-8 Bypass**
Working directory is C:\Program Files\FAA\FAARFIELD\

The structure is New Flexible. Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 03/09/10 at 10:47:10.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Surface	4.50	200,000	0.35	0
2	P-209 Cr Ag	4.00	127,229	0.35	0
3	P-301 SCB	4.12	250,000	0.20	0
4	Subgrade	0.00	12,000	0.35	0

Total thickness to the top of the subgrade = 12.62 in

Airplane Information

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Sngl Whl-3	3,000	25,000	1.00
2	Sngl Whl-5	5,000	25,000	1.00
3	Sngl Whl-10	10,000	23,035	1.00
4	Sngl Whl-15	15,000	1,393	1.00
5	Dual Whl-75	75,000	120	1.00
6	Challenger-CL-604	48,200	489	1.00
7	Citation-VI/VII	23,200	848	1.00
8	Falcon-50	38,800	493	1.00
9	Falcon-900	45,500	649	1.00
10	Falcon-2000	35,000	1,634	1.00
11	Gulfstream-G-II	66,000	42	1.00
12	Gulfstream-G-III	70,200	237	1.00
13	Gulfstream-G-IV	75,000	357	1.00
14	Gulfstream-G-V	75,000	100	1.00
15	Hawker-800XP	28,120	1,481	1.00
16	Learjet-35A/65A	18,000	4,238	1.00
17	Sabreliner-60	20,372	31	1.00

Additional Airplane Information

Subgrade CDF

No.	Name	CDF Contribution	CDF Max for Airplane	P/C Ratio
1	Sngl Whl-3	0.00	0.00	4.68
2	Sngl Whl-5	0.00	0.00	4.38
3	Sngl Whl-10	0.00	0.00	3.94
4	Sngl Whl-15	0.00	0.00	3.65
5	Dual Whl-75	0.02	0.04	1.86
6	Challenger-CL-604	0.00	0.00	2.15
7	Citation-VI/VII	0.00	0.00	2.89
8	Falcon-50	0.00	0.00	2.46
9	Falcon-900	0.00	0.00	2.35
10	Falcon-2000	0.00	0.00	2.48
11	Gulfstream-G-II	0.02	0.02	2.18
12	Gulfstream-G-III	0.24	0.24	2.19
13	Gulfstream-G-IV	0.62	0.62	2.19
14	Gulfstream-G-V	0.09	0.10	2.03
15	Hawker-800XP	0.00	0.00	2.50
16	Learjet-35A/65A	0.00	0.00	2.70
17	Sabreliner-60	0.00	0.00	4.16

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DIVISION 4

SUPPLEMENTAL DOCUMENT 2
Federal Wage Rates

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"General Decision Number: AZ20230008 01/06/2023

Superseded General Decision Number: AZ20220008

State: Arizona

Construction Type: Highway

Counties: Coconino, Maricopa, Mohave, Pima, Pinal, Yavapai and Yuma Counties in Arizona.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2023

CARP0408-005 07/01/2022

	Rates	Fringes
CARPENTER (Including Cement Form Work)	$ 32.90	13.62

ENGI0428-001 06/01/2022

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Group 1	$ 30.14	12.57
Group 2	$ 33.41	12.57
Group 3	$ 34.49	12.57
Group 4	$ 35.52	12.57

POWER EQUIPMENT OPERATORS CLASSIFICATIONS:

GROUP 1: A-frame boom truck, air compressor, Beltcrete, boring bridge and texture, brakeman, concrete mixer (skip type), conductor, conveyor, cross timing and pipe float, curing machine, dinky (under 20 tons), elevator hoist (Husky and similar), firemen, forklift, generator (all), handler, highline cableway signalman, hydrographic mulcher, joint inserter, jumbo finishing machine, Kolman belt loader, machine conveyor, multiple power concrete saw, pavement breaker, power grizzly, pressure grout machine, pump, self-propelled chip spreading machine, slurry seal machine (Moto paver driver), small self-propelled compactor (with blade-backfill, ditch operation), straw blower, tractor (wheel type), tripper, tugger (single drum), welding machine, winch truck

GROUP 2:
ALL COUNTIES INCLUDING MARICOPA: Aggregate Plant, Asphalt plant Mixer, Bee Gee, Boring Machine, Concrete Pump, Concrete Mechanical Tamping-Spreading Finishing Machine, Concrete Batch Plant, Concrete Mixer (paving & mobile), Elevating Grader (except as otherwise classified), Field Equipment Serviceman, Locomotive Engineer (including Dinky 20 tons & over), Moto-Paver, Oiler-Driver, Operating Engineer Rigger, Power Jumbo Form Setter, Road Oil Mixing Machine, Self-Propelled Compactor (with blade-grade operation), Slip Form (power driven lifting device for concrete forms), Soil Cement Road Mixing Machine, Pipe-Wrapping & Cleaning Machine (stationary or traveling), Surface Heater & Planer, Trenching Machine, Tugger (2 or more drums).

MARICOPA COUNTY ONLY: Backhoe < 1 cu yd, Motor Grader (rough), Scraper (pneumatic tired), Roller (all types asphalt), Screed, Skip Loader (all types 3<6 cu yd), Tractor (dozer, pusher-all).

GROUP 3:
ALL COUNTIES INCLUDING MARICOPA: Auto Grade Machine, Barge, Boring Machine (including Mole, Badger & similar type directional/horizontal), Crane (crawler & pneumatic 15>100 tons), Crawler type Tractor with boom attachment & slope bar, Derrick, Gradall, Heavy Duty Mechanic-Welder, Helicopter Hoist or Pilot, Highline Cableway, Mechanical Hoist, Mucking Machine, Overhead Crane, Pile Driver Engineer (portable, stationary or skid), Power Driven Ditch

Lining or Ditch Trimming Machine, Remote Control Earth Moving Machine, Slip Form Paving Machine (including Gunnert, Zimmerman & similar types), Tower Crane or similar type.

MARICOPA COUNTY ONLY: Backhoe<10 cu yd, Clamshell < 10 cu yd, Concrete Pump (truck mounted with boom only), Dragline <10 cu yd, Grade Checker, Motor Grader (finish-any type power blade), Shovel < 10 cu yd.

GROUP 4: Backhoe 10 cu yd and over, Clamshell 10 cu yd and over, Crane (pneumatic or crawler 100 tons & over), Dragline 10 cu yd and over, Shovel 10 cu yd and over.

All Operators, Oilers, and Motor Crane Drivers on equipment with Booms, except concrete pumping truck booms, including Jibs, shall receive $0.01 per hour per foot over 80 ft in addition to regular rate of pay

Premium pay for performing hazardous waste removal $0.50 per hour over base rate.

IRON0075-004 08/01/2022

COCONINO, MARICOPA, MOHAVE, YAVAPAI & YUMA COUNTIES

	Rates	Fringes
Ironworker, Rebar	$ 28.50	18.16

Zone 1: 0 to 50 miles from City Hall in Phoenix or Tucson
Zone 2: 050 to 100 miles - Add $4.00
Zone 3: 100 to 150 miles - Add $5.00
Zone 4: 150 miles & over - Add $6.50

LABO1184-008 06/01/2021

	Rates	Fringes
Laborers:		
Group 1	$ 21.93	6.27
Group 2	$ 23.57	6.27
Group 3	$ 24.43	6.27
Group 4	$ 25.40	6.27
Group 5	$ 26.50	6.27

LABORERS CLASSIFICATIONS:

GROUP 1: All Counties: Chipper, Rip Rap Stoneman. Pinal County Only: General/Cleanup Laborer. Maricopa County Only: Flagger.

GROUP 2: Asphalt Laborer (Shoveling-excluding Asphalt Raker or Ironer), Bander, Cement Mason Tender, Concrete Mucker, Cutting Torch Operator, Fine Grader, Guinea Chaser, Power Type Concrete Buggy

GROUP 3: Chain Saw, Concrete Small Tools, Concrete Vibrating Machine, Cribber & Shorer (except tunnel), Hydraulic Jacks and similar tools, Operator and Tender of Pneumatic and Electric Tools (not herein separately classified), Pipe Caulker and Back-Up Man-Pipeline, Pipe Wrapper, Pneumatic Gopher, Pre-Cast Manhole Erector, Rigger and Signal

Man-Pipeline

GROUP 4: Air and Water Washout Nozzleman; Bio-Filter, Pressman, Installer, Operator; Scaffold Laborer; Chuck Tender; Concrete Cutting Torch; Gunite; Hand-Guided Trencher; Jackhammer and/or Pavement Breaker; Scaler (using boson's chair or safety belt); Tamper (mechanical all types).

GROUP 5: AC Dumpman, Asbestos Abatement, Asphalt Raker II, Drill Doctor/Air Tool Repairman, Hazardous Waste Removal, Lead Abatement, Lead Pipeman, Process Piping Installer, Scaler (Driller), Pest Technician/Weed Control, Scissor Lift, Hydro Mobile Scaffold Builder.

PAIN0086-001 04/01/2017

	Rates	Fringes
PAINTER		
PAINTER (Yavapai County only), SAND BLASTER/WATER BLASTER (all Counties)	$ 19.58	6.40

ZONE PAY: More than 100 miles from Old Phoenix Courthouse $3.50 additional per hour.

SUAZ2009-001 04/20/2009

	Rates	Fringes
CEMENT MASON	$ 19.28	3.99
ELECTRICIAN	$ 22.84	6.48
IRONWORKER (Rebar)		
Pima County	$ 23.17	14.83
Pinal County	$ 20.27	8.35
LABORER		
Asphalt Raker	$ 15.49 **	3.49
Compaction Tool Operator	$ 14.59 **	2.91
Concrete Worker	$ 13.55 **	3.20
Concrete/Asphalt Saw	$ 13.95 **	2.58
Driller-Core, diamond, wagon, air track	$ 16.94	3.12
Dumpman Spotter	$ 14.99 **	3.16
Fence Builder	$ 13.28 **	2.99
Flagger Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 12.35 **	1.59
Formsetter	$ 16.09 **	3.97
General/Cleanup Laborer Coconino, Maricopa, Mohave, Pima, Yavapai & Yuma	$ 14.54 **	3.49
Grade Setter (Pipeline)	$ 17.83	5.45
Guard Rail Installer	$ 13.28 **	2.99
Landscape Laborer	$ 11.39 **	
Landscape Sprinkler Installer	$ 15.27 **	
Pipelayer	$ 14.81 **	2.96
Powderman, Hydrasonic	$ 16.39	2.58

OPERATOR: Power Equipment

Asphalt Laydown Machine	$ 21.19	6.05
Backhoe < 1 cu yd		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 17.37	3.85
Backhoe < 10 cu yd		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 18.72	3.59
Clamshell < 10 cu yd		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 18.72	3.59
Concrete Pump (Truck Mounted with boom only)		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 19.92	7.10
Crane (under 15 tons)	$ 21.35	7.36
Dragline (up to 10 cu yd)		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 18.72	3.59
Drilling Machine (including Water Wells)	$ 20.58	5.65
Grade Checker		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 16.04 **	3.68
Hydrographic Seeder	$ 15.88 **	7.67
Mass Excavator	$ 20.97	4.28
Milling Machine/Rotomill	$ 21.42	7.45
Motor Grader (Finish-any type power blade)		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 21.92	4.66
Motor Grader (Rough)		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 20.07	4.13
Oiler	$ 18.15	8.24
Power Sweeper	$ 16.76	4.44
Roller (all types Asphalt)		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 18.27	3.99
Roller (excluding asphalt)	$ 15.65 **	3.32
Scraper (pneumatic tired)		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 17.69	3.45
Screed		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 17.54	3.72
Shovel < 10 cu yd		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 18.72	3.59
Skip Loader (all types <3 cu yd)	$ 18.28	5.30
Skip Loader (all types 3 < 6 cu yd)		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 18.64	4.86
Skip Loader (all types 6 < 10 cu yd)	$ 20.15	4.52
Tractor (dozer, pusher - all)		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma	$ 17.26	2.65

PAINTER

Coconino, Maricopa,

Mohave, Pima, Pinal & Yuma	$ 15.57 **	3.92
TRUCK DRIVER		
2 or 3 Axle Dump or Flatrack	$ 16.27	3.30
5 Axle Dump or Flatrack	$ 13.97 **	2.89
6 Axle Dump or Flatrack (< 16 cu yd)	$ 17.79	6.42
Belly Dump	$ 14.67 **	
Oil Tanker Bootman	$ 22.03	
Self-Propelled Street Sweeper	$ 13.11 **	5.48
Water Truck 2500 < 3900 gallons	$ 18.14	4.55
Water Truck 3900 gallons and over	$ 15.92 **	3.33
Water Truck under 2500 gallons	$ 15.94 **	4.16

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

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($16.20) or 13658 ($12.15). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

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

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

(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

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

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END OF GENERAL DECISIO"