

County of Humboldt • Department of Aviation
3561 Boeing Avenue • McKinleyville • CA • 95519 • (707) 839-5401



SPECIAL PROVISIONS

NOTICE TO BIDDERS,
PROPOSAL AND CONTRACT

FOR

REHABILITATE AIRPORT LIGHTING SYSTEM

**AIP No. 06-0010-057-2023
ACI No. 236977**

90 CALENDAR DAYS

FOR USE WITH Construction Plans, dated April 2023, Technical Specifications, provided herein, and Prevailing Wage Rates

BIDS OPEN: April 27, 2023 AT 2:00 p.m., PDT.

County of Humboldt
Department of Aviation
3561 Boeing Avenue
McKinleyville, CA 95519

Note: To register as a plan-holder, prospective bidders must email a request to the Department of Aviation Contact Person. Failure to register as a plan-holder with the Department of Aviation may result in a nonresponsive bid.

SPECIAL PROVISIONS

**NOTICE TO BIDDERS,
PROPOSAL AND CONTRACT**

FOR

REHABILITATE AIRPORT LIGHTING SYSTEM

**AIP NO. 3-06-0010-057-2023
ACI NO. 236977**

Prepared by

**Armstrong Consultants, Inc.
751 Horizon Court, Suite 255
Grand Junction, CO 81506**

Designed By:

Eric Rivera

Date

Approved:

Christopher S. Nocks
RCE 91380, Expires 06/30/2024

Date

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COUNTY OF HUMBOLDT
DEPARTMENT OF AVIATION

NOTICE TO BIDDERS

Sealed proposals will be received by (and all bids should be mailed or delivered to) the

Department of Aviation
SEALED BID for (Rehabilitate Airport Lighting System)
County of Humboldt
Department of Aviation
3561 Boeing Avenue
McKinleyville, California, 95519

until 2:00 p.m., PDT, April 27, 2023, at which time they will be publicly opened by the Department of Aviation of the County of Humboldt at a public meeting located at the upstairs conference room in the Airport Terminal Building at 3561 Boeing Avenue, McKinleyville, CA for performing work as follows:

REHABILITATE AIRPORT LIGHTING SYSTEM
AIP NO. 3-06-0010-057-2023
ACI NO. 236977

Bids are required for the entire work as described herein:

The work to be done consists of rehabilitating the airport lighting system at California Redwood Coast – Humboldt County Airport, including replacement of: the airfield lighting vault and enclosure, the backup generator and enclosure, taxiway lights, lighted airfield guidance signs, airport beacon and tower, and other airfield lighting related components. Bidders are advised that the work must be completed within 90 calendar days. The Engineer’s Estimate for this work is: **\$4,500,000.**

Plans, Special Provisions and Proposal Forms may be viewed at the Humboldt County Department of Aviation, 3561 Boeing Avenue, McKinleyville, California, 95519, at area plan centers and on the County’s website at: <http://humboldt.gov/Bids.aspx>.

To receive electronic bid documents and to **register as a plan-holder**, prospective bidders must email a request to the following project contact: Department of Aviation Office, aviation@co.humboldt.ca.us, (707) 839-5401. Failure to register as a plan-holder with Department of Aviation may result in a nonresponsive bid.

Printed copies of the contract documents may be obtained by prospective Bidders upon ADVANCE payment of a non-refundable printing and service charge in the amount of \$100.00. All checks shall be made payable to COUNTY OF HUMBOLDT and should be mailed along with

the request for Plans to the Humboldt County Department of Aviation, 3561 Boeing Avenue, McKinleyville, California, 95519.

Telephone:

(707) 839-5401 Department of Aviation, questions regarding plans or specs and requests for plans or planholder list

Provisions that reference federal-aid contracts are applicable.

The successful Bidder shall furnish a Payment Bond and a Performance Bond.

The Contractor shall possess a **CLASS "A"** Contractors License at the time this contract is awarded.

A non-mandatory pre-bid meeting will be held at the California Redwood Coast-Humboldt County Airport on April 18, 2023 at 10:00 a.m., PDT. All bidders are advised to examine the site to become familiar with all site conditions.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990. The County of Humboldt affirms that in any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprises, as defined in 49 CFR Part 26, will be afforded full opportunity to submit bids in response to this invitation.

For this contract, the County has included a Disadvantaged Business Enterprises (DBE) goal of 2.03%. Bidders need not achieve the percentage stated as a condition of award.

For this contract, the number of trainees or apprentices for the Federal training program is 0 (zero) Inquiries or questions based on alleged patent ambiguity of the plans, specifications or estimate must be communicated as a bidder inquiry prior to bid opening. Any such inquiries or questions, submitted after bid opening, will not be treated as a bid protest.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at County of Humboldt, 3561 Boeing Avenue, McKinleyville, CA 95519 and available from the California Department of Industrial Relations' Internet web site at <http://www.dir.ca.gov/DLSR/PWD>. The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are available on the web home page of the Department of Labor at <https://sam.gov/content/wage-determinations> and copies may be examined at the offices described above where project plans, special provisions, and proposal forms may be seen. Addenda to modify the Federal minimum wage rates, if necessary, will be issued to planholders that have purchased bid documents from the Department of Aviation at 3561 Boeing Avenue, McKinleyville, California, 95519. Future effective general prevailing wage rates which have been predetermined and are on file with the California Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

Attention is directed to the Federal minimum wage rate requirements of the Department of Labor. If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, the Contractor and subcontractors shall pay not less than the higher wage rate. The Department will not accept lower State wage rates not

specifically included in the Federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal wage determinations. Where Federal wage determinations do not contain the State wage rate determination otherwise available for use by the Contractor and subcontractors, the Contractor and subcontractors shall pay not less than the Federal minimum wage rate which most closely approximates the duties of the employees in question.

This project is subject to the "Buy America" provisions of the Surface Transportation Act of 1982, as amended by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) Sections 1041(a) and 1048(a), and the regulations adopted pursuant thereto.

BUY AMERICAN PREFERENCE

(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))

Certification of Compliance with Buy American Preference Statement

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 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. 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 construction 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.

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.

KATHY HAYES

Clerk of the Board of Supervisors
County of Humboldt, State of California

DATED: _____

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COUNTY OF HUMBOLDT
DEPARTMENT OF AVIATION

SPECIAL PROVISIONS
FOR

REHABILITATE AIRPORT LIGHTING SYSTEM
AIP NO. 3-06-0010-057-2023
ACI NO. 236977

DIVISION I GENERAL PROVISIONS

1 GENERAL

Add to section 1-1.01:

The work embraced herein shall be done in accordance with the construction plan set and technical specifications provided for this project.

Replace the following definitions in section 1-1.07B with:

DEPARTMENT, DIRECTOR: Humboldt County Department of Aviation.

ENGINEER: Armstrong Consultants, Inc. acting on behalf of the Director of Aviation of Humboldt County working within the scope of his authority.

STATE: County of Humboldt, a political subdivision of the State of California.

Add to section 1-1.07B:

LABORATORY: Qualified and Properly Licensed Materials and Testing Laboratory hired by the Contractor.

^^

2 BIDDING

Add to section 2-1.06A:

Plans, Special Provisions (not including documents included by reference) and Proposal Forms may be viewed by prospective Bidders at the Humboldt County Department of Aviation, 3561 Boeing Avenue, McKinleyville, California.

Plans, Technical Specifications, and Special Provisions may be viewed on the County of Humboldt web site: <http://humboldt.gov/Bids.aspx>.

Note that Plans, Special Provisions, and Proposal Forms posted on the County's web site may be used to submit a bid, however prospective bidders must register as a plan-holder. Failure to register as a plan-holder with the Department of Aviation may result in a nonresponsive bid.

To **register as a plan-holder**, prospective bidder may email a request to the following project contact: Department of Aviation Office, aviation@co.humboldt.ca.us or (707) 839-5401.

Add to section 2-1.06C:

All bid proposals and materials submitted in response to this Notice to Bidders shall become the County's property and are subject to disclosure under the Public Records Act, California Government Code Sections 6250, et seq. All bid proposals submitted in response hereto, are considered public information, except for specifically identified trade secrets, which will be handled according to any and all applicable local, state and federal laws and regulations. Any portion of a bid proposal that is deemed to be a trade secret by the bidder shall be clearly marked "PROPRIETARY INFORMATION" at the top of the page in at least one-half inch (1/2") letters. Specifically identified proprietary information will not be released, if the bidder agrees to indemnify and defend the County in any action brought to disclose such information. By submitting a bid proposal in response to this Notice to Bidders, the bidder agrees that the County's failure to contact the bidder prior to the release of any proprietary information contained therein will not be a basis for liability by the County or any employee thereof. Items considered public information will be available for review after the bid opening.

Add to section 2-1.12B:

DISADVANTAGED BUSINESS ENTERPRISES (DBE)

(Required Federal Language)

The contractor, subrecipient or subcontractor shall take necessary and reasonable steps to ensure that DBEs have opportunity to participate in the contract (49 CFR 26). To ensure equal participation of DBEs provided in 49 CFR 26.5, the County shows a contract goal for DBEs. The prime contractor shall make work available to DBEs and select work parts consistent with available DBE subcontractors and suppliers.

The prime contractor shall meet the DBE goal shown elsewhere in these special provisions or demonstrate that they made adequate good faith efforts to meet this goal.

It is the prime contractor's responsibility to verify that at date of bid opening the DBE firm is certified as a DBE by using the California Unified Certification Program (CUCP) database and possesses the most specific available North American Industry Classification System (NAICS) codes and work code applicable to the type of work the firm will perform on the contract.

Additionally, the prime contractor is responsible to document the verification record by printing out the CUCP data for each DBE firm. A list of DBEs certified by the CUCP can be found at: <https://dot.ca.gov/programs/civil-rights/dbe-search>.

All DBE participation will count toward the California Department of Transportation's federally mandated statewide overall DBE goal.

Credit for materials or supplies the prime contractor purchases from DBEs counts towards the goal in the following manner:

- 100 percent counts if the materials or supplies are obtained from a DBE manufacturer.
- 60 percent counts if the materials or supplies are obtained from a DBE regular dealer.
- Only fees, commissions, and charges for assistance in the procurement and delivery of materials or supplies count if obtained from a DBE that is neither a manufacturer nor regular dealer. 49 CFR 26.55 defines "manufacturer" and "regular dealer."

The prime contractor receives credit towards the goal if they employ a DBE trucking company that performs a commercially useful function as defined in 49 CFR 26.55(d)(1) as follows:

- The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.
- The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- The DBE receives credit for the total value of the transportation services it provides on the Contract using trucks it owns, insures, and operates using drivers it employs.
- The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the Contract.
- The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE that leases trucks equipped with drivers from a non-DBE is entitled to credit for the total value of transportation services provided by non-DBE leased trucks equipped with drivers not to exceed the value of transportation services on the contract provided by DBE-owned trucks or leased trucks with DBE employee drivers. Additional participation by non-DBE owned trucks equipped with drivers receives credit only for the fee or commission it receives as a result of the lease arrangement.
- The DBE may lease trucks without drivers from a non-DBE truck leasing company. If the DBE leases trucks from a non-DBE truck leasing company and uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.
- A lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for

use of the leased truck. Leased trucks must display the name and identification number of the DBE.

A. Nondiscrimination Statement

The contractor, subrecipient or subcontractor will never exclude any person from participation in, deny any person the benefits of, or otherwise discriminate against anyone in connection with the award and performance of any contract covered by 49 CFR 26 on the basis of race, color, sex, or national origin. In administering the County components of the DBE Program Plan, the contractor, subrecipient or subcontractor will not, directly, or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the objectives of the DBE Program Plan with respect to individuals of a particular race, color, sex, or national origin.

B. Contract Assurance

Under 49 CFR 26.13(b):

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 26 in the award and administration of federal-aid 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.

C. Prompt Progress Payment

The prime contractor or subcontractor shall pay to any subcontractor, not later than **seven days** after receipt of each progress payment, unless otherwise agreed to in writing, the respective amounts allowed the contractor on account of the work performed by the subcontractors, to the extent of each subcontractor's interest therein. In the event that there is a good faith dispute over all or any portion of the amount due on a progress payment from the prime contractor or subcontractor to a subcontractor, the prime contractor or subcontractor may withhold no more than 150 percent of the disputed amount. Any violation of this requirement shall constitute a cause for disciplinary action and shall subject the licensee to a penalty, payable to the subcontractor, of 2 percent of the amount due per month for every month that payment is not made.

In any action for the collection of funds wrongfully withheld, the prevailing party shall be entitled to his or her attorney's fees and costs. The sanctions authorized under this requirement shall be separate from, and in addition to, all other remedies, either civil, administrative, or criminal. This clause applies to both DBE and non-DBE subcontractors.

D. Prompt Payment of Withheld Funds to Subcontractors

No retainage will be held by County from progress payments due to prime contractor. Prime contractors and subcontractors are prohibited from holding retainage from subcontractors. Any delay or postponement of payment may take place only for good cause and with the County's prior written approval. Any violation of this provision shall subject the violating prime contractor or subcontractor to the penalties, sanctions, and other remedies specified in Section 7108.5 of the California Business and Professions Code and Section 10262 of the California Public Contract Code. This provision shall not be construed to limit or impair any contractual, administrative or judicial remedies, otherwise available to the prime contractor or subcontractor in the event of a dispute involving late payment or nonpayment by prime contractor, deficient subcontractor performance and/or noncompliance by a subcontractor. This provision applies to both DBE and non-DBE subcontractors.

Any violation of these provisions of Prompt Progress Payment and Prompt Payment of Withheld Funds to Subcontractors shall subject the violating prime contractor or subcontractor to the penalties, sanctions and other remedies specified therein. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the prime contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the prime contractor, deficient subcontract performance, or noncompliance by a subcontractor.

E. Termination and Substitution of DBE Subcontractors

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 the County's written consent. The prime contractor shall not terminate or substitute a listed DBE for convenience and perform the work with their own forces or obtain materials from other sources without prior written authorization from the County. Unless the County's prior written consent is provided, the contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE on the Exhibit 15-G Construction Contract DBE Commitment form, included in the Bid.

The County authorizes a request to use other forces or sources of materials if the bidder shows any of the following justifications:

1. Listed DBE fails or refuses to execute a written contract based on plans and specifications for the project.
2. The County stipulated that a bond is a condition of executing the subcontract and the listed DBE fails to meet the County's bond requirements.
3. Work requires a contractor's license and listed DBE does not have a valid license under Contractors License Law.
4. Listed DBE fails or refuses to perform the work or furnish the listed materials (failing or refusing to perform is not an allowable reason to remove a DBE if the failure or refusal is a result of bad faith or discrimination).
5. Listed DBE's work is unsatisfactory and not in compliance with the contract.
6. Listed DBE is ineligible to work on the project because of suspension or debarment.

7. Listed DBE becomes bankrupt or insolvent.
8. Listed DBE voluntarily withdraws with written notice from the Contract
9. Listed DBE is ineligible to receive credit for the type of work required.
10. Listed DBE owner dies or becomes disabled resulting in the inability to perform the work on the Contract.
11. The County determines other documented good cause.

The prime contractor shall notify the original DBE of the intent to use other forces or material sources and provide the reasons, allowing the DBE 5 days to respond to the notice and advise the prime contractor and the County of the reasons why the use of other forces or sources of materials should not occur.

The prime contractor's request to use other forces or material sources must include:

1. One or more of the reasons listed in the preceding paragraph.
2. Notices from the prime contractor to the DBE regarding the request.
3. Notices from the DBEs to the prime contractor regarding the request.

If the County authorizes the termination or substitution of a listed DBE, the prime contractor must make good faith efforts to find another DBE to substitute for the original DBE. The substitute DBE must (1) perform at least the same amount of work as the original DBE under the contract to the extent needed to meet or exceed the DBE goal, and (2) be certified as a DBE with the most specific available NAICS codes and work codes applicable to the type of work the DBE will perform on the contract at the time of the prime contractor's request for substitution. The prime contractor shall submit their documentation of good faith efforts within 7 days of their request for authorization of the substitution. The County may authorize a 7-day extension of this submittal period at the prime contractor's request. More guidance can be found at 49 CFR 26 app A regarding evaluation of good faith efforts to meet the DBE goal.

F. Commitment and Utilization

Note: In the County's reports of DBE participation to Caltrans, the County must display both commitments and attainments.

The County's DBE program must include a monitoring and enforcement mechanism to ensure that DBE commitments reconcile to DBE utilization.

The bidder shall submit the Exhibit 15-G Construction Contract DBE Commitment, included in the Bid book. This exhibit is the bidder's DBE commitment form. If the form is not submitted with the bid, the bidder must remove the form from the Bid book before submitting their bid.

The bidder shall complete and sign Exhibit 15-G Construction Contract DBE Commitment included in the contract documents regardless of whether DBE participation is reported. The bidder shall provide written confirmation from each DBE that the DBE is participating in the Contract. A

copy of a DBE's quote serves as written confirmation. If a DBE is participating as a joint venture partner, the bidder shall submit a copy of the joint venture agreement.

If the DBE Commitment form, Exhibit 15-G, is not submitted with the bid, it must be completed and submitted by all bidders to the County within five (5) days of bid opening. If the bidder does not submit the DBE Commitment form within the specified time, the County will find the bidder's bid nonresponsive.

The prime contractor shall use each DBE subcontractor as listed on Exhibit 12-B Bidder's List of Subcontractors (DBE and Non-DBE), and Exhibit 15-G Construction Contract DBE Commitment form unless they receive authorization for a substitution.

The County shall request the prime contractor to:

1. Notify the Resident Engineer or Inspector of any changes to its anticipated DBE participation
2. Provide this notification before starting the affected work
3. Maintain records including:
 - Name and business address of each 1st-tier subcontractor
 - Name and business address of each DBE subcontractor, DBE vendor, and DBE trucking company, regardless of tier
 - Date of payment and total amount paid to each business (see Exhibit 9-F Monthly Disadvantaged Business Enterprise Payment)

If the prime contractor is a DBE contractor, they shall include the date of work performed by their own forces and the corresponding value of the work.

Before the 15th of each month, the prime contractor shall submit a Monthly DBE Trucking Verification (LAPM Exhibit 16-Z1) form.

If a DBE is decertified before completing its work, the DBE must notify the prime contractor in writing of the decertification date. If a business becomes a certified DBE before completing its work, the business must notify the prime contractor in writing of the certification date. The prime contractor shall submit the notifications. Upon work completion, the prime contractor shall complete a Disadvantaged Business Enterprises (DBE) Certification Status Change, Exhibit 17-O, form and submit the form within 30 days of contract acceptance.

Upon work completion, the prime contractor shall complete Exhibit 17-F Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors and submit it within 90 days of contract acceptance. The County will withhold \$10,000 until the form is submitted. The County releases the withhold upon submission of the completed form.

G. DBE Running Tally of Attainments

After submitting an invoice for reimbursement that includes a payment to a DBE, but no later than the 10th of the following month, the prime contractor/consultant shall complete and email the Exhibit 9-F: Disadvantaged Business Enterprise Running Tally of Payments to business.support.unit@dot.ca.gov with a copy to the County.

Add to section 2-1.33A:

The following table lists the forms that are included in the Proposal Section of these special provisions:

Table of Forms	
Form	Description
Exhibit 12B Part 1	List of Subcontractors (DBE & Non DBE)
Exhibit 12B Part 2	List of Subcontractors (DBE & Non DBE)
Exhibit 15G	DBE Commitment
Exhibit 15H	DBE Good Faith Effort

Add to section 2-1.34:

The form "Bidder’s Bond" can be found following the signature page of the Proposal.

Add to section 2-1.43:

BID OPENING (Required Federal Language)

The County publicly opens and reads bids at the time and place shown on the Notice to Bidders.

^^

3 CONTRACT AWARD AND EXECUTION

Replace the 1st paragraph in section 3-1.04 with:

Bid Protest. Any bid protest must be in writing and must be received by the Department Director at 3561 Boeing Avenue, McKinleyville, CA 95519, before 5:00 p.m. no later than three (3) working days following bid opening (the “Bid Protest Deadline”) and must comply with the following requirements:

- Only a bidder who has actually submitted a Bid Proposal is eligible to submit a bid protest against another bidder. Subcontractors are not eligible to submit bid protests. A bidder may not rely on the bid protest submitted by another bidder, but must timely pursue its own protest.
- The bid protest must contain a complete statement of the basis for the protest and all supporting documentation. Material submitted after the Bid Protest Deadline will not be considered. The protest must refer to the specific portion or portions of the Contract Documents upon which the protest is based. The protest must include the name, address and

telephone number of the person representing the protesting bidder if different from the protesting bidder.

3. A copy of the protest and all supporting documents must also be transmitted by fax or by e-mail, by or before the Bid Protest Deadline, to the protested bidder and any other bidder who has a reasonable prospect of receiving an award depending upon the outcome of the protest.
4. The protested bidder may submit a written response to the protest, provided the response is received by the Department Director before 5:00 p.m., within two (2) working days after the Bid Protest Deadline or after receipt of the bid protest, whichever is sooner (the "Response Deadline"). The response must include all supporting documentation. Material submitted after the Response Deadline will not be considered. The response must include the name, address and telephone number of the person representing the protested bidder if different from the protested bidder.
5. The procedure and time limits set forth in this section are mandatory and are the bidder's sole and exclusive remedy in the event of bid protest. The bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue a bid protest, including filing a Government Code Claim or initiation of legal proceedings. Any addenda or bulletins issued during the time of bidding, or forming a part of the documents issued to the Bidder for the preparation of his bid, shall be covered in the bid, and shall become a part of the Agreement.

Any addenda or bulletins issued during the time of bidding, or forming a part of the documents issued to the Bidder for the preparation of his bid, shall be covered in the bid, and shall become a part of the Agreement.

No person, firm or corporation shall be allowed to make or file, or be interested in, more than one bid for the same work, unless alternate bids are called for. A person, firm, or corporation who has submitted a subproposal to a Bidder, or who has quoted prices on materials to a Bidder, is not thereby disqualified from submitting a subproposal or quoting prices to other Bidders.

Replace the 2nd paragraph in section 3-1.04 with:

CONTRACT AWARD (Required Federal Language)

If the County awards the contract, the award is made to the lowest responsible and responsive bidder.

Replace section 3-1.05:

The successful Bidder, simultaneously with the execution of the Agreement, will be required to furnish a **Payment Bond** in an amount equal to **one hundred (100%) percent** of the contract price, and a faithful **Performance Bond** in an amount equal to **one hundred (100%)** of the contract price; said Bonds shall be secured from a surety company satisfactory to the Humboldt County Board of Supervisors. The Payment Bond shall comply with Section 3248 of the Civil Code of the State of California. The Payment Bond and the faithful Performance Bond shall each be in a form which is satisfactory to the County Counsel of the County of Humboldt. A copy of an acceptable format is attached to the Agreement forms included in the proposal section of these specifications.

Replace section 3-1.06 with:

CONTRACTOR LICENSE (Required Federal Language)

The Contractor must be properly licensed as a contractor from contract award through Contract acceptance (Public Contract Code § 10164).

Replace section 3-1.07 with:

- I. THIS CONTRACT/AGREEMENT SHALL NOT BE EXECUTED BY COUNTY and the CONTRACTOR is not entitled to any rights, unless certificates of insurance, or other sufficient proof that the following provisions have been complied with, and such certificate(s) are filed with the Clerk of the Humboldt County Board of Supervisors.
- II. Without limiting Contractor's indemnification provided herein, Contractor shall and shall require any of its subcontractors to take out and maintain, throughout the period of this Agreement, the following policies of insurance placed with insurers with a current A.M. Bests rating of no less than A:VII or its equivalent against injury/death to persons or damage to property which may arise from or in connection with the activities hereunder of Contractor, its agents, employees or subcontractors:
 - A. Comprehensive or Commercial General Liability Insurance at least as broad as Insurance Services Office Commercial General Liability coverage (occurrence from CG 0001), in an amount of \$2,000,000 per occurrence. If work involves explosive, underground or collapse risks, XCU must be included. If a general aggregate limit is used, either the general aggregate limit shall apply separately to this project or the general aggregate shall be twice the required occurrence limit. Said policy shall contain, or be endorsed with, the following provisions:
 - (1) The County, its officers, employees and agents, are covered as additional insured for liability arising out of the operations performed by or on behalf of Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the County, its officers, agents, and employees.
 - (2) The policy shall not be canceled or materially reduced in coverage without thirty (30) days prior written notice (10 days for non-payment of the premium) to County by certified mail.
 - (3) The inclusion of more than one insured shall not operate to impair the rights of one insured against another insured, and the coverage afforded shall apply as though separate policies had been issued to each insured, but the inclusion of more than one insured shall not operate to increase the limits of the insurer's liability.
 - (4) For claims related to this project, the Contractor's insurance is primary coverage to the County, and any insurance or self-insurance programs maintained by the County are excess to Contractor's insurance and will not be called upon to contribute with it.
 - (5) Any failure to comply with reporting or other provisions of the parties, including breach of warranties, shall not affect coverage provided to County, its officers, employees, and agents.

- B. Automobile liability insurance with coverage at least as broad as Insurance Services Office form CA 0001 06092, Code 1 (any auto), for vehicles used in the performance of this Agreement with minimum coverage of not less than \$1,000,000 per accident combined single limit (CSL). Such policy shall contain or be endorsed with the provision that coverage shall not be canceled or materially reduced in coverage without thirty (30) days prior written notice (10 days for non-payment of premium) to County by certified mail.
- C. Workers' Compensation insurance meeting statutory limits of the California Labor Code which policy shall contain or be endorsed to contain a waiver of subrogation against County, its officers, agents, and employees and provide for thirty (30) days prior written notice in the event of cancellation.
- D. Contractor shall furnish County with certificates and original endorsements effecting the required coverage prior to execution of this Agreement by County. The endorsements shall be on forms as approved by the County's Risk Manager or County Counsel. Any deductible or self-insured retention over \$100,000 shall be disclosed to and approved by County. If Contractor does not keep all required policies in full force and effect, County may, in addition to other remedies under this Agreement, take out the necessary insurance, and Contractor agrees to pay the cost of said insurance.

The County may elect to treat a failure to maintain the requisite insurances as a breach of contract/agreement and terminate the contract/agreement as provided herein.

III. Contractor shall indemnify and hold harmless County and its Board, officers, officials, employees, and volunteers from and against all claims, damages, losses, and expenses including attorney fees arising out of the performance of the work described herein, caused in whole or in part by any negligent act or omission by the contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, except where caused by the active negligence, sole negligence, or willful misconduct of the County.

Replace the 2nd and 3rd paragraph in section 3-1.18 with:

The form of Agreement which the successful Bidder, as Contractor, will be required to execute, is included in the contract documents and should be carefully examined by the bidder. The agreement and bonds will be executed in duplicate. The signed agreements and bonds together with the required insurance certificates are to be returned by the successful bidder within 7 days, not including Sundays and legal holidays, after the bidder has received the contract for execution.

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4 SCOPE OF WORK

Add to section 4-1.06:

CHANGED CONDITIONS (Required Federal Language)

A. Differing Site Conditions

1. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.
2. Upon written notification, the engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding anticipated profits, will be made and the contract modified in writing accordingly. The engineer will notify the contractor of the determination whether or not an adjustment of the contract is warranted.
3. No contract adjustment which results in a benefit to the contractor will be allowed unless the contractor has provided the required written notice.
4. No contract adjustment will be allowed under this clause for any effects caused on unchanged work.

B. Suspensions of Work Ordered by the Engineer

1. If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.
2. Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The contractor will be notified of the engineer's determination whether or not an adjustment of the contract is warranted.
3. No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.
4. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

C. Significant Changes in the Character of Work

1. The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.
2. If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated

profit, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

3. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contract, the altered work will be paid for as provided elsewhere in the contract.
4. The term “significant change” shall be construed to apply only to the following circumstances:
 - When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
 - When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

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5 CONTROL OF WORK

Add to section 5-1.13A:

The subcontractors listed on the “Subcontractor List,” shall perform the work and supply the materials for which they are listed, unless the Contractor has received prior written authorization to perform the work with other forces or to obtain the materials from other sources.

The Contractor should notify the Engineer in writing of any changes to its anticipated subcontractor participation. This notice should be provided prior to the commencement of that portion of the work.

Replace section 5-1.13B with:

**5-1.13B Disadvantaged Business Enterprises
5-1.13B(1) General**

Section 5-1.13B applies to a federal-aid contract.

Use each DBE as listed on the DBE Commitment form unless you receive Department prior authorization for termination under section 5-1.13B(2)(c). Ensure that all subcontracts and agreements with DBEs to supply labor or materials are performed under 49 CFR 26.

Maintain records of subcontracts made with DBE subcontractors and records of materials purchased from DBE suppliers. Include in the records:

1. Name and business address of each DBE subcontractor, DBE vendor, and DBE trucking company, regardless of tier

2. Date of payment and total amount paid to each DBE business

If you are a DBE contractor, include the date of work performed by your own forces and the corresponding value of the work.

Before the 15th day of each month for the previous month's work, submit:

1. Monthly DBE Trucking Verification form
2. Monthly DBE Payment form

If a DBE is decertified before completing its work, the business must notify you in writing of the decertification date within 15 days of decertification. Notify the Engineer and submit the DBE's decertification notice within 2 business days of your receipt. Upon work completion, complete a Disadvantage Business Enterprises (DBE) Certification Status Change form and submit within 10 days of Contract acceptance.

Upon work completion, complete a Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors form and submit within 10 days of Contract acceptance. The Department withholds the greater of 10 percent of the DBE commitment or \$10,000 until the form is submitted. The Department releases the withhold upon submission of the completed form. If additional payments are made to a DBE after submittal of the completed form, submit an updated form to reflect such payments.

Failure to carry out requirements of 49 CFR 26 is a material breach of the Contract, which may result in the termination of the Contract or other remedy as the Department deems appropriate, such as:

1. Withholding monthly progress payments
2. Assessing sanctions
3. Applying liquidated damages
4. Disqualification from future bidding as nonresponsive

5-1.13B(2) Disadvantaged Business Enterprises

5-1.13B(2)(a) General

Section 5-1.13(B)(2) applies if a DBE goal is shown on the *Notice to Bidders*.

You are responsible for ensuring each DBE listed on the DBE Commitment form performs:

1. The description and value of the subcontracted work or material supplied as committed
2. A commercially useful function under 49 CFR 26.55 for committed work or materials

For DBE committed work, the Department only pays for work performed or supplied by the listed DBE and if a commercially useful function was performed by the listed DBE.

You are responsible to remediate noncompliant DBE work to meet your DBE commitment. Submit a DBE commitment remediation plan within 5 business days of the Engineer's request.

Pay your DBEs in conformance with section 5-1.13E.

Failure to promptly pay DBEs may result in a withholds corresponding to the value of the DBE's committed work from future progress payments. In addition, unpaid DBE amounts will not count

towards your DBE commitment, which may result in equivalent withholds or deductions and a 2 percent penalty on the unpaid amount for every month payment is not made.

5-1.13B(2)(b) Commercially Useful Function

DBEs must perform a commercially useful function under 49 CFR 26.55 when performing work or supplying materials listed on the DBE Commitment form. The DBEs value of work will only count toward the DBE commitment if the DBE performs a commercially useful function under 49 CFR 26.55.

Provide written notification to the Engineer at least 15 days in advance of each DBE's initial performance of work or supplying materials for the Contract. Include the DBE's name, contract work to be performed, and the location, date, and time of where their work will take place.

Within 10 days of a DBE initially performing work or supplying materials on the Contract, submit your initial evaluation and validation of their performance of a commercially useful function using DBE Commercially Useful Function Evaluation form. Include the following supporting information with your submittal:

1. Subcontract agreement with the DBE
2. Purchase orders
3. Bills of lading
4. Invoices
5. Proof of payment

Monitor your DBEs' performance of commercially useful function with quarterly evaluations and validations throughout their duration of work on the Contract using DBE Commercially Useful Function Evaluation form. Submit your quarterly evaluation and validation DBE Commercially Useful Function Evaluation forms by the 5th of the month for the previous three month's work. Include any additional supplemental supporting information with your submittal. If your DBE's work-start and -end dates for the Contract exceed a three-month period, regardless of time not on the Contract, quarterly evaluations and validations are required.

Notify the Engineer immediately if you believe the DBE may not be performing a commercially useful function.

The Department will verify your DBEs performance of commercially useful functions by reviewing your initial and quarterly DBE Commercially Useful Function Evaluation forms, your submitted supporting information, field observations, and through select Department evaluations. The Department may evaluate DBEs and their commercially useful function performance at any time during the Contract. In such instances, the Department will provide written notice to you and your DBE at least 2 business days prior to the evaluation. You and your DBE must participate in the evaluation. Upon completing the evaluation, the Department will share the evaluation results with you and your DBE. The evaluation results may include items that must be remedied upon your receipt. If the Department determines the DBE is not performing a commercially function you must suspend performance of the noncompliant work.

You and your DBEs must submit any additional commercially useful function related records and documents within 5 business days of Department request such as:

1. Proof of ownership or lease and rental agreements for equipment
2. Tax records

3. Employee rosters
4. Certified payroll records
5. Inventory rosters

Failure to submit required DBE Commercially Useful Function Evaluation forms or requested records and documents will result in withhold of payment for the value of work completed by the DBE.

If you and or the Department determine a listed DBE is not performing a commercially useful function in performance of their DBE committed work, suspend performance of the noncompliant portion of the work. Submit a corrective action plan within 5 days of the noncompliant commercially useful function determination. The plan must identify how you will remediate when feasible or demonstrate commercially useful function compliance for the remaining portion of the DBE's work. Allow 5 days for plan review. The corrective actions must be implemented within 5 days of Engineer's authorization of your plan and prior to resumption of the noncompliant portion of the DBE's committed work.

If corrective actions cannot be accomplished to assure the DBE will perform a commercially useful function on the Contract, you may have good cause to request termination of the DBE under section 5-1.13B(2)(c).

5-1.13B(2)(c) Termination

Termination of a DBE may be allowable for good cause reasons under 49 CFR 26.53(f)(3) with prior written authorization from the Department. You must provide documentation supporting good cause reasoning with your termination request. If the termination request is authorized by the Department, you must then either replace the DBE with another DBE or demonstrate good faith efforts to do so under 5-1.13B(2)(d).

Use the following procedure to request the termination of a DBE or portion of their work:

1. Provide written notice to the DBE of your intent to use other forces or material sources and include one or more of the good cause reasons under 49 CFR 26.53(f)(3). Simultaneously send a copy of this written notice to the Engineer. Your written notice to the DBE must request they provide any response to both you and the Engineer.
2. Provide the DBE with 5 business days to respond to your written notice by either acknowledging their agreement or documenting their reasoning as to why the use of other forces or sources of materials should not occur. If the DBE does not respond within 5 business days, you may move forward with the request process as if the DBE had agreed to your written notice.
3. Submit your DBE termination request by written letter to the Engineer and include:
 - 3.1. One or more good cause reasons identified under 49 CFR 26.53(f)(3) along with supporting documentation.
 - 3.2. Your written notice to the DBE regarding the request, including proof of transmission and tracking documentation of your written notice.
 - 3.3. The DBE's response to your written notice, if received. If a written response was not provided, provide a statement to that effect.

The Department will respond to your complete DBE termination request as follows:

1. Where the DBE has agreed in writing or fails to timely respond to your written notice, the Department will respond within 2 business days from receipt of your request.

2. Where the DBE has disagreed in writing with your written notice, the Department will meet with you and the DBE within 5 business days from receipt of your request. The Department will respond to your request within 5 business days from this meeting.
3. If you fail to provide a complete request for DBE termination the Department will identify deficiencies within 5 business days from receipt of your request.

If the Department authorizes your DBE termination request it will do so in writing.

Work performed by a firm other than the committed DBE or authorized replacement DBE without first obtaining Department authorization for termination will be a violation of these specifications and DBE federal regulations. Such violations will result in payment deductions for the value of the work associated with the noncompliant DBE commitment. In addition, if the committed DBE is also a listed subcontractor, the Department applies an additional penalty up to 10 percent of the value of the subject work as a permanent deduction.

5-1.13B(2)(d) Replacement

After receiving Department written authorization of your DBE termination request, you must obtain separate Department authorization of your replacement plan.

Your replacement plan must identify DBE replacement firms to perform the work or demonstrate that you have made a good faith effort to use DBE replacement firms. DBE replacement firms must:

1. Perform at least the same dollar amount of work as the terminated DBE to the extent needed to meet the DBE commitment
2. Possess certifications for the most specific available North American Industry Classification System codes and work codes applicable to the work the firm will perform on the Contract
3. Perform a commercially useful function under 49 CFR 26.55

Use the following procedure to request authorization of your replacement plan:

1. Submit a request to replace a DBE with other forces or material sources by written letter to the Department which must include:
 - 1.1. Description of remaining uncommitted item work made available for replacement DBE solicitation and participation.
 - 1.2. The proposed DBE replacement firm's business information, the work they have agreed to perform, and the following:
 - 1.2.1. Quote for bid item work and description of work to be performed
 - 1.2.2. Proposed subcontract agreement and written confirmation of agreement to perform on the Contract
 - 1.2.3. Revised Subcontracting Request form
2. If you have not identified a DBE replacement firm, submit documentation of your good faith efforts to use DBE replacement firms within 7 days of Department's authorization to terminate the DBE. You may request the Department's approval to extend this submittal period to a total of 14 days. The Department considers your documented actions taken to identify a DBE replacement firm in determining whether a good faith effort was made under 49 CFR 26 app A. Submit documentation of actions taken to find a DBE replacement firm, such as:

- 2.1. Search results of certified DBEs available to perform the original DBE work identified and or other work you had intended to self-perform, to the extent needed to meet your DBE commitment
- 2.2. Solicitations of DBEs for performance of work identified in 2.1
- 2.3. Correspondence with interested DBEs that may have included contract details and requirements
- 2.4. Negotiation efforts with DBEs that reflect why an agreement was not reached
- 2.5. If a DBE's quote was rejected, provide your reasoning for the rejection, such as why the DBE was unqualified for the work, or why the price quote was unreasonable or excessive
- 2.6. Copies of each DBE's and non-DBE's price quotes for work identified in 2.1, as the Department may contact the firms to verify solicitation efforts and determine if the DBE quotes are substantially higher
- 2.7. Additional documentation that you believe supports your good faith effort

The Department will respond to your complete replacement plan as follows:

1. If a DBE replacement firm has been identified and required documentation has been provided, the Department will respond within 2 business days from receipt of your plan
2. If a DBE replacement firm has not been identified, but good faith effort documents have been provided, the Department will respond within 5 business days from receipt of your plan
3. If you fail to provide a complete replacement plan, the Department will return your request and identify deficiencies within 5 business days from receipt of your plan

If the Department authorizes your replacement plan it will do so in writing.

Submit a revised Subcontracting Request form if your replacement plan is authorized.

DBE committed work performed by a nonauthorized firm, will be a violation of these specifications and DBE federal regulations. Such violations will result in payment deductions for the value of the work associated with the DBE commitment. The Department will take a permanent deduction for the value of the DBE work that was not performed by the authorized DBE. In addition, if the associated work was also to be performed by a listed subcontractor, the Department applies an additional penalty up to 10 percent of the value of the subject work as a permanent deduction.

5-1.13B(3) Use of Joint Checks

You may use a joint check between the Contractor or lower-tier subcontractor and a DBE subcontractor purchasing materials from a material supplier if you obtain prior approval from the Department for your proposed use of joint checks upon submittal of a DBE Joint Check Agreement Request form.

To use a joint check, the following conditions must be met:

1. All parties, including the Contractor, must agree in writing to the use of a joint check
2. Entity issuing the joint check acts solely to guarantee payment
3. DBE must release the check to the material supplier
4. Department must authorize the request before implementation
5. Any party to the agreement must provide requested documentation within 10 days of the Department's request for the documentation

- 6. Agreement to use a joint check must be short-term, not to exceed 1 year, allowing sufficient time needed to establish or increase a credit line with the material supplier

A request for a joint check agreement may be initiated by any party.

If a joint check is used, the DBE remains responsible for all elements of 49 CFR 26.55(c)(1).

Failure to comply with section 5-1.13B(3) disqualifies DBE participation and results in no credit and no payment to the Contractor for DBE participation.

A joint check may not be used between the Contractor or subcontractor and a DBE regular dealer, bulk material supplier, manufacturer, wholesaler, broker, trucker, packager, manufacturer's representative, or other persons who arrange or expedite transactions.

Add to section 5-1.36C:

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workmen and of the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipelines greater than 150 mm (6 inches) in diameter or pipelines operating at pressures greater than 415 kPa (60 psi) gauge; underground electric supply system conductors or cables, with potential to ground of more than 300 volts, either directly buried or in duct or conduit which do not have concentric grounded conductors or other effectively grounded metal shields or sheaths.

Per Govt Code § 4216 et seq., the Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least 3 working days, but not more than 14 calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure. Regional notification centers include but are not limited to the following:

Notification Center	Telephone Number
Underground Service Alert-Northern California (USA)	1-800-642-2444 1-800-227-2600
Underground Service Alert-Southern California (USA)	1-800-422-4133 1-800-227-2600

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6 CONTROL OF MATERIALS

Add to section 6-1.03:

6-1.03B Submittals

6-1.03B(1) General
Not Used

6-1.03B(2) Work Plan

For local material, such as rock, gravel, earth, structure backfill, pervious backfill, imported borrow, and culvert bedding, obtained from a (1) noncommercial source, or (2) source not regulated under California jurisdiction, submit a local material plan for each material at least 60 days before placing the material. The local material plan must include:

1. Certification signed by you and an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State stating:

I am aware local material from a noncommercial source or a source not regulated under CA jurisdiction must be sampled and analyzed for pH and lead and may require sampling and analysis under section 6-1.03B(3) for other constituents of concern based on the land use history. I am aware that local material sources must not contain ADL at concentrations greater than 80 mg/kg total lead or equal to or greater than 5 mg/L soluble lead as determined by the Waste Extraction Test (WET) Procedures, 22 CA Code of Regs § 66261.24(a)(2) App II. I am aware that a maximum quantity of material may be excavated at the site based on the minimum number of samples taken before excavating at the site under section 6-1.03B(3).

2. Land use history of the local material location and surrounding property
3. Sampling protocol
4. Number of samples per volume of local material
5. QA and QC requirements and procedures
6. Qualifications of sampling personnel
7. Stockpile history
8. Name and address of the analytical laboratory that will perform the chemical analyses
9. Analyses that will be performed for lead and pH
10. Other analyses that will be performed for possible hazardous constituents based on:
 - 10.1. Source property history
 - 10.2. Land use adjacent to source property
 - 10.3. Constituents of concern in the ground water basin where the job site is located

The plan must be sealed and signed by an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State.

If the plan requires revisions, the Engineer provides comments. Submit a revised plan within 7 days of receiving comments. Allow 7 days for the review.

6-1.03B(3) Analytical Test Results

At least 15 days before placing local material, submit analytical test results for each local material obtained from a noncommercial source or a source not regulated under CA jurisdiction. The analytical test results must include:

1. Certification signed by an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State stating:

The analytical testing described in the local material plan has been performed. I performed a statistical analysis of the test results using the US EPA's ProUCL software with the applicable 95 percent upper confidence limit. I certify that the material from the local material source is suitable for unrestricted use at the job site, it has a pH above 5.0, does not contain soluble lead in concentrations equal to or greater than 5mg/l as determined by the Waste Extraction Test (WET) Procedures, 22 CA Code of Regs § 66261.24(a)(2) App

II, does not contain lead in concentrations above 80 mg/kg total lead, is free from all other contaminants identified in the local material plan, and will comply with the job site's basin plan and water quality objectives of the RWQCB.

2. Chain of custody of samples
3. Analytical results no older than 1 year
4. Statistical analysis of the data using US EPA's ProUCL software with a 95 percent upper confidence limit
5. Comparison of sample results to hazardous waste concentration thresholds and the RWQCB's basin plan requirements and water quality objectives for the job site location

6-1.03B(4) Sample and Analysis

Sample and analyze local material from a (1) noncommercial source or (2) source not regulated under CA jurisdiction:

1. Before bringing the local material to the job site
2. As described in the local material plan
3. Under US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)

The sample collection must be designed to generate a data set representative of the entire volume of proposed local material.

Before excavating at the (1) noncommercial material source or (2) a source not regulated under CA jurisdiction, collect the minimum number of samples and perform the minimum number of analytical tests for the corresponding maximum volume of local material as shown in the following table:

Minimum Number of Samples and Analytical Tests for Local Material

Maximum volume of imported borrow (cu yd)	Minimum number of samples and analytical tests
< 5,000	8
5,000–10,000	12 for the first 5,000 cu yd plus 1 for each additional 1,000 cu yd or portion thereof
10,000–20,000	17 for the first 10,000 cu yd plus 1 for each additional 2,500 cu yd or portion thereof
20,000-40,000	21 for the first 20,000 cu yd plus 1 for each additional 5,000 cu yd or portion thereof
40,000–80,000	25 for the first 40,000 cu yd plus 1 for each additional 10,000 cu yd or portion thereof
> 80,000	29 for the first 80,000 cu yd plus 1 for each additional 20,000 cu yd or portion thereof

Do not collect composite samples or mix individual samples to form a composite sample.

Analyze the samples using the US EPA's ProUCL software with a 95 percent upper confidence limit. All chemical analysis must be performed by a laboratory certified by the SWRCB's Environmental Laboratory Accreditation Program (ELAP).

The analytical test results must demonstrate that the local material:

1. Is not a hazardous waste

2. Has a pH above 5.0
3. Has an average total lead concentration, based upon the 95 percent upper confidence limit, at or below 80 mg/kg
4. Is free of possible contaminants identified in the local material plan
5. Complies with the RWQCB's basin plan for the job site location
- 6 Complies with the RWQCB's water quality objectives for the job site location

6-1.03C Local Material Management

Do not place local material until authorized.

If the Engineer determines the appearance, odor, or texture of any delivered local material suggests possible contamination, sample and analyze the material. The sampling and analysis is change order work unless (1) hazardous waste is discovered or (2) the analytical test results indicate the material does not comply with section 6-1.03B(3).

Dispose of noncompliant local material at an appropriately permitted CA Class I, CA Class II or CA Class III facility. You are the generator of noncompliant local material.

Replace section 6-1.04 with:

BUY AMERICA (Required Federal Language)

6-1.04 BUY AMERICA

6-1.04A General

Buy America requirements do not apply to the following:

1. Tools and construction equipment used in performing the work
2. Temporary work that is not incorporated into the finished project

6-1.04B Crumb Rubber (Pub Res Code § 42703(d))

Furnish crumb rubber with a certificate of compliance. Crumb rubber must be:

1. Produced in the United States
2. Derived from waste tires taken from vehicles owned and operated in the United States

6-1.04C Steel and Iron Materials

Steel and iron materials must be melted and manufactured in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials
2. If the total combined cost of the materials produced outside the United States does not exceed the greater of 0.1 percent of the total bid or \$2,500, the material may be used if authorized

Furnish steel and iron materials to be incorporated into the work with certificates of compliance and certified mill test reports. Mill test reports must indicate where the steel and iron were melted and manufactured.

All melting and manufacturing processes for these materials, including an application of a coating, must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied.

6-1.04D Manufactured Products

Iron and steel used in precast concrete manufactured products must meet the requirements of section 6-1.04C regardless of the amount used.

Iron and steel used in other manufactured products must meet the requirements of section 6-1.04C if the weight of steel and iron components constitute 90 percent or more of the total weight of the manufactured product.

6-1.04E Construction Materials

Buy America requirements apply to the following construction materials unless otherwise specified:

1. Non-ferrous metals
2. Plastic and polymer-based products such as:
 - 2.1. Polyvinylchloride
 - 2.2. Composite building materials
 - 2.3. Polymers used in fiber optic cables
3. Glass
4. Lumber
5. Drywall

Where one or more of these construction materials have been combined by a manufacturer with other materials through a manufacturing process, Buy America requirements do not apply unless otherwise specified.

Furnish construction materials to be incorporated into the work with certificates of compliance with each project delivery. Manufacturer's certificate of compliance must identify where the construction material was manufactured and attest specifically to Buy America compliance.

All manufacturing processes for these materials must occur in the United States.

6-1.04 BUY AMERICA

6-1.04A General

Reserved

6-1.04B Crumb Rubber (Pub Res Code §42703(d))

Furnish crumb rubber with a certificate of compliance. Crumb rubber must be:

1. Produced in the United States
2. Derived from waste tires taken from vehicles owned and operated in the United States

Replace the 4th paragraph in section 6-2.01 with:

QUALITY ASSURANCE (Required Federal Language)

The County uses a Quality Assurance Program (QAP) to ensure a material is produced to comply with the Contract.

The County may examine the records and reports of tests the prime contractor performs if they are available at the job site. Schedule work to allow time for QAP.

Material from mining operations furnished for this project shall only come from sites in compliance with the Surface Mining and Reclamation Act of 1975 (SMARA) or sites not subject to SMARA. Contractor shall provide County with documentation establishing compliance with SMARA or exemption from SMARA.

The requirements of this section shall apply to materials furnished for the project, except for acquisition of materials in conformance with the provisions in section 4-1.04, "Use of Materials Found on the Job Site," of the Standard Specifications.

Replace section 7-1.10 Reserved with:

PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE EQUIPMENT AND SERVICES (Required Federal Language)

In response to significant national security concerns, the agency shall check the prohibited vendor list before making any telecommunications and video surveillance purchase because recipients and subrecipients of federal funds are prohibited from obligating or expending loan or grant funds to:

- Procure or obtain;
- Extend or renew a contract to procure or obtain; or
- Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

The prohibited vendors (and their subsidiaries or affiliates) are:

- Huawei Technologies Company;
- ZTE Corporation;
- Hytera Communications Corporation;
- Hangzhou Hikvision Digital Technology Company;
- Dahua Technology Company; and
- Subsidiaries or affiliates of the above-mentioned companies.

In implementing the prohibition, the agency administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.

The contractors should furnish telecommunications and video surveillance equipment with a certificate of compliance. The certificate must state telecommunications and video surveillance equipment was not procured or obtained from manufacturers identified in the above list.

Add to section 7-1.11A:

TITLE VI ASSURANCES (Required Federal Language)

The U.S. Department of Transportation Order No.1050.2A requires all federal-aid Department of Transportation contracts between an agency and a contractor to contain Appendix A and E. Appendix B only requires inclusion if the contract impacts deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein. Appendices C

and D only require inclusion if the contract impacts deeds, licenses, leases, permits, or similar instruments entered into by the recipient.

APPENDIX A

During the performance of this Agreement, the contractor, for itself, its assignees and successors in interest (hereinafter collectively referred to as CONTRACTOR) agrees as follows:

- (1) Compliance with Regulations: CONTRACTOR shall comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the REGULATIONS), which are herein incorporated by reference and made a part of this agreement.
- (2) Nondiscrimination: CONTRACTOR, with regard to the work performed by it during the AGREEMENT, shall not discriminate on the grounds of race, color, sex, national origin, religion, age, or disability in the selection and retention of sub-applicants, including procurements of materials and leases of equipment. CONTRACTOR shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the Regulations.
- (3) Solicitations for Sub-agreements, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by CONTRACTOR for work to be performed under a Sub-agreement, including procurements of materials or leases of equipment, each potential sub-applicant or supplier shall be notified by CONTRACTOR of the CONTRACTOR'S obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
- (4) Information and Reports: CONTRACTOR shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the recipient or FHWA to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of CONTRACTOR is in the exclusive possession of another who fails or refuses to furnish this information, CONTRACTOR shall so certify to the recipient or the FHWA as appropriate, and shall set forth what efforts CONTRACTOR has made to obtain the information.
- (5) Sanctions for Noncompliance: In the event of CONTRACTOR's noncompliance with the nondiscrimination provisions of this agreement, the recipient shall impose such agreement sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
 - (a) withholding of payments to CONTRACTOR under the Agreement within a reasonable period of time, not to exceed 90 days; and/or
 - (b) cancellation, termination or suspension of the Agreement, in whole or in part.
- (6) Incorporation of Provisions: CONTRACTOR shall include the provisions of paragraphs (1) through (6) in every sub-agreement, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

CONTRACTOR shall take such action with respect to any sub-agreement or procurement as the recipient or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance, provided, however, that, in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a sub-applicant or supplier as a result of such direction, CONTRACTOR may request the recipient enter into such litigation to protect the interests of the State, and, in addition, CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

APPENDIX B
CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4:

NOW THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the recipient will accept title to the lands and maintain the project constructed thereon in accordance with Title 23 U.S.C., the regulations for the administration of the preceding statute, and the policies and procedures prescribed by the FHWA of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the recipient all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto the recipient and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the recipient, its successors and assigns. The recipient, in consideration of the conveyance of said lands and interest in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the recipient will use the lands and interests in lands and interest in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended[, and (3) that in the event of breach of any of the above- mentioned non-discrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said lands, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

APPENDIX C
**CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER
THE ACTIVITY, FACILITY, OR PROGRAM**

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the recipient pursuant to the provisions of Assurance 7(a):

- A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add “as a covenant running with the land”] that:
 - 1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations(as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
- B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Non-discrimination covenants, the recipient will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*
- C. With respect to a deed, in the event of breach of any of the above Non-discrimination covenants, the recipient will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the recipient and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX D
**CLAUSES FOR CONSTRUCTION/USE/ACCESS TO REAL PROPERTY ACQUIRED
UNDER THE ACTIVITY, FACILITY OR PROGRAM**

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by the recipient pursuant to the provisions of Assurance 7(b):

- A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest ,and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, “as a covenant running with the land”) that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishings of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the

benefits or, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.

- B. With respect to (licenses, leases, permits, etc.) in the event of breach of any of the above of the above Non-discrimination covenants, the recipient will have the right to terminate the (license, permits, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*
- C. With respect to deeds, in the event of breach of any of the above Non-discrimination covenants, the recipient will there upon revert to and vest in and become the absolute property of the recipient and its assigns.

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX E of the Title VI Assurances (US DOT Order 1050.2A)

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 nondiscrimination statutes and authorities; including but not limited to:

Pertinent Nondiscrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 U.S.C. § 4 71, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the

programs or activities of the Federal-aid recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not);

- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38; The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq)

Add to section 7-1.11A:

Federal lobbying restrictions imposed by Section 1352, Title 31, United States Code, is included in section 7-1.11B(XI).

A certification for Federal-aid contracts regarding payment of funds to lobby Congress or a Federal agency is included in the Proposal. Standard Form - LLL, "Disclosure of Lobbying Activities," with instructions for completion of the Standard Form is also included in the Proposal. Signing the Proposal shall constitute signature of the Certification.

The Contractor, subcontractors and any lower-tier contractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by the Contractor, subcontractors and any lower-tier contractors. An event that materially affects the accuracy of the information reported includes:

1. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
2. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or
3. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal Action.

Replace section 7-1.11B with:

**REQUIRED CONTRACT PROVISIONS FEDERAL-AID
CONSTRUCTION CONTRACTS**

FHWA-1273 -- Revised July 5, 2022

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not

referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60- 1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR

Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity:

Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: 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, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO

policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such

information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities:

The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:

The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. 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.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports:

The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

- (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
- (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
- (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101.

Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA- 1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. 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 regulations issued 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 equivalents 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.d. 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 paragraph 1.b. 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 be easily seen by the workers.

b.(1) 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:

- (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (ii) The classification is utilized in the area by the construction industry; and
- (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) 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.

(3) 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.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, 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.

c. 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.

d. 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 (29 CFR 5.5)

The contracting agency 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 contracting agency may, after written notice to the contractor, 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 (29 CFR 5.5)

a. 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 section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost 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.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site. 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 contracting agency for transmission to the State DOT, the FHWA 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 contracting agency.

(2) 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:

(i) 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;

(ii) That each laborer or 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 29 CFR part 3;

(iii) 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.

(3) 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.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, 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 FHWA may, after written notice to the contractor, the contracting agency or the State DOT, 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 (29 CFR 5.5)

a. Apprentices (programs of the USDOL).

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.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the

applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. 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.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

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 as provided in 29 CFR 5.5.

6. Subcontracts.

The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 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 29 CFR 5.5 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 as provided in 29 CFR 5.5.

9. Disputes concerning labor standards.

As provided in 29 CFR 5.5, 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 (29 CFR 5.5)

a. 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).

b. 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).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

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 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. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1 of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* 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 section. 29 CFR 5.5.

* \$27 as of January 23, 2019 (See 84 FR 213-01, 218) as may be adjusted annually by the Department of Labor; pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990).

3. Withholding for unpaid wages and liquidated damages.

The FHWA or the contacting agency 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 section. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section. 29 CFR 5.5.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long- standing interpretation of 23 CFR 635.116).

5. The 30 percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall

have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.326.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.326.

X. CERTIFICATION REGARDING DEBARMENT, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient

or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

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

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335,

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with 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 (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200), 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. 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 clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(b) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(c) is a corporation with 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. (USDOT Order 4200.6 implementing appropriations act requirements)

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR 20 Part 20, App. A.

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

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

b. 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 Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. 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 31 U.S.C. 1352. 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.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

* * * * *

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

Replace section 7-1.11C with:

FEMALE AND MINORITY GOALS (Required Federal Language)

To comply with Section II, "Nondiscrimination," of "Required Contract Provisions Federal-Aid Construction Contracts," the following female and minority utilization goals for Federal-aid construction contracts and subcontracts that exceed \$10,000.

The nationwide goal for female utilization is 6.9 percent.

The goals for minority utilization [45 Fed Reg 65984 (10/3/1980)] are as follows:

MINORITY UTILIZATION GOALS

	Economic Area	Goal (Percent)
174	Redding CA: Non-SMSA Counties: CA Lassen; CA Modoc; CA Plumas; CA Shasta; CA Siskiyou; CA Tehama	6.8
175	Eureka, CA Non-SMSA Counties: CA Del Norte; CA Humboldt; CA Trinity	6.6
176	San Francisco-Oakland-San Jose, CA: SMSA Counties: 7120 Salinas-Seaside-Monterey, CA CA Monterey 7360 San Francisco-Oakland CA Alameda; CA Contra Costa; CA Marin; CA San Francisco; CA San Mateo 7400 San Jose, CA CA Santa Clara, CA 7485 Santa Cruz, CA CA Santa Cruz 7500 Santa Rosa CA Sonoma 8720 Vallejo-Fairfield-Napa, CA CA Napa; CA Solano Non-SMSA Counties: CA Lake; CA Mendocino; CA San Benito	28.9 25.6 19.6 14.9 9.1 17.1 23.2
177	Sacramento, CA: SMSA Counties: 6920 Sacramento, CA CA Placer; CA Sacramento; CA Yolo Non-SMSA Counties CA Butte; CA Colusa; CA El Dorado; CA Glenn; CA Nevada; CA Sierra; CA Sutter; CA Yuba	16.1 14.3
178	Stockton-Modesto, CA: SMSA Counties: 5170 Modesto, CA CA Stanislaus 8120 Stockton, CA CA San Joaquin Non-SMSA Counties CA Alpine; CA Amador; CA Calaveras; CA Mariposa; CA Merced; CA Toulumne	12.3 24.3 19.8
179	Fresno-Bakersfield, CA SMSA Counties: 0680 Bakersfield, CA CA Kern	19.1

	2840 Fresno, CA CA Fresno Non-SMSA Counties: CA Kings; CA Madera; CA Tulare	26.1 23.6
180	Los Angeles, CA: SMSA Counties: 0360 Anaheim-Santa Ana-Garden Grove, CA CA Orange 4480 Los Angeles-Long Beach, CA CA Los Angeles 6000 Oxnard-Simi Valley-Ventura, CA CA Ventura 6780 Riverside-San Bernardino-Ontario, CA CA Riverside; CA San Bernardino 7480 Santa Barbara-Santa Maria-Lompoc, CA CA Santa Barbara Non-SMSA Counties CA Inyo; CA Mono; CA San Luis Obispo	11.9 28.3 21.5 19.0 19.7 24.6
181	San Diego, CA: SMSA Counties 7320 San Diego, CA CA San Diego Non-SMSA Counties CA Imperial	16.9 18.2

For the last full week of July during which work is performed under the contract, the prime contractor and each non material-supplier subcontractor with a subcontract of \$10,000 or more must complete Form FHWA PR-1391 (Appendix C to 23 CFR 230). Submit the forms by August 15.

Replace section 7-1.11D Training with:

FEDERAL TRAINEE PROGRAM (Required Federal Language)

For the Federal training program, the number of trainees or apprentices is 0 (zero).

This section applies if a number of trainees or apprentices is specified in the special provisions.

As part of the prime contractor's equal opportunity affirmative action program, provide on-the-job training to develop full journeymen in the types of trades or job classifications involved.

The prime contractor has primary responsibility for meeting this training requirement.

If the prime contractor subcontracts a contract part, they shall determine how many trainees or apprentices are to be trained by the subcontractor. Include these training requirements in each subcontract.

Where feasible, 25 percent of apprentices or trainees in each occupation must be in their 1st year of apprenticeship or training.

Distribute the number of apprentices or trainees among the work classifications on the basis of the prime contractor's needs and the availability of journeymen in the various classifications within a reasonable recruitment area.

Before starting work, the prime contractor shall submit to the County of Humboldt:

1. Number of apprentices or trainees to be trained for each classification
2. Training program to be used
3. Training starting date for each classification

The prime contractor shall obtain the County of Humboldt approval for this submitted information before the prime contractor starts work. The County of Humboldt credits the prime contractor for each apprentice or trainee the prime contractor employs on the job who is currently enrolled or becomes enrolled in an approved program.

The primary objective of this section is to train and upgrade minorities and women toward journeyman status. The prime contractor shall make every effort to enroll minority and women apprentices or trainees, such as conducting systematic and direct recruitment through public and private sources likely to yield minority and women apprentices or trainees, to the extent they are available within a reasonable recruitment area and show that they have made the efforts. In making these efforts, the prime contractor shall not discriminate against any applicant for training.

The prime contractor shall not employ as an apprentice or trainee an employee:

1. In any classification in which the employee has successfully completed a training course leading to journeyman status or in which the employee has been employed as a journeyman
2. Who is not registered in a program approved by the US Department of Labor, Bureau of Apprenticeship and Training

The prime contractor shall ask the employee if the employee has successfully completed a training course leading to journeyman status or has been employed as a journeyman. The prime contractor's records must show the employee's answers to the questions.

In the training program, the prime contractor shall establish the minimum length and training type for each classification. The County of Humboldt and FHWA approves a program if one of the following is met:

1. It is calculated to:
 - Meet the your equal employment opportunity responsibilities
 - Qualify the average apprentice or trainee for journeyman status in the classification involved by the end of the training period
2. It is registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, and it is administered in a way consistent with the equal employment responsibilities of Federal-aid highway construction contracts

The prime contractor shall obtain the State's approval for their training program before they start work involving the classification covered by the program.

The prime contractor shall provide training in the construction crafts, not in clerk-typist or secretarial-type positions. Training is allowed in lower level management positions such as office engineers, estimators,

and timekeepers if the training is oriented toward construction applications. Training is allowed in the laborer classification if significant and meaningful training is provided and approved by the division office. Off-site training is an integral part of an approved training program and does not make up a significant part of the overall training.

The County of Humboldt of reimburses the prime contractor 80 cents per hour of training given an employee on this contract under an approved training program:

1. For on-site training
2. For off-site training if the apprentice or trainee is currently employed on a Federal-aid project and prime contractor does at least one of the following:
 - a. Contribute to the cost of the training
 - b. Provide the instruction to the apprentice or trainee
 - c. Pay the apprentice's or trainee's wages during the off-site training period
3. If the prime contractor complies with this section.

Each apprentice or trainee must:

1. Begin training on the project as soon as feasible after the start of work involving the apprentice's or trainee's skill
2. Remain on the project as long as training opportunities exist in the apprentice's or trainee's work classification or until the apprentice or trainee has completed the training program

The prime contractor shall furnish the apprentice or trainee with a copy of the program that the prime contractor will comply with in providing the training.



8 PROSECUTION AND PROGRESS

Replace section 8-1.04B, paragraph 1&2:

BEGINNING OF WORK (Required Federal Language)

The Contractor shall begin work within fifteen calendar days after the contract has been executed by the Board of Supervisors of the County of Humboldt, provided he has received a written "Notice to Proceed" from the County in accordance with Section 4 of the contract Agreement.

Replace section 8-1.05, paragraph 2:

TIME OF COMPLETION (Required Federal Language)

Said work shall be diligently prosecuted to completion before the expiration of:

Replace section 9-1.17B:

After Contract acceptance by the Board of Supervisors of the County of Humboldt, the Department pays you based on the Engineer-prepared estimate that includes retention, withholds and the balance due after deduction of previous payments.

Replace sections 9-1.17(D) through 9-1.22, with the following:

FINAL PAYMENT AND CLAIMS

9-1.17D Final Payment and Claims

9-1.17D(1)

Sections 9-1.17D through 9-1.22 of the Standard Specifications shall be replaced with the following provisions as required by California Public Contract Code Section 9204 .

9-1.17D(2)

For purposes of this section:

1. “Claim” means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:
 - 1.1 A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.
 - 1.2 Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.
 - 1.3 Payment of an amount that is disputed by the public entity.
2. “Contractor” means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the California Business and Professions Code who has entered into a direct contract with a public entity for a public works project.
3. “Public entity” means, without limitation, except as provided herein, a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency. However, the term “public entity” shall not include any of the following:
 - 3.1 The Department of Water Resources as to any project under the jurisdiction of that department.
 - 3.2 The Department of Transportation as to any project under the jurisdiction of that department.
 - 3.3 The Department of Parks and Recreation as to any project under the jurisdiction of that department.

3.4 The Department of Correction and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with section 7000) of Title 7 of Part 3 of the California Penal Code.

3.5 The Military Department as to any project under the jurisdiction of that department.

3.6 The Department of General Services as to all other projects.

3.7 The High-Speed Rail Authority.

4. “Public works project” means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

5. “subcontractor” means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the California Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

9-1.17D(3)(a)

Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

9-1.17D(3)(b)

The claimant shall furnish reasonable documentation to support the claim.

9-1.17D(3)(c)

If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

9-1.17D(3)(d)

Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

9-1.17D(4)(a)

If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

9-1.17D(4)(b)

Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

9-1.17D(4)(c)

For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

9-1.17D(4)(d)

Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

9-1.17D(4)(e)

This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

9-1.17D(5)

Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

9-1.17D(6)

Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

9-1.17D(7)

If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable

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PROPOSAL
TO
THE COUNTY OF HUMBOLDT
FOR

REHABILITATE AIRPORT LIGHTING SYSTEM
AIP NO. 3-06-0010-057-2023
ACI NO. 236977

Name of Bidder: _____
(Name must be exactly as it appears [or will appear] on Contractor's license)

Business Address:

Telephone No.: _____

Place of Residence: _____

The work for which this proposal is submitted is for construction in accordance with the special provisions (including the payment of not less than the State general prevailing wage rates or Federal minimum wage rates), the project plans described above, including any addenda thereto, the contract annexed hereto.

Bids are to be submitted for the entire work. The amount of the bid for comparison purposes will be the total of all items of the base.

The bidder shall set forth for each unit basis item of work a unit price and a total for the item, and for each lump sum item a total for the item, all in clearly legible figures in the respective spaces provided for that purpose. In the case of unit basis items, the amount set forth under the "Item Total" column shall be the product of the unit price bid and the estimated quantity for the item.

In case of discrepancy between the unit price and the total set forth for a unit basis item, the unit price shall prevail, except as provided in (a) or (b), as follows:

- (a) If the amount set forth as a unit price is unreadable or otherwise unclear, or is omitted, or is the same as the amount as the entry in the item total column, then the amount set forth in the item total column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price;

- (b) (Decimal Errors) If the product of the entered unit price and the estimated quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc. from the entered total, the discrepancy will be resolved by using the entered unit price or item total, whichever most closely approximates percentagewise the unit price or item total in the County of Humboldt's Final Estimate of cost.

If both the unit price and the item total are unreadable or otherwise unclear, or are omitted, the bid may be deemed irregular. Likewise if the item total for a lump sum item is unreadable or otherwise unclear, or is omitted, the bid may be deemed irregular unless the project being bid has only a single item and a clear, readable total bid is provided.

Symbols such as commas and dollar signs will be ignored and have no mathematical significance in establishing any unit price or item total or lump sums. Written unit prices, item totals and lump sums will be interpreted according to the number of digits and, if applicable, decimal placement. Cents symbols also have no significance in establishing any unit price or item total since all figures are assumed to be expressed in dollars and/or decimal fractions of a dollar. Bids on lump sum items shall be item totals only; if any unit price for a lump sum item is included in a bid and it differs from the item total, the items total shall prevail.

The foregoing provisions for the resolution of specific irregularities cannot be so comprehensive as to cover every omission, inconsistency, error or other irregularity which may occur in a bid. Any situation not specifically provided for will be determined in the discretion of the County of Humboldt, and that discretion will be exercised in the manner deemed by the County of Humboldt to best protect the public interest in the prompt and economical completion of the work. The decision of the County of Humboldt respecting the amount of a bid, or the existence or treatment of an irregularity in a bid, shall be final.

All bid proposals and materials submitted in response to this Notice to Bidders shall become the County of Humboldt's property and are subject to disclosure under the Public Records Act, California Government Code Sections 6250, et seq. All bid proposals submitted in response hereto, are considered public information, except for specifically identified trade secrets, which will be handled according to any and all applicable local, state and federal laws and regulations. Any portion of a bid proposal that is deemed to be a trade secret by the bidder shall be clearly marked "PROPRIETARY INFORMATION" at the top of the page in at least one-half inch (1/2") letters. Specifically identified proprietary information will not be released, if the bidder agrees to indemnify and defend the County of Humboldt in any action brought to disclose such information. By submitting a bid proposal in response to this Notice to Bidders, the bidder agrees that the County of Humboldt's failure to contact the bidder prior to the release of any proprietary information contained therein will not be a basis for liability by the County of Humboldt or any employee thereof. Items considered public information will be available for review after the bid opening.

If this proposal shall be accepted and the undersigned shall fail to enter into the contract and furnish the 2 bonds in the sums required by the State Contract Act, with surety satisfactory to the County of Humboldt, within 8 days, not including Saturdays, Sundays and legal holidays, after the bidder has received notice from the County of Humboldt that the contract has been awarded, the County of Humboldt may, at its option, determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void and the forfeiture of the security accompanying this proposal shall operate and the same shall be the property of the County of Humboldt.

The undersigned, as bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm, or corporation; that he has carefully examined the location of the proposed work, the annexed proposed form of contract, and the plans therein referred to; and he proposes, and agrees if this proposal is accepted, that he will contract with the County of Humboldt, in the form of the copy of the contract annexed hereto, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract, in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefor the following prices, to wit:

BID FORM (EXHIBIT A)
REHABILITATE AIRPORT LIGHTING SYSTEM
AIP NO. 3-06-0010-057-2023
ACI NO. 236977

SCHEDULE I – Rehabilitate Airport Lighting System

Item No.	Spec. No.	Description	Est. Qty.	Unit	Unit Price in Figures and in Writing	Total Price
1				TON	\$	\$
2					\$	\$
3			Incidental		Incidental	
4					\$	\$
5					\$	\$
6					\$	\$
7					\$	\$
8					\$	\$
9					\$	\$
10					\$	\$
11					\$	\$
12					\$	\$
13					\$	\$
TOTAL BID AMOUNT – SCHEDULE I					\$	

ADDENDUM ACKNOWLEDGEMENT

BIDDER acknowledges receipt of the following ADDENDUM:

The submission of a BID will constitute an incontrovertible representation by the BIDDER that he is familiar with conditions of the site as well as with the work required.

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for unit prices or lump sum as shown on the BID SCHEDULE. The Bidder further agrees that no Bid may either be changed or withdrawn without consent of the Owner for a period of one-hundred twenty (120) days after the scheduled time for opening the Bids.

The undersigned Bidder hereby agrees to be ready and to appear at the County of Humboldt offices to execute the attached Agreement in conformity with this Bid and also to have ready and furnish the required Proofs of Insurance and Bonds, executed by a Surety Company acceptable to the Owner's Attorney at any time within fifteen (15) days from the date of a Notice of Award, mailed to the address hereinafter given.

Enclosed herewith is a Bid Security as defined in the attached Instructions to Bidders in the amount of _____, which Bid Security the undersigned Bidder agrees is to be paid to and become the property of the Owner as liquidated damages and not as a penalty, for the delay and extra work caused hereby, should the Bidder prevent an award as defined in the Instructions to Bidders, or should the Proposal be accepted and Contract awarded him and he fails to enter into Agreement in the form prescribed and to furnish the required proofs of insurance and bonds within fifteen (15) days as stipulated.

PROPOSAL SIGNATURE PAGE

Accompanying this proposal is _____

(NOTICE: INSERT THE WORDS "CASH (\$___)", "CASHIER'S CHECK", "CERTIFIED CHECK", OR "BIDDERS'S BOND", AS THE CASE MAY BE.)

in the amount of at least **TEN PERCENT (10%)** of the total bid.

The names of all persons interested in the foregoing proposal as Principals are as follows:

(NOTE: If a Bidder or other interested person is a Corporation, state the legal name of the corporation, also names of the president, secretary, treasurer, and manager thereof; if a Co-partnership, state the true name of the firm, also state the names of all individual copartners composing the firm; if the Bidder or other interested person is an Individual, state the first and last names in full.)

Licensed in accordance with an act providing for the registration of Contractors,

LICENSE NO. _____ **Classification(s)** _____

Note: It is optional to provide your contractors license number at this time. You are not required to provide your contractors license number until the time that the contract is to be awarded.

By my signature on this proposal I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements of Public Contract Code Sections 10162, 10232 and 10285.1 are true and correct and that the bidder has complied with the requirements of Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5, Title 2 of the California Administrative Code). By my signature on this proposal I further certify, under penalty of perjury under the laws of the State of California and the United States of America, that the Noncollusion Affidavit required by Title 23 United States Code, Section 112 and Public Contract Code Section 7106; and the Title 49 Code of Federal Regulations, Part 29 Debarment and Suspension Certification are true and correct.

Date: _____

ACKNOWLEDGEMENT OF ADDENDA

<u>ADDENDUM NO.</u>	<u>INITIAL</u>
_____	_____
_____	_____
_____	_____

(Bidder's Signature)

(Title)



Signature and Title of Bidder

Bidder's Business Address _____

Place of Residence _____

BIDDER'S BOND
COUNTY OF HUMBOLDT, DEPARTMENT OF AVIATION
REHABILITATE AIRPORT LIGHTING SYSTEM
AIP NO. 3-06-0010-057-2023
ACI NO. 236977

for which bids are to be opened on April 27, 2023, at 2:00 p.m., PDT, at the Department of Aviation, 3561 Boeing Avenue, McKinleyville, CA 95519.

Know all men by these presents: That we _____, as

PRINCIPAL, and _____,

as **SURETY**, are held and firmly bound unto the County of Humboldt in the penal sum of **TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID** of the PRINCIPAL named above, submitted by said PRINCIPAL to the County of Humboldt for the work described above, for the payment of which sum is lawful money of the United States, well and truly to be made, to the Director of the Department to which said bid was submitted, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the SURETY hereunder exceed the sum of:

\$ _____

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the PRINCIPAL has submitted the above mentioned bid to the County of Humboldt, as aforesaid, for the construction as specifically described above,

NOW, THEREFORE, if the aforesaid PRINCIPAL is awarded the contract, and within the time and manner required under the Specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with the Department, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this

_____ day of _____, 20_____.

_____ (seal)

_____ (seal)

PRINCIPAL

_____ (seal)

_____ (seal)

SURETY

Address: _____

Note: Signatures of those executing for SURETY must be properly acknowledged.

CONTRACTOR'S CERTIFICATE REGARDING WORKER'S COMPENSATION

Labor Code Section 3700.

"Every employer except the State and all political subdivisions or institutions thereof, shall secure the payment of compensation in one or more of the foregoing ways:

- A. By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this State.
- B. By securing from the Director of Industrial Relations a certificate of consent of self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees."

I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and that I will comply with such provisions before commencing the performance of the work of this contract.

Sign

Here

(In accordance with Article 5 [commencing at Section 1860], Chapter 1 , Part 7 , Division 2 , of the Labor Code, the above certificate must be signed and filed with the awarding body prior to commencing any work under this contract.)

PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has ____, has not ____ been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

YES NO

If the answer is yes, explain the circumstances in the following space.

PUBLIC CONTRACT CODE SECTION 10232 STATEMENT

In conformance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

DEBARMENT AND SUSPENSION CERTIFICATION

TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The bidder, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, manager:

- is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal agency;
- has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal agency within the past 3 years;
- does not have a proposed debarment pending; and
- has not been indicted, convicted, or had a civil judgement rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Notes: Providing false information may result in criminal prosecution or administrative sanctions. The above certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

(THE BIDDER'S EXECUTION ON THE SIGNATURE PORTION OF THIS PROPOSAL SHALL ALSO CONSTITUTE AN ENDORSEMENT AND EXECUTION OF THOSE CERTIFICATIONS WHICH ARE A PART OF THIS PROPOSAL)

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

The bidder _____, proposed subcontractor _____, hereby certifies that he has _____, has not _____, participated in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, or 11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

NONCOLLUSION AFFIDAVIT
(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

To the COUNTY OF HUMBOLDT, DEPARTMENT OF AVIATION:

In conformance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Note: The above Noncollusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Noncollusion Affidavit.
Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

NONLOBBYING CERTIFICATION FOR FEDERAL-AID CONTRACTS

The prospective participant 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 undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into 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 Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in conformance with its instructions.

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

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

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

<p>1. Type of Federal Action:</p> <p><input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance</p>	<p>2. Status of Federal Action:</p> <p><input type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award</p>	<p>3. Report Type:</p> <p><input type="checkbox"/> a. initial <input type="checkbox"/> b. material change</p> <p>For Material Change Only: year _____ quarter _____ date of last report _____</p>
<p>4. Name and Address of Reporting Entity</p> <p><input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if known</p> <p style="text-align: center;">Congressional District, if known</p>	<p>5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:</p> <p style="text-align: center;">Congressional District, if known</p>	
<p>6. Federal Department/Agency:</p>	<p>7. Federal Program Name/Description:</p> <p style="text-align: right;">CFDA Number, if applicable _____</p>	
<p>8. Federal Action Number, if known:</p>	<p>9. Award Amount, if known:</p>	
<p>10. a. Name and Address of Lobby Entity (If individual, last name, first name, MI)</p>	<p>b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI)</p>	
(attach Continuation Sheet(s) if necessary)		
<p>11. Amount of Payment (check all that apply)</p> <p>\$ _____ <input type="checkbox"/> actual <input type="checkbox"/> planned</p>	<p>13. Type of Payment (check all that apply)</p> <p><input type="checkbox"/> a. retainer <input type="checkbox"/> b. one-time fee <input type="checkbox"/> c. commission <input type="checkbox"/> d. contingent fee <input type="checkbox"/> e. deferred <input type="checkbox"/> f. other, specify _____</p>	
<p>12. Form of Payment (check all that apply):</p> <p><input type="checkbox"/> a. cash <input type="checkbox"/> b. in-kind; specify: nature _____ value _____</p>		
<p>14. Brief Description of Services Performed or to be performed and Date(s) of Service, including officer(s), employee(s), or member(s) contacted, for Payment Indicated in Item 11:</p> <p style="text-align: center;">(attach Continuation Sheet(s) if necessary)</p>		
<p>15. Continuation Sheet(s) attached: Yes <input type="checkbox"/> No <input type="checkbox"/></p>		
<p>16. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying reliance was placed by the tier above when his transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semiannually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.</p>	<p>Signature: _____</p> <p>Print Name: _____</p> <p>Title: _____</p> <p>Telephone No.: _____ Date: _____</p>	
<p>Federal Use Only:</p>		

Authorized for Local Reproduction
Standard Form - LLL

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of covered Federal action or a material change to previous filing pursuant to title 31 U.S.C. section 1352. The filing of a form is required for such payment or agreement to make payment to lobbying entity 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 a covered Federal action. Attach a continuation sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence, the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last, previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the first tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in Item 4 checks "Subawardee" then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organization level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identification in item 1 (e.g., Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract grant or loan award number, the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitments for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influenced the covered Federal action.
(b) Enter the full names of the individual(s) performing services and include full address if different from 10 (a). Enter Last Name, First Name and Middle Initial (MI).
11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.
14. Provide a specific and detailed description of the services that the lobbyist has performed or will be expected to perform and the date(s) of any services rendered. Include all preparatory and related activity not just time spent in actual contact with Federal officials. Identify the Federal officer(s) or employee(s) contacted or the officer(s) employee(s) or Member(s) of Congress that were contacted.
15. Check whether or not a continuation sheet(s) is attached.
16. The certifying official shall sign and date the form, print his/her name title and telephone number.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

EXHIBIT 12-B: BIDDER'S LIST OF SUBCONTRACTORS (DBE AND NON-DBE) PART 1

AIP NO. 3-06-0010-057-2023 ACI NO. 236977

As of March 1, 2015, Contractors (and sub-contractors) wishing to bid on public works contracts shall be registered with the State Division of Industrial Relations and certified to bid on Public Works contracts. Please register at: <https://www.dir.ca.gov/Public-Works/Contractor-Registration.html>. The local agency will verify registration of all contractors and subcontractors on public works projects at bid and thereafter annually to assure that yearly registration is maintained throughout the life of the project.

In accordance with Title 49, Section 26.11 of the Code of Federal Regulations, and Section 4104 of the Public Contract Code of the State of California, as amended, the following information is required for each sub-contractor who will perform work amounting to more than one half of one percent (0.5%) of the Total Base Bid or \$10,000 (whichever is greater). **Photocopy this form for additional firms.** Federal Project Number: _____.

Subcontractor Name and Location	Line Item & Description	Subcontract Amount	Percentage of Bid Item Sub-contracted	Contractor License Number	DBE (Y/N)	DBE Cert Number	Annual Gross Receipts	
				DIR Reg Number				
Name:								<\$1 million
City, State:								<\$5 million
								<\$10 million
								<\$15 million
							Age of Firm: ___ yrs.	
Name:							<\$1 million	
City, State:								<\$5 million
								<\$10 million
								<\$15 million
							Age of Firm: ___ yrs.	
Name:							<\$1 million	
City, State:								<\$5 million
								<\$10 million
								<\$15 million
							Age of Firm: ___ yrs.	
Name:							<\$1 million	
City, State:								<\$5 million
								<\$10 million
								<\$15 million
							Age of Firm: ___ yrs.	
Name:							<\$1 million	
City, State:								<\$5 million
								<\$10 million
								<\$15 million
							Age of Firm: ___ yrs.	

Distribution: Original-Local Agency File, Copy – DLAE with Award Package (September 2021)

EXHIBIT 12-B: BIDDER'S LIST OF SUBCONTRACTORS (DBE AND NON-DBE) PART 2

AIP NO. 3-06-0010-057-2023

ACI NO. 236977

In accordance with Title 49, Section 26 of the Code of Federal Regulations, the bidder shall list all subcontractors who provided a quote or bid, but **were not selected** to participate as a subcontractor on this project. **Photocopy this form for additional firms.** Federal Project Number: _____.

Subcontractor Name and Location	Line Item & Description	Subcontract Amount	Percentage of Bid Item Sub-contracted	Contractor License Number	DBE (Y/N)	DBE Cert Number	Annual Gross Receipts	
				DIR Reg Number				
Name:								<\$1 million
City, State:								<\$5 million
								<\$10 million
								<\$15 million
								Age of Firm: ___ yrs.
Name:								<\$1 million
City, State:								<\$5 million
								<\$10 million
								<\$15 million
								Age of Firm: ___ yrs.
Name:								<\$1 million
City, State:								<\$5 million
								<\$10 million
								<\$15 million
								Age of Firm: ___ yrs.
Name:								<\$1 million
City, State:								<\$5 million
								<\$10 million
								<\$15 million
								Age of Firm: ___ yrs.
Name:								<\$1 million
City, State:								<\$5 million
								<\$10 million
								<\$15 million
								Age of Firm: ___ yrs.
Name:								<\$1 million
City, State:								<\$5 million
								<\$10 million
								<\$15 million
								Age of Firm: ___ yrs.
Name:								<\$1 million
City, State:								<\$5 million
								<\$10 million
								<\$15 million
								Age of Firm: ___ yrs.

Distribution: Original-Local Agency File; Copy – DLAE with Award Package (September 2021)

EXHIBIT 15-G CONSTRUCTION CONTRACT DBE COMMITMENT

1. Local Agency: _____ 2. Contract DBE Goal: _____
3. Project Description: _____
4. Project Location: _____
5. Bidder's Name: _____ 6. Prime Certified DBE: 7. Bid Amount: _____
8. Total Dollar Amount for **ALL** Subcontractors: _____ 9. Total Number of **ALL** Subcontractors: _____

10. Bid Item Number	11. Description of Work, Service, or Materials Supplied	12. NAICS or Work Category Codes	13. DBE Certification Number	14. DBE Contact Information (Must be certified on the date bids are opened)	15. DBE Dollar Amount

Local Agency to Complete this Section upon Execution of Award		16. TOTAL CLAIMED DBE PARTICIPATION	
22. Local Agency Contract Number:			\$
23. Federal-Aid Project Number:			%
24. Bid Opening Date:			
25. Contract Award Date:			
26. Award Amount:		IMPORTANT: Identify all DBE firms being claimed for credit, regardless of tier. Names of the First Tier DBE Subcontractors and their respective item(s) of work listed above must be consistent, where applicable with the names and items of the work in the "Subcontractor List" submitted with your bid. Written confirmation of each listed DBE is required.	
Local Agency certifies that all DBE certifications are valid and information on this form is complete and accurate.			
27. Local Agency Representative's Signature	28. Date	17. Preparer's Signature	18. Date
29. Local Agency Representative's Name	30. Phone	19. Preparer's Name	20. Phone

- DISTRIBUTION: 1. Original – Local Agency Updated January 2023
 2. Copy – Caltrans District Local Assistance Engineer (DLAE). Failure to submit to DLAE within 30 days of contract execution may result in de-obligation of federal funds on contract.
 3. Include additional copy with award package.

INSTRUCTIONS – CONSTRUCTION CONTRACT DBE COMMITMENT

CONTRACTOR SECTION

1. **Local Agency** - Enter the name of the local agency that is administering the contract.
2. **Contract DBE Goal** - Enter the contract DBE goal percentage as it appears on the project advertisement.
3. **Project Location** - Enter the project location(s) as it appears on the project advertisement.
4. **Project Description** - Enter the project description as it appears on the project advertisement (Bridge Rehab, Seismic Rehab, Overlay, Widening, etc).
5. **Bidder's Name** - Enter the contractor's firm name.
6. **Prime Certified DBE** - Check box if prime contractor is a certified DBE.
7. **Bid Amount** - Enter the total contract bid dollar amount for the prime contractor.
8. **Total Dollar Amount for ALL Subcontractors** – Enter the total dollar amount for all subcontracted contractors. SUM = (DBEs + all Non-DBEs). Do not include the prime contractor information in this count.
9. **Total number of ALL subcontractors** – Enter the total number of all subcontracted contractors. SUM = (DBEs + all Non-DBEs). Do not include the prime contractor information in this count.
10. **Bid Item Number** - Enter bid item number for work, services, or materials supplied to be provided.
11. **Description of Work, Services, or Materials Supplied** - Enter description of work, services, or materials to be provided. Indicate all work to be performed by DBEs including work performed by the prime contractor's own forces, if the prime is a DBE. If 100% of the item is not to be performed or furnished by the DBE, describe the exact portion to be performed or furnished by the DBE. See LAPM Chapter 9 to determine how to count the participation of DBE firms.
12. **NAICS or Work Category Codes** – Enter NAICS or Work Category Codes from the California United Certification Program Database
13. **DBE Certification Number** - Enter the DBE's Certification Identification Number. All DBEs must be certified on the date bids are opened.
14. **DBE Contact Information** - Enter the name, address, and phone number of all DBE subcontracted contractors. Also, enter the prime contractor's name and phone number, if the prime is a DBE.
15. **DBE Dollar Amount** - Enter the subcontracted dollar amount of the work to be performed or service to be provided. Include the prime contractor if the prime is a DBE. See LAPM Chapter 9 for how to count full/partial participation.
16. **Total Claimed DBE Participation** - \$: Enter the total dollar amounts entered in the "DBE Dollar Amount" column. %: Enter the total DBE participation claimed ("Total Claimed DBE Participation Dollars" divided by item "Bid Amount"). If the total % claimed is less than item "Contract DBE Goal," an adequately documented Good Faith Effort (GFE) is required (see Exhibit 15-H DBE Information - Good Faith Efforts of the LAPM).
17. **Preparer's Signature** - The person completing the DBE commitment form on behalf of the contractor's firm must sign their name.
18. **Date** - Enter the date the DBE commitment form is signed by the contractor's preparer.
19. **Preparer's Name** - Enter the name of the person preparing and signing the contractor's DBE commitment form.
20. **Phone** - Enter the area code and phone number of the person signing the contractor's DBE commitment form.
21. **Preparer's Title** - Enter the position/title of the person signing the contractor's DBE commitment form.

LOCAL AGENCY SECTION

22. **Local Agency Contract Number** - Enter the Local Agency contract number or identifier.
23. **Federal-Aid Project Number** - Enter the Federal-Aid Project Number(s).
24. **Bid Opening Date** - Enter the date contract bids were opened.
25. **Contract Award Date** - Enter the date the contract was executed.
26. **Award Amount** – Enter the contract award amount as stated in the executed contract.

27. Local Agency Representative's Signature - The person completing this section of the form for the Local Agency must sign their name to certify that the information in this and the Contractor Section of this form is complete and accurate.

28. Date - Enter the date the DBE commitment form is signed by the Local Agency Representative.

29. Local Agency Representative's Name - Enter the name of the Local Agency Representative certifying the contractor's DBE commitment form.

30. Phone - Enter the area code and phone number of the person signing the contractor's DBE commitment form.

31. Local Agency Representative Title - Enter the position/title of the Local Agency Representative certifying the contractor's DBE commitment form.

EXHIBIT 15-H: CONTRACTOR GOOD FAITH EFFORTS

Federal-aid Project No. AIP NO. 3-06-0010-057-2023
Bid Opening Date April 27, 2023

The _____ County of Humboldt _____ established a Disadvantaged Business Enterprise (DBE) goal of 2.03 % for this contract. The information provided herein shows the required good faith efforts to meet or exceed the DBE contract goal.

Bidders submit the following information to document their good faith efforts within five (5) business days from bid opening. Bidders are recommended to submit the following information even if the Exhibit 15-G: Construction Contract DBE Commitment indicate that the bidder has met the DBE goal. This form protects the bidder’s eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a DBE firm was not certified at bid opening, or the bidder made a mathematical error.

The following items are listed in the Section entitled “Submission of DBE Commitment” of the Special Provisions, **please attach additional sheets as needed:**

- A. The names and dates of each publication in which a request for DBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement
_____	_____
_____	_____
_____	_____
_____	_____

- B. The names and dates of written notices sent to certified DBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the DBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of DBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

C. The items of work made available to DBE firms including those unbundled contract work items into economically feasible units to facilitate DBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate DBE participation in order to meet or exceed the DBE contract goal.

Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount (\$)	Percentage Of Contract
---------------	-------------------------------------	--------------------	-------------	------------------------

D. The names, addresses and phone numbers of rejected DBE firms, the reasons for the bidder's rejection of the DBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each DBE if the selected firm is not a DBE:

Names, addresses and phone numbers of rejected DBEs and the reasons for the bidder's rejection of the DBEs:

Names, addresses and phone numbers of firms selected for the work above:

E. Efforts (e.g. in advertisements and solicitations) made to assist interested DBEs in obtaining information related to the plans, specifications and requirements for the work which was provided to DBEs:

F. Efforts (e.g. in advertisements and solicitations) made to assist interested DBEs in obtaining bonding, lines of credit or insurance, necessary equipment, supplies, materials, or related assistance or services, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate:

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using DBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results
-----------------------------	------------------------	---------

H. Any additional data to support a demonstration of good faith efforts:

EXHIBIT 9-F: DISADVANTAGED BUSINESS ENTERPRISE (DBE) RUNNING TALLY OF PAYMENTS

Save this form using the following naming convention, [yyyymm]-[Prime's DUNS Number]-[ss].xlsx. [ss] is two digit sequential numbering, applicable when consultant or contractor has more than one 9-F form to complete per pay period. For example, a valid saved file could read: 202001-123456789-01.xlsx. Prime contractors/consultants are required to submit this form no later than the 10th of the following month, after submitting an invoice for reimbursement that includes a payment to a DBE. If no payments have been made, do not submit the form. Email this form to Business.Support.Unit@dot.ca.gov with a copy to their local administering agencies.

Do not submit this form with the invoice, it will not be processed.

(1) Reporting Period (mm-yyyy)	(2) Federal Aid Project Number	(3) Caltrans District	(4) Local Agency				
(5) Contract Number	(6) Total Contract Award Amount (\$)	(7) DBE Goal Percentage (%)	(8) DBE Committed Percentage (%)				
(9) Prime Contractor/Consultant DUNS Number	(10) Business Name	(11) Amount Prime Invoiced This Period (\$)	(12) Amount Paid to Prime To Date (\$)	(13) Prime Certified DBE?			
(14) DBE Subcontractor/Subconsultant Name	(15) DBE Cert. Number	(16) Contract Type	(17) Date of Payment	(18) Amount of This Payment	(19) Amount Paid To Date	(20) Amount Committed To This DBE	(21) Comments
Totals			\$0	\$0	\$0		

List all DBEs regardless of tier, whether or not the firms were originally listed in Exhibit 10-Q2 or 15-G as a DBE commitment. If the actual DBE utilization was different than that approved at the time of award, provide comments in box (21). All payments reported, including payments to contractor/consultant, are for the date listed. Select the most appropriate contract type (Agent, Consultant, Joint Venture, Manufacturer, Prime, Regular Dealer, Subcontractor, Truck/Haul, Service Provider) for the DBE from dropdown list.

By executing this 9-F, Contractor/Consultant represents and warrants, under penalty of perjury, that:
 Contractor/Consultant contracted with the Disadvantaged Business Enterprise companies (DBEs) as set forth in their awarded bid on Contract number _____
 Contractor/Consultant paid the full amounts listed on their 9-F to the DBEs set forth in Contractor's awarded bid, without reduction or offset.

(22) Prime Contractor/Consultant Manager's Name (Print)	(23) Business Phone Number	(24) Date

COPY DISTRIBUTION: Original - Prime Contractor/Consultant, Copy - E-mail: Business.Support.Unit@dot.ca.gov; Copy: Local Administering Agency

ADA NOTICE: For individuals with sensory disabilities, this document is available in alternate formats.
 For information, call (916) 445-1233, Local Assistance Procedures Manual TTY 711, or write to Records and Forms Management, 1120 N Street, MS-89,
 Sacramento, CA 95814.

Exhibit 9-F Instructions

I. Purpose:

Title 49 of the Code of Federal Regulations (CFR), Part 26.37(c) requires recipients of federal-aid funding to “provide a running tally of actual attainments, including a means of comparing these attainments to commitments.” This requirement does not apply to projects that do not have any federal funding.

II. Policy:

A. To comply with 49 CFR 26.37(c), the prime contractors/consultants must complete the Exhibit 9-F: Disadvantaged Business Enterprise Running Tally of Payments and email it to business.support.unit@dot.ca.gov and their local administering agencies after submitting an invoice for reimbursement that includes a payment to a DBE, but no later than the 10th of the following month. Submission of this Exhibit is required until all DBE subcontracting or material supply activity on the entire project is completed.

B. Save this form using the following naming convention, [yyyymm]-[Prime's DUNS Number]-[ss].xlsx. [ss] is two digit sequential numbering, applicable when consultant or contractor has more than one 9-F form to complete per pay period. For example, a valid saved file could read: 202001-123456789-01.xlsx

III. Instructions:

- (1) **Reporting Period (mm-yyyy):** Indicate the month and year of payments being reported.
 - (2) **Federal Aid Project Number:** Enter the 7 digit federal-aid project number of the lead project on the contract. E.g. 5002(123) is a valid Federal-Aid Project Number.
 - (3) **Caltrans District:** Enter the appropriate Caltrans District number as 1 through 12.
 - (4) **Local Agency:** List the local agency's name.
 - (5) **Contract Number:** List the local agency assigned contract agreement number.
 - (6) **Total Contract Award Amount (\$):** Enter the total current contract award amount of the project.
 - (7) **DBE Goal Percentage (%):** Enter the contract DBE goal percentage as it appears on the project advertisement.
 - (8) **DBE Committed Percentage (%):** Enter percentage of the Prime contract committed to DBE firms.
 - (9) **Prime Contractor/Consultant DUNS Number:** Enter the unique nine-digit Data Universal Numbering System (DUNS) that Contractors/Consultants should have in order to participate in Federally-funded contracts.
 - (10) **Business Name:** List the name for the prime contractor/consultant as identified in Procedure 9 above.
 - (11) **Amount Prime's Invoice This Period (\$):** Enter the total invoice amount that prime submitted for reimbursement this period.
 - (12) **Amount Paid to Prime To Date (\$):** Enter the total payment that is paid to the Prime to date.
 - (13) **Prime certified DBE:** Enter "Yes" if Prime Contractor/Consultant is certified DBE and "No" otherwise.
DBE Prime contractor needs to fill in from procedure (14) to (21) for payments to DBE Subcontractors and DBE Prime's self-performing.
- Note:** For Procedures (14) through (21) below, insert rows as needed to list all DBEs included on Exhibits 10-O2 or 15-G, and any other DBEs that were utilized regardless of tier.
- (14) **DBE Firm name:** List the DBE's firm name.
 - (15) **DBE Cert. Number:** List the DBE's certification number as listed in the California Unified Certification Program (CUCP) database.
 - (16) **Contract Type:** Select the most appropriate Subcontractor's contract type (Agent, Consultant, Joint Venture, Manufacturer, Prime, Regular Dealer, Subcontractor, Truck/Haul, Service Provider from dropdown list.)
 - (17) **Date of Payment:** List current check date when a check is issued to the DBE for work performed by the DBE.
 - (18) **Amount of This Payment:** List the total amount paid to the DBE this period.
 - (19) **Amount Paid to Date:** List the total amount paid to this DBE to date. This should be a total of past payments plus payment for the current work just invoiced to the Local Agency.
 - (20) **Amount Committed to This DBE Firm:** Copy the information from the agency signed Exhibit 10-O2 or 15-G. If the listed DBE was not originally committed to, type "0."
 - (21) **Comments:** Add appropriate notes if a DBE subcontract was terminated, a DBE subcontract was added, if change orders impacted the DBE's payments (include good faith efforts the prime contractor/consultant implemented), if task orders weren't issued, etc.
 - (22) **Prime Contractor/Consultant Manager's Name:** Enter the manager's name of the prime contractor/consultant of the project.
 - (23) **Business Phone Number:** Enter the manager's business phone number of the prime contractor/consultant.
 - (24) **Date:** Provide the date this form was prepared.
 - (25) **Copy Distribution:** The prime contractor/consultant will need to maintain a copy with the contract file (electronic and/or paper). The prime contractor/consultant will need to e-mail this form as provided in the Section II. Policy, paragraphs A as stated above. Local agency will need to keep a copy with the contract file.

EXHIBIT 17-F FINAL REPORT-UTILIZATION OF DBE AND FIRST-TIER SUBCONTRACTORS

1. Local Agency ACI NO. 236977		2. Federal-Aid AIP No. 3-06-0010-057-2023		3. Local Agency HUMBOLDT COUNTY		4. Contract Completion Date	
5. Contractor/Consultant			6. Business Address			7. Final Contract Amount	
8. Contract Item Number	9. Description of Work, Service, or Materials Supplied	10. Company Name and Business Address	11. DBE Certification Number	12. Contract Payments		13. Date Work Completed	14. Date of Final Payment
				Non-DBE	DBE		
15. ORIGINAL DBE COMMITMENT AMOUNT \$ _____				16. TOTAL			

List all first-tier subcontractors/subconsultants and DBEs regardless of tier whether or not the firms were originally listed for goal credit. If actual DBE utilization (or item of work) was different than that approved at the time of award, provide comments on an additional page. List actual amount paid to each entity. If no subcontractors/subconsultants were used on the contract, indicate on the form.

I CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND CORRECT			
17. Contractor/Consultant Representative's Signature	18. Contractor/Consultant Representative's Name	19. Phone	20. Date
I CERTIFY THAT THE CONTRACTING RECORDS AND ON-SITE PERFORMANCE OF THE DBE(S) HAS BEEN MONITORED			
21. Local Agency Representative's Signature	22. Local Agency Representative's Name	23. Phone	24. Date

DISTRIBUTION: Original – Local Agency, Copy – Caltrans District Local Assistance Engineer. Include with Final Report of Expenditures

ADA NOTICE: For individuals with sensory disabilities, this document is available in alternate formats. For information, call (916) 445-1233, Local Assistance Procedures Manual TTY 711, or write to Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

INSTRUCTIONS – FINAL REPORT-UTILIZATION OF DISADVANTAGED BUSINESS ENTERPRISES (DBE) AND FIRST-TIER SUBCONTRACTORS

1. **Local Agency Contract Number** - Enter the Local Agency contract number or identifier.
2. **Federal-Aid Project Number** - Enter the Federal-Aid Project Number.
3. **Local Agency** - Enter the name of the local or regional agency that is funding the contract.
4. **Contract Completion Date** - Enter the date the contract was completed.
5. **Contractor/Consultant** - Enter the contractor/consultant's firm name.
6. **Business Address** - Enter the contractor/consultant's business address.
7. **Final Contract Amount** - Enter the total final amount for the contract.
8. **Contract Item Number** - Enter contract item for work, services, or materials supplied provided. Not applicable for consultant contracts.
9. **Description of Work, Services, or Materials Supplied** - Enter description of work, services, or materials provided. Indicate all work to be performed by DBEs including work performed by the prime contractor/consultant's own forces, if the prime is a DBE. If 100% of the item is not to be performed or furnished by the DBE, describe the exact portion to be performed or furnished by the DBE. See LAPM Chapter 9 to determine how to count the participation of DBE firms.
10. **Company Name and Business Address** - Enter the name, address, and phone number of all subcontracted contractors/consultants. Also, enter the prime contractor/consultant's name and phone number, if the prime is a DBE.
11. **DBE Certification Number** - Enter the DBE's Certification Identification Number. Leave blank if subcontractor is not a DBE.
12. **Contract Payments** - Enter the subcontracted dollar amount of the work performed or service provided. Include the prime contractor/consultant if the prime is a DBE. The Non-DBE column is used to enter the dollar value of work performed by firms that are not certified DBE or for work after a DBE becomes decertified.
13. **Date Work Completed** - Enter the date the subcontractor/subconsultant's item work was completed.
14. **Date of Final Payment** - Enter the date when the prime contractor/consultant made the final payment to the subcontractor/subconsultant for the portion of work listed as being completed.
15. **Original DBE Commitment Amount** - Enter the "Total Claimed DBE Participation Dollars" from Exhibits 15-G or 10-O2 for the contract.
16. **Total** - Enter the sum of the "Contract Payments" Non-DBE and DBE columns.
17. **Contractor/Consultant Representative's Signature** - The person completing the form on behalf of the contractor/consultant's firm must sign their name.
18. **Contractor/Consultant Representative's Name** - Enter the name of the person preparing and signing the form.
19. **Phone** - Enter the area code and telephone number of the person signing the form.
20. **Date** - Enter the date the form is signed by the contractor's preparer.
21. **Local Agency Representative's Signature** - A Local Agency Representative must sign their name to certify that the contracting records and on-site performance of the DBE(s) has been monitored.
22. **Local Agency Representative's Name** - Enter the name of the Local Agency Representative signing the form.
23. **Phone** - Enter the area code and telephone number of the person signing the form.
24. **Date** - Enter the date the form is signed by the Local Agency Representative.

EXHIBIT 17-O: DBE CERTIFICATION STATUS CHANGE

1. Local Agency ACI NO. 236977		2. Federal-Aid AIP NO. 3-06-0010-057-2023		3. Local Agency HUMBOLDT COUNTY		4. Contract Completion Date
5. Contractor/Consultant			6. Business Address			7. Final Contract Amount
8. Contract Item Number	9. DBE Contact Information	10. DBE Certification Number	11. Amount Paid While Certified	12. Certification/Decertification Date (Letter Attached)	13. Comments	

If there were no changes in the DBE certification of subcontractors/subconsultants, indicate on the form.

I CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND CORRECT			
14. Contractor/Consultant Representative's Signature	15. Contractor/Consultant Representative's Name	16. Phone	17. Date
I CERTIFY THAT THE CONTRACTING RECORDS AND ON-SITE PERFORMANCE OF THE DBE(S) HAS BEEN MONITORED			
18. Local Agency Representative's Signature	19. Local Agency Representative's Name	20. Phone	21. Date

DISTRIBUTION: Original – Local Agency, Copy – Caltrans District Local Assistance Engineer. Include with Final Report of Expenditures

ADA NOTICE: For individuals with sensory disabilities, this document is available in alternate formats. For information, call (916) 445-1233, Local Assistance Procedures Manual TTY 711, or write to Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

**INSTRUCTIONS –DISADVANTAGED BUSINESS ENTERPRISES (DBE)
CERTIFICATION STATUS CHANGE**

1. **Local Agency Contract Number** - Enter the Local Agency contract number or identifier.
2. **Federal-Aid Project Number** - Enter the Federal-Aid Project Number.
3. **Local Agency** - Enter the name of the local or regional agency that is funding the contract.
4. **Contract Completion Date** - Enter the date the contract was completed.
5. **Contractor/Consultant** - Enter the contractor/consultant's firm name.
6. **Business Address** - Enter the contractor/consultant's business address.
7. **Final Contract Amount** - Enter the total final amount for the contract.
8. **Contract Item Number** - Enter contract item for work, services, or materials supplied provided. Not applicable for consultant contracts.
9. **DBE Contact Information** - Enter the name, address, and phone number of all DBE subcontracted contractors/consultants.
10. **DBE Certification Number** - Enter the DBE's Certification Identification Number.
11. **Amount Paid While Certified** - Enter the actual dollar value of the work performed by those subcontractors/subconsultants during the time period they are certified as a DBE.
12. **Certification/Decertification Date (Letter Attached)** - Enter either the date of the Decertification Letter sent out by the Office of Business and Economic Opportunity (OBEO) or the date of the Certification Certificate mailed out by OBEO.
13. **Comments** - If needed, provide any additional information in this section regarding any of the above certification status changes.
14. **Contractor/Consultant Representative's Signature** - The person completing the form on behalf of the contractor/consultant's firm must sign their name.
15. **Contractor/Consultant Representative's Name** - Enter the name of the person preparing and signing the form.
16. **Phone** - Enter the area code and telephone number of the person signing the form.
17. **Date** - Enter the date the form is signed by the contractor's preparer.
18. **Local Agency Representative's Signature** - A Local Agency Representative must sign their name to certify that the contracting records and on-site performance of the DBE(s) has been monitored.
19. **Local Agency Representative's Name** - Enter the name of the Local Agency Representative signing the form.
20. **Phone** - Enter the area code and telephone number of the person signing the form.
21. **Date** - Enter the date the form is signed by the Local Agency Representative.

**CERTIFICATION OF COMPLIANCE WITH BUY AMERICAN PREFERENCE
CONSTRUCTION PROJECTS**

(NOTE: For construction of a facility, the sponsor may submit the waiver request after bid opening, but prior to contract execution. Examples of facility construction include terminal buildings, terminal renovation, and snow removal equipment buildings.)

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter “X”.

- Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
 - a) Only installing iron, steel and manufactured products produced in the United States;
 - b) Only installing construction materials defined as: 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 that have been manufactured in the United States
 - c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
 - d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

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

- a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
- b) To faithfully comply with providing U.S. domestic products.
- c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
- d) Certify that all construction materials used in the project are manufactured in the U.S.

- The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:
- a) To submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
 - b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
 - c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
 - d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
 - e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

REQUIRED DOCUMENTATION

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “facility/project.” The required documentation for a Type 3 waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
- b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
- c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.

- d) Percentage of non-domestic component and subcomponent cost as compared to total “facility” component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
- b) At minimum two comparable equal bids and/or offers;
- c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
- d) Completed waiver applications for each comparable bid and/or offer.

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

Date

Signature

Company Name

Title

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the County of Humboldt, by its order made _____, 20____, has awarded to _____ hereinafter designated as the "Principal," a contract for the work described as follows:

REHABILITATE AIRPORT LIGHTING SYSTEM

NOW, THEREFORE, we the Principal and _____, Surety, are held and firmly bound unto the County of Humboldt in the penal sum of _____ Dollars (\$ _____), lawful money of the United States of America for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, his or its subcontractors, heirs, executors, administrators, successors, or assigns, shall fail to pay any of the persons named in Section 3181 of the Civil Code, or amounts due under the Unemployment Insurance Code, with respect to work or labor performed by claimant, or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the Contractor and his subcontractors pursuant to Section 18806 of the Revenue and Taxation Code with respect to such work and labor as required by Sections 3247 et seq. of the Civil Code of California, then said Surety will pay for the same, in or to an amount not exceeding the amount hereinafter set forth, and also will pay in case suit is brought upon this bond, such reasonable attorney's fees, as shall be fixed by the court, awarded and taxed as in the above-mentioned statutes provided.

AND, the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract, or to the work, or to the specifications.

IN WITNESS WHEREOF, this instrument has been duly executed by Principal and Surety above named, on the _____ day of _____, 20____.

PRINCIPAL
BY _____

SURETY
BY _____
Attorney-in-fact

PERFORMANCE BOND

COUNTY OF HUMBOLDT, DEPARTMENT OF AVIATION

Bond No. _____

WHEREAS, the County of Humboldt, acting by and through the Department of Aviation, has awarded to Contractor _____, hereafter designated as the "Contractor", a contract for the work described as follows:

REHABILITATE AIRPORT LIGHTING SYSTEM

AND WHEREAS, the Contractor is required to furnish a bond in connection with said contract, guaranteeing the faithful performance thereof:

NOW, THEREFORE, we the undersigned Contractor and Surety are held firmly bound to the County of Humboldt in the sum of \$ _____ dollars (\$ _____), to be paid to said County or its certain attorney, its successors and assigns: for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if the above bound Contractor, its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the foregoing contract and any alteration thereof made as therein provided, on his or their part to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning, and shall indemnify and save harmless the County of Humboldt, its officers and agents, as therein stipulated, then this obligation shall become and be null and void; otherwise it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this _____ day of _____, 20__.

Correspondence or claim relating to this bond should be sent to the surety at the following address:

Contractor

Name of Surety (SEAL)

By: Attorney-in-Fact

NOTE: Signatures of those executing for the surety must be properly acknowledged.

CERTIFICATE OF ACKNOWLEDGEMENT

State of California, City / County of _____ SS

On this _____ day of _____ in the year 20____ before me _____, a
Notary public in and for the City / County of _____, personally appeared
_____, known to me to be the person whose name is subscribed to this
Attorney-in-fact
instrument and known to me to be the attorney-in-fact of _____ and acknowledge to
me that he/she subscribed the name of the said company thereto as surety, and his/her own name as attorney-in-
fact.

(SEAL)

NOTARY PUBLIC

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**CONSTRUCTION AGREEMENT
BY AND BETWEEN
COUNTY OF HUMBOLDT
AND**

_____ (Contractor)

CALIFORNIA LICENSE NO. _____

CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS PUBLIC
WORKS CONTRACTOR REGISTRATION NO. _____

PROJECT LOCATION:
California Redwood Coast-Humboldt County Airport, McKinleyville, California

AIP NO. 3-06-0010-0xx-2023

This Agreement, entered into this _____ day of _____, 2023, by and between the County of Humboldt, a political subdivision of the State of California, hereinafter referred to as "COUNTY," and _____, a California construction business, hereinafter referred to as "CONTRACTOR," is made upon the following Considerations

WHEREAS, COUNTY, by and through its Department of Public Works – Department of Aviation, desires to retain a qualified professional for the rehabilitation of the Airfield Lighting System and

WHEREAS, CONTRACTOR represents that it is adequately trained, skilled, experienced and qualified to perform the construction services required by COUNTY.

NOW THEREFORE, in consideration of the foregoing and the mutual promises contained herein, the parties hereto mutually agree as follows:

1. SCOPE OF WORK:

The work to be performed by CONTRACTOR shall be as described in Exhibit A – Scope of Work, which is attached hereto and incorporated herein by reference as if set forth in full.

2. COMPENSATION:

COUNTY shall pay, and CONTRACTOR shall accept _____ Dollars and 00/100 (\$00.00) as full compensation for furnishing all materials and for doing all the work contemplated and embraced in this Agreement; also for all loss or damage, arising out of the work aforesaid, or from the actions of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work; also for all expenses incurred by or in consequence of the suspension or discontinuance of the work and for well and faithfully completing the work, and the whole thereof, in the manner, and according to the requirements set forth in, Exhibit A – Scope of Work. CONTRACTOR will be paid within thirty (30) days after completion and acceptance of the work.

3. AGREEMENT DOCUMENTS:

- A. Complete Agreement.** The complete Agreement between the parties hereto shall consist of the following, hereinafter referred to as the "Agreement Documents," which are hereby incorporated into this Agreement by reference as if set forth in full, as applicable:
1. This Agreement;
 2. Exhibit A – Scope of Work;
 3. General Prevailing Wage Rates, as published by the California Department of Industrial Relations; and
 4. Any addenda to any of the above-referenced documents, all of which are on file in the office of the Humboldt County Public Works Director.
- B. Rights and Obligations.** All rights and obligations of COUNTY and CONTRACTOR are fully set forth and described in the Agreement Documents. All of the Agreement Documents are intended to be complementary, so that any work called for in one and mentioned in the other is to be performed and executed the same as if mentioned in all said documents.

4. CONSTRUCTION SERVICES:

CONTRACTOR hereby agrees to perform all of the work required for the Project, as specified in the AGREEMENT DOCUMENTS. CONTRACTOR shall provide, furnish and supply all things necessary and incidental for the timely performance and completion of the work, including, without limitation, provision of all necessary labor, materials, equipment, transportation and utilities, unless otherwise specified in the Agreement Documents. CONTRACTOR further agrees to use its best efforts to complete the work in a professional and expeditious manner and to meet or exceed the performance standards required by the Agreement Documents.

5. BEGINNING OF WORK:

CONTRACTOR's receipt of the fully executed Agreement Documents will serve as the "Notice to Proceed" from COUNTY. Under no circumstances shall CONTRACTOR enter upon the site of work until in receipt of the "Notice to Proceed" or unless so authorized in writing by COUNTY.

6. TIME OF COMPLETION:

CONTRACTOR shall fully complete the work for the Project within ninety (90) calendar days for Schedule I from the commencement date given in the Notice to Proceed unless an extension of time is granted by Sponsor in accordance with the provisions of Section 80, Paragraph 7, of the General Provisions. By executing this Agreement, CONTRACTOR expressly waives any claim for delayed early completion.

7. TIME LIMIT AND LIQUIDATED DAMAGES:

It is agreed by the parties to the Agreement that in case all the work called for under the Agreement in all parts and requirements is not finished or completed by the time of completion as set forth in Section 6 above, damage will be sustained by COUNTY, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which COUNTY will sustain in the event of and by reason of such delay; the Contractor shall be liable to the Sponsor for payment of liquidated damages in the amount of Two Thousand Seven hundred Fifty Dollars (\$2,750) for each calendar day that the project completion date is delayed beyond the contract time of ninety (90) calendar days as adjusted for any time extension that may be provided for by the Contract Documents; and CONTRACTOR agrees to pay said liquidated damages herein

provided for, and further agrees that COUNTY may deduct the amount thereof from any moneys due or that may become due CONTRACTOR under the Agreement.

8. PREVAILING WAGE:

- A. Prevailing Wage Rate.** Pursuant to Section 1770 of the California Labor Code, COUNTY has determined the Prevailing Wage Rate to be as listed by the Department of Industrial Relations, Division of Labor Statistics and Research, P.O. Box 420603, San Francisco, CA 94101, Phone: (415) 703-4780. Complete Certified Payrolls must be submitted to the Department of Public Works together with each application for payment.
- B. Registration.** Pursuant to Section 1771.1(a) of the California Labor Code, a contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in Sections 1770 et seq. of the Labor Code, unless currently registered and qualified to perform public work pursuant to Section 1725.5 of the Labor Code. It is not a violation of Section 1771.1(a) for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

9. INDEMNIFICATION:

- A. Hold Harmless, Defense and Indemnification.** CONTRACTOR shall hold harmless, defend and indemnify COUNTY and its agents, officers, officials, employees and volunteers from and against any and all claims, demands, losses, damages and liabilities of any kind or nature, including, without limitation, attorney's fees and other costs of litigation, arising out of, or in connection with, CONTRACTOR's negligent performance of, or failure to comply with, any of the duties and/or obligations contained herein, except such loss or damage which was caused by the sole negligence or willful misconduct of COUNTY.
- B. Effect of Insurance.** Acceptance of the insurance required by this Agreement shall not relieve CONTRACTOR from liability under this provision. This provision shall apply to all claims for damages related to CONTRACTOR's performance hereunder, regardless of whether any insurance is applicable or not. The insurance policy limits set forth herein shall not act as a limitation upon the amount of indemnification or defense to be provided hereunder.

10. INSURANCE REQUIREMENTS:

This Agreement shall not be executed by COUNTY, and CONTRACTOR is not entitled to any rights hereunder, unless certificates of insurance, or other proof that the following provisions have been complied with, are filed with the Clerk of the Humboldt County Board of Supervisors.

- A. General Insurance Requirements.** Without limiting CONTRACTOR's indemnification obligations set forth herein, CONTRACTOR, and its subcontractors hereunder, shall take out and maintain, throughout the entire term of this Agreement, and any extensions thereof, the following policies of insurance, placed with insurers authorized to do business in the State of California with a current A.M. Bests rating of no less than A: VII or its equivalent against personal injury, death and property damage which may arise from, or in connection with, the activities of CONTRACTOR or its agents, officers, directors, employees, licensees, invitees, assignees or subcontractors:

1. Comprehensive or Commercial General Liability Insurance at least as broad as Insurance Services Office Commercial General Liability Coverage (occurrence form CG 0001), in an amount of Two Million Dollars (\$2,000,000.00) per occurrence for any one (1) incident, including, without limitation, personal injury, death and property damage. If a general aggregate limit is used, such limit shall apply separately hereto or shall be twice the required occurrence limit.
 2. Automobile/Motor Liability Insurance with a limit of liability not less than One Million Dollars (\$1,000,000.00) combined single limit coverage. Such insurance shall include coverage of all owned, hired and non-owned vehicles, and be at least as broad as Insurance Service Offices Form Code 1 (any auto).
 3. Workers' Compensation Insurance, as required by the California Labor Code, with statutory limits, and Employers Liability Insurance with a limit of no less than One Million Dollars (\$1,000,000.00) per accident for bodily injury or disease. Said policy shall contain, or be endorsed to contain, a waiver of subrogation against COUNTY and its agents, officers, officials, employees and volunteers.
 4. If applicable, Environmental Impairment Liability coverage appropriate for the hazardous materials/waste activity contemplated in this Agreement in the amount of One Million Dollars (\$1,000,000.00) per claim and Two Million Dollars (\$2,000,000.00) annual aggregate. The retroactive date, if any, is to be no later than the effective date of this Agreement.
- B. Special Insurance Requirements.** Said policies shall, unless otherwise specified herein, be endorsed with the following provisions:
1. The Comprehensive or Commercial General Liability Policy shall provide that COUNTY, and its agents, officers, officials, employees and volunteers, are covered as additional insured for liability arising out of the operations performed by, or on behalf of, CONTRACTOR. The coverage shall contain no special limitations on the scope of protection afforded to COUNTY or its agents, officers, officials, employees and volunteers. Said policy shall also contain a provision stating that such coverage:
 - a. Includes contractual liability.
 - b. Does not contain exclusions as to property damage caused by explosion or collapse of structures or underground damage, commonly referred to as "XCU Hazards."
 - c. Is the primary insurance with regard to COUNTY.
 - d. Does not contain a pro-rata, excess only and/or escape clause.
 - e. Contains a cross liability, severability of interest or separation of insureds clause.
 2. The above-referenced policies shall not be canceled, non-renewed or materially reduced in coverage without thirty (30) days prior written notice being provided to COUNTY in accordance with the notice requirements set forth herein. It is further understood that CONTRACTOR shall not terminate such coverage until COUNTY receives adequate proof that equal or better insurance has been secured.
 3. The inclusion of more than one (1) insured shall not operate to impair the rights of one (1) insured against another insured, and the coverage afforded shall apply as though separate policies had been issued to each insured, but the inclusion of more than one (1) insured shall not operate to increase the limits of the insurer's liability.

- 4. For claims related to this Agreement, CONTRACTOR’s insurance is the primary coverage to COUNTY, and any insurance or self-insurance programs maintained thereby are excess to CONTRACTOR’s insurance and will not be used to contribute therewith.
- 5. Any failure to comply with the terms and conditions of this Agreement shall not affect the coverage provided to COUNTY or its agents, officers, officials, employees and volunteers.
- 6. CONTRACTOR shall furnish COUNTY with certificates and original endorsements effecting the required coverage prior to execution of this Agreement. The endorsements shall be on forms approved by the Humboldt County Risk Manager. Any deductible or self-insured retention over One Hundred Thousand Dollars (\$100,000.00) shall be disclosed to, and approved by, COUNTY. If CONTRACTOR does not keep all required policies in full force and effect, COUNTY may, in addition to any other available remedies, take out the necessary insurance and deduct the cost of said insurance from the monies owed to CONTRACTOR under this Agreement.
- 7. COUNTY is to be notified immediately if twenty-five percent (25%) or more of any required insurance aggregate limit is encumbered, and CONTRACTOR shall be required to purchase additional coverage to meet the above-referenced aggregate limits.

C. **Insurance Notices.** Any and all insurance notices required to be given pursuant to the terms and conditions of this Agreement shall be sent to the addresses set forth below in accordance with the notice requirements contained herein.

COUNTY: County of Humboldt
Attention: Risk Management
825 Fifth Street, Room 131
Eureka, California 95501

AND

Humboldt County Department of Public Works – Department of Aviation
Attention: Cody Raggatz C.M., Director of Aviation
3561 Boeing Avenue
McKinleyville, CA 95519

CONTRACTOR: _____
Attention: _____

11. TERMINATION OF AGREEMENT:

A. **Termination For Cause.** Should CONTRACTOR fail to perform any of the provisions of the Agreement, COUNTY shall have the right, whether or not an alternative right is provided, to declare the Agreement terminated. A written notice by COUNTY to CONTRACTOR that the Agreement is terminated shall be deemed a complete termination of same.

B. Effect of Termination. On the Agreement being so terminated, CONTRACTOR shall, provided CONTRACTOR is ordered to do so by COUNTY, immediately remove from the premises all or any materials and personal property belonging to CONTRACTOR which have not been used in the construction of the work or which is not in place in the work; and CONTRACTOR shall be liable for all damages caused to COUNTY by reason of failure to complete the Agreement.

12. NOTICES:

Any and all notices required to be given pursuant to the terms and conditions of this Agreement shall be in writing and either served personally or sent by certified mail, return receipt requested, to the respective addresses set forth below. Notice shall be effective upon actual receipt or refusal as shown on the receipt obtained pursuant to the foregoing.

COUNTY: Humboldt County Department of Public Works – Department of Aviation
Attention: Cody Raggatz C.M., Director of Aviation
3561 Boeing Avenue
McKinleyville, CA 95561

CONTRACTOR: _____

13. WARRANTY:

CONTRACTOR shall be held responsible to promptly and at its own expense cost make good any defects due to faulty, improper or inferior workmanship or materials arising or discovered in any part of the work within one (1) year after the completion and final acceptance of the same by COUNTY unless a longer period is otherwise called for.

14. COMPLIANCE WITH APPLICABLE LAWS, REGULATIONS AND STANDARDS:

CONTRACTOR hereby agrees to comply with any and all local, state and federal laws, regulations, policies, procedures and standards applicable to the work performed pursuant to the terms and conditions of this Agreement, including, without limitation, any and all applicable local, state and federal licensure, certification and accreditation standards. All work and materials provided pursuant to the terms and conditions of this Agreement shall be in full compliance with the latest rules and regulations of the Americans with Disabilities Act, State Fire Marshal, the Safety Orders of the Division of Industrial Safety, the National Electric Code, the Uniform Plumbing Code published by the Western Plumbing Officials Association, and other applicable state laws or regulations including all of Title 24, California Code of Regulations. Nothing in this Agreement and the plans or specifications is to be construed to permit work not conforming to these codes.

15. NUCLEAR-FREE HUMBOLDT COUNTY ORDINANCE COMPLIANCE:

By executing this Agreement, CONTRACTOR certifies that it is not a Nuclear Weapons Contractor, in that CONTRACTOR is not knowingly or intentionally engaged in the research, development, production or testing of nuclear warheads, nuclear weapons systems or nuclear weapons components as defined by the Nuclear-Free Humboldt County Ordinance. CONTRACTOR agrees to notify COUNTY immediately if it becomes a Nuclear Weapons Contractor as defined above. COUNTY may immediately terminate this Agreement if it determines that the foregoing certification is false or if CONTRACTOR subsequently becomes a Nuclear Weapons Contractor.

16. ASSIGNMENT AND SUBCONTRACTING:

This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns, provided, however, that neither party shall have the right to transfer, delegate, subcontract or assign all or part of its interest in or duties under this Agreement without the prior written authorization of the other party. Notwithstanding the foregoing, CONTRACTOR may assign its rights, delegate its duties or otherwise transfer all or part of its performance hereunder to any subsidiary of CONTRACTOR. No assignment or subcontract shall be effective and/or binding upon COUNTY unless COUNTY has received advance actual notice thereof and grants its approval. Said approval shall not be unreasonably withheld. Should CONTRACTOR subcontract any portion of the work to be performed under this Agreement, said subcontractors shall be required by CONTRACTOR to: enter into a written contract with CONTRACTOR acknowledging that no employee/employer relationship exists between CONTRACTOR and subcontractor and that no Workers' Compensation, unemployment benefits, or other personnel benefits are required by or available to subcontractor through CONTRACTOR or COUNTY; and hold harmless, defend and indemnify CONTRACTOR and COUNTY from and against any and all claims and losses accruing or resulting to any and all contractors, subcontractors, material suppliers, laborers, and any other person, firm or corporation who may be injured or damaged by subcontractor in the performance of this Agreement. CONTRACTOR shall remain fully responsible for compliance with all of the terms and conditions of this Agreement, regardless of the terms of any agreement between CONTRACTOR and its subcontractors.

17. NON-DISCRIMINATION COMPLIANCE:

- A. Professional Services and Employment.** In connection with the execution of this Agreement, CONTRACTOR, and its subcontractors, shall not unlawfully discriminate in the provision of professional services or against any employee or applicant for employment because of: race; religion or religious creed; color; age, over forty (40) years of age; sex, including, without limitation, gender identity and expression, pregnancy, childbirth and related medical conditions; sexual orientation, including, without limitation, heterosexuality, homosexuality and bisexuality; national origin; ancestry; marital status; medical condition, including, without limitation, cancer and genetic characteristics; mental or physical disability, including, without limitation, HIV status and AIDS; political affiliation; military service; denial of family care leave; or any other classifications protected by any and all applicable local, state or federal laws, regulations or standards, all as may be amended from time to time. Nothing herein shall be construed to require the employment of unqualified persons.
- B. Compliance with Anti-Discrimination Laws.** CONTRACTOR further assures that it, and its subcontractors, will abide by the applicable provisions of: Title VI and Title VII of the Civil Rights Act of 1964; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975; the Food Stamp Act of 1977; Title II of the Americans with Disabilities Act of 1990; the California Fair Employment and Housing Act; California Civil Code Sections 51, *et seq.*; California Government Code Sections 4450, *et seq.*; California Welfare and Institutions Code Section 10000; Division 21 of the California Department of Social Services Manual of Policies and Procedures; United States Executive Order 11246, as amended and supplemented by United States Executive Order 11375 and 41 C.F.R. Part 60; and any other applicable local, state or federal laws, regulations or standards, all as may be amended from time to time.

18. DRUG-FREE WORKPLACE CERTIFICATION:

By executing this Agreement, CONTRACTOR certifies that neither CONTRACTOR, nor its agents, officials, employees, volunteers, licensees, invitees, assignees or subcontractors, shall unlawfully manufacture, distribute, dispense, possess or use controlled substances, as defined in Section 812 of Title 21 of the United

States Code, including, without limitation, cannabis, heroin, cocaine and amphetamines, at any COUNTY facility or work site. If CONTRACTOR, or any of its agents, officials, employees, volunteers, licensees, invitees, assignees or subcontractors is convicted or pleads nolo contendere to a criminal drug violation occurring at a COUNTY facility or work site, CONTRACTOR shall notify COUNTY of such conviction within five (5) days thereafter. Violation of this provision shall constitute a material breach of this Agreement.

19. PROVISIONS REQUIRED BY LAW:

This Agreement is subject to any additional local, state and federal restrictions, limitations or conditions that may affect the terms, conditions or funding of this Agreement. This Agreement shall be read and enforced as though all legally required provisions are included herein, and if for any reason any such provision is not included, or incorrectly stated, the parties agree to amend the pertinent section to make such insertion or correction.

20. REFERENCE TO LAWS, REGULATIONS AND STANDARDS:

In the event any law, regulation or standard referred to herein is amended during the term of this Agreement, the parties agree to comply with the amended provision as of the effective date thereof.

21. JURISDICTION AND VENUE:

This Agreement shall be construed in accordance with the laws of the State of California. Any dispute arising hereunder, or relating hereto, shall be litigated in the State of California and venue shall lie in the County of Humboldt unless transferred by court order pursuant to California Code of Civil Procedure Sections 394 or 395.

22. ATTORNEY FEES:

If either party shall commence any legal action, including, without limitation, an action for declaratory relief, against the other by reason of the alleged failure of the other to perform any of its obligations hereunder, the party prevailing in said action shall be entitled to recover court costs and reasonable attorneys' fees, including, but not limited to, the reasonable value of services rendered by the Humboldt County Counsel's Office, to be fixed by the court, and such recovery shall include court costs and attorneys' fees on appeal, if applicable. As used herein, the term "prevailing party" means the party who dismisses an action in exchange for payment of substantially all sums allegedly due, performance of provisions allegedly breached, or other considerations substantially equal to the relief sought by said party, as well as the party in whose favor final judgment is rendered.

23. WAIVER OF DEFAULT:

The waiver by either party of any breach of this Agreement shall not be deemed to be a waiver of any such breach in the future, or of the breach of any other requirement of this Agreement. In no event shall any payment by COUNTY constitute a waiver of any breach of this Agreement which may then exist on the part of CONTRACTOR. Nor shall such payment impair or prejudice any remedy available to COUNTY with respect to the breach or default. COUNTY shall have the right to demand repayment of, and CONTRACTOR shall promptly refund, any funds which COUNTY determines were not expended in accordance with the terms and conditions of this Agreement.

24. RELATIONSHIP OF PARTIES:

It is understood that this Agreement is by and between two (2) independent entities and is not intended to, and shall not be construed to, create the relationship of agents, servant, employee, partnership, joint venture or any other similar association. Both parties further agree that CONTRACTOR is an independent contractor and shall not be entitled to any benefits to which COUNTY employees are entitled, including, without limitation, overtime, retirement, leave or workers' compensation benefits. CONTRACTOR shall be solely responsible for the acts and omissions of its agents, officers, employees, assignees and subcontractors.

25. INTERPRETATION:

This Agreement is a negotiated document and shall be deemed to have been drafted jointly by the parties, and no rule of construction or interpretation shall apply against any particular party based on a contention that the Agreement was drafted by one of the parties including, without limitation, California Civil Code Section 1654, the provisions of which are hereby waived. This Agreement shall be construed and interpreted in a neutral manner.

26. AMENDMENT:

This Agreement may be amended at any time during the term hereof upon the mutual consent of both parties. No addition to, or alteration of, the terms of this Agreement shall be valid unless made in writing and signed by the parties hereto.

27. SEVERABILITY:

If any provision of this Agreement, or any portion thereof, is found by any court of competent jurisdiction to be unenforceable or invalid for any reason, such provision shall be severable and shall not in any way impair the enforceability of any other provision of this Agreement.

28. INDEPENDENT CONSTRUCTION:

The titles of the sections and subsections set forth herein are inserted for convenience of reference only and shall be disregarded in construing or interpreting any of the provisions of this Agreement.

29. FORCE MAJEURE:

Neither party hereto shall be liable or responsible for delays or failures in performance resulting from events beyond the reasonable control, and without the fault or negligence, of such party. Such events shall include, without limitation, acts of God, strikes, lockouts, riots, acts of war, epidemics, pandemics, acts of government, fire, power failures, nuclear accidents, earthquakes, unusually severe weather, acts of terrorism or other disasters, whether or not similar to the foregoing.

30. ENTIRE AGREEMENT:

This Agreement contains all of the terms and conditions agreed upon by the parties hereto and no other agreements, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind either of the parties hereto. In addition, this Agreement shall supersede in their entirety any and all prior agreements, promises, representations, understandings and negotiations of the parties, whether oral or written, concerning the same subject matter. Any and all acts which may have already been consummated pursuant to the terms and conditions of this Agreement are hereby ratified.

31. COUNTERPART EXECUTION:

This Agreement, and any amendments hereto, may be executed in one (1) or more counterparts, each of which shall be deemed to be an original and all of which, when taken together, shall be deemed to be one (1) and the same agreement. This Agreement, and any amendments hereto, may be signed by manual or electronic signatures in accordance with any and all applicable local, state and federal laws, regulations and standards, and such signatures shall constitute original signatures for all purposes. A signed copy of this Agreement, and any amendments hereto, transmitted by email or by other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original executed copy of this Agreement and any amendments hereto.

32. AUTHORITY TO EXECUTE:

Each person executing this Agreement represents and warrants that he or she is duly authorized and has legal authority to execute and deliver this Agreement. Each party represents and warrants to the other that the execution and delivery of this Agreement and the performance of such party's obligations hereunder have been duly authorized.

REQUIRED FEDERAL CONTRACT PROVISIONS**ARTICLE 1****ACCESS TO RECORDS AND REPORTS****(2 CFR § 200.334, 2 CFR § 200.337, and FAA Order 5100.38)**

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, the Federal Aviation Administration, and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpt 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.

ARTICLE 2**AFFIRMATIVE ACTION REQUIREMENT****(41 CFR Part 60-4 and Executive Order 11246)**

- A.** 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.
- B.** 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 6.6%.

Goals for Female participation for each trade 6.9%

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

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

- C. 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.
- D. As used in this notice and in the Contract resulting from this solicitation, the “covered area” is in McKinleyville, Humboldt County, California.

**ARTICLE 3
BREACH OF CONTRACT TERMS
(2 CFR § 200 Appendix II(A))**

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.

Sponsor 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. Sponsor reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Sponsor elects to terminate the contract. The Sponsor’s notice will identify a specific date by which the Contractor must correct the breach. Sponsor may proceed with termination of the contract if the Contractor fails to correct the breach by the deadline indicated in the Sponsor’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.

**ARTICLE 4
BUY AMERICAN PREFERENCE
(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))**

Certification of Compliance with Buy American Preference Statement

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 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. 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.

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.

ARTICLE 5
CIVIL RIGHTS-GENERAL
(49 USC § 47123)

5.1 General Clause that is used for Contracts, Lease Agreements, and Transfer Agreements. 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.

5.2 Specific Clause that is used for General Contract Agreements. The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

5.3 Specific Clause that is used for Lease Agreements or Transfer Agreements. If the Contractor transfers its obligation to another, the transferee is obligated in the same manner as the Contractor.

The above provision obligates the Contractor for the period during which the property is owned, used or possessed by the Contractor and the airport remains obligated to the Federal Aviation Administration.

ARTICLE 6
CIVIL RIGHTS - TITLE VI ASSURANCES
(49 USC § 47123 and FAA Order 1400.11)

6.1 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, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (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).

6.2 Nondiscrimination Requirements/Title VI Clauses for Compliance.

The Sponsor must include this contract clause in:

- 1) Every contract or agreement (unless the Sponsor has determined, and the FAA concurs, that the contract or agreement is not subject to the Nondiscrimination Acts and Authorities); and
- 2) Service contracts with utility companies that are not already subject to substantively identical nondiscrimination requirements.
- 3) Other types of contracts with utility companies involving property covered by A6.4.2, A6.4.3, or A6.4.4.

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 of paragraphs one through six in every subcontract, 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.

6.3 Title VI Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program

This applies to agreements such as leases where a physical portion of the airport is transferred for use—for example a fuel farm, apron space, or a parking facility—and will be included as a covenant running with the land, in any future deeds, leases, licenses, permits, or similar instruments entered into by the Sponsor with other parties for all transfers of real property acquired or improved under the Airport Improvement Program.

CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE AIRPORT IMPROVEMENT PROGRAM

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the Sponsor pursuant to the provisions of the Airport Improvement Program grant assurances:

- A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:
- 1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a Federal Aviation Administration activity, facility, or program is extended or for another purpose involving the

provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Nondiscrimination Acts and Regulations listed in the Title VI List of Pertinent Nondiscrimination Acts and Authorities (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

- B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, Sponsor will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*
- C. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the Sponsor will have the right to enter or re-enter the lands and facilities thereon, and the above-described lands and facilities will there upon revert to and vest in and become the absolute property of the Sponsor) and its assigns*.

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

ARTICLE 7

CLEAN AIR AND WATER POLLUTION CONTROL (2 CFR Part 200, Appendix II(G), 42 USC § 7401, et seq, 33 USC § 1251, et seq)

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.

ARTICLE 8

CONTRACT WORK HOURS AND SAFETY STANDARDS ACT REQUIREMENTS (2 CFR Part 200, Appendix II(E), 2 CFR § 5.5(b), 40 USC § 3702, 40 USC § 3704)

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

8.1 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.

8.2 Violation; Liability for Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor

shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of \$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.

8.3 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.

8.4 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.

ARTICLE 9

COPELAND "ANTI-KICKBACK" ACT

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

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 Sponsor, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Sponsor must report any violations of the Act to the Federal Aviation Administration.

ARTICLE 10

DAVIS BACON REQUIREMENTS

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

10.1 MINIMUM WAGES.

- a. 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.

b.

- i.** 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:

 - (a)** The work to be performed by the classification requested is not performed by a classification in the wage determination;
 - (b)** The classification is utilized in the area by the construction industry; and
 - (c)** The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- ii.** 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.
- iii.** 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.

- iv. 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.
- v. 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.

10.2 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.

10.3 Payrolls and Basic Records.

- a. 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.

b.

- i.** 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).
- ii.** 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:

 - (a)** 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;
 - (b)** 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;

- (c) 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.
 - (d) 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.
 - (e) 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.

10.4 Apprentices and Trainees.

- a. 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.

- b.** 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.
- c.** 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.

10.5 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.

10.6 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.

10.7 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.

10.8 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.

10.9 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.

10.10 Certification of Eligibility.

- a. 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).
- b. 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).
- c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC § 1001.

ARTICLE 11

DEBARMENT AND SUSPENSION

**(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)**

*****NOTE: SEE PROPOSAL FOR SOLICITATION COMPLIANCE. *****

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 LOWER TIER 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>.

2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

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

ARTICLE 12
DISADVANTAGED BUSINESS ENTERPRISE
(49 CFR part 26)

Prime Contracts (Projects 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:

- (a) Withholding monthly progress payments;
- (b) Assessing sanctions;
- (c) Liquidated damages; and/or
- (d) 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 thirty (30) days from the receipt of each payment the prime contractor receives from the Sponsor. The prime contractor agrees further to return retainage payments to each subcontractor thirty (30) days after the subcontractor’s work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Sponsor. 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 the Instructions for Bidders, Section 20 (or an approved substitute DBE firm) without prior written consent of Sponsor. 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 Sponsor. Unless Sponsor 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.

Sponsor may provide such written consent only if Sponsor 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 Sponsor 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 Sponsor, 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 Sponsor and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Sponsor should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), Sponsor 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.

ARTICLE 13
DISTRACTED DRIVING
(Executive Order 13513 and DOT Order 3902.10)

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.

ARTICLE 14
PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND
VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
(2 CFR § 200, Appendix II(K), 2 CFR § 200.216)

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)).

ARTICLE 15
DRUG FREE WORKPLACE REQUIREMENTS
(49 CFR part 32 and Drug-Free Workplace Act of 1988 (41 USC § 8101-8106, as amended))

NOT APPLICABLE

ARTICLE 16
EQUAL EMPLOYMENT OPPORTUNITY (EEO)
(2 CFR 200, Appendix II(C), 41 CFR § 60-1.4, 41 CFR § 60-4.3, Executive Order 11246)

16.1 EQUAL OPPORTUNITY CLAUSE

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

- a. 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 identity, 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.
- b. 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.
- c. 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.
- d. 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.
- e. 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.
- f. 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.

- g.** 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.
- h.** 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.

16.2 STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

16.2.1 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:

 - (i)** Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii)** Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
 - (iii)** 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

(iv) 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).

16.2.2 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.

16.2.3 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.

16.2.4 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 areas 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.

16.2.5 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.

16.2.6 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.

16.2.7 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 therefor, 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.

16.2.8 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.

16.2.9 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).

16.2.10 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.

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

16.2.12 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.

16.2.13 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.

16.2.14 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.

16.2.15 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).

ARTICLE 17
FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)
(29 USC § 201, et seq, 2 CFR § 200.430)

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

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

ARTICLE 18
LOBBYING AND INFLUENCING FEDERAL EMPLOYEES
(31 USC § 1352 – Byrd Anti-Lobbying Amendment, 2 CFR part 200, Appendix II(I),
and 49 CFR part 20, Appendix A)

CERTIFICATION REGARDING LOBBYING

- 18.1** The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
- 18.1.1** 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.
 - 18.1.2** 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.
 - 18.1.3** The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite

for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

ARTICLE 19
PROHIBITION OF SEGREGATED FACILITIES
(2 CFR Part 200, Appendix II(C), 41 CFR Part 60-1)

- 19.1** 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.
- 19.2** “Segregated facilities,” as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.
- 19.3** The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

ARTICLE 20
OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970
(29 CFR part 1910)

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor’s compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

ARTICLE 21
PROCUREMENT OF RECOVERED MATERIALS
(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)))

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 of products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

- (a) The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or,
- (b) 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.

**ARTICLE 22
RIGHTS TO INVENTIONS
(2 CFR § 200, Appendix II(F), 37 CFR § 401)**

NOT APPLICABLE

**ARTICLE 23
SEISMIC SAFETY
(49 CFR Part 41)**

NOT APPLICABLE

**ARTICLE 24
TAX DELINQUENCY AND FELONY CONVICTIONS
(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)**

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

- (a) 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.
- (b) 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 Sponsor about its tax liability or conviction to the Sponsor, who will then notify the FAA Airports District Office, which will then notify the agency’s SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

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

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

ARTICLE 25

TERMINATION OF CONTRACT

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

TERMINATION FOR CONVENIENCE (CONSTRUCTION & EQUIPMENT CONTRACTS)

The Sponsor 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 Sponsor. Upon receipt of a written notice of termination, except as explicitly directed by the Sponsor, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

- (a) Contractor must immediately discontinue work as specified in the written notice.
- (b) Terminate all subcontracts to the extent they relate to the work terminated under the notice.
- (c) Discontinue orders for materials and services except as directed by the written notice.

- (d) Deliver to the Sponsor 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.
- (e) Complete performance of the work not terminated by the notice.
- (f) Take action as directed by the Sponsor to protect and preserve property and work related to this contract that Sponsor will take possession.

Sponsor agrees to pay Contractor for:

- (a) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
- (b) 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;
- (c) reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
- (d) reasonable and substantiated expenses to the Contractor directly attributable to Sponsor's termination action.

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

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

TERMINATION FOR DEFAULT (CONSTRUCTION)

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

TERMINATION FOR DEFAULT (EQUIPMENT)

The Sponsor may, by written notice of default to the Contractor, terminate all or part of this Contract if the Contractor:

- (a) Fails to commence the Work under the Contract within the time specified in the Notice- to-Proceed;
- (b) Fails to make adequate progress as to endanger performance of this Contract in accordance with its terms;
- (c) Fails to make delivery of the equipment within the time specified in the Contract, including any Sponsor approved extensions;
- (d) Fails to comply with material provisions of the Contract;

- (e) Submits certifications made under the Contract and as part of their proposal that include false or fraudulent statements; or
- (f) Becomes insolvent or declares bankruptcy.

If one or more of the stated events occur, the Sponsor will give notice in writing to the Contractor and Surety of its intent to terminate the contract for cause. At the Sponsor's discretion, the notice may allow the Contractor and Surety an opportunity to cure the breach or default.

If within 10 days of the receipt of notice, the Contractor or Surety fails to remedy the breach or default to the satisfaction of the Sponsor, the Sponsor has authority to acquire equipment by other procurement action. The Contractor will be liable to the Sponsor for any excess costs the Sponsor incurs for acquiring such similar equipment.

Payment for completed equipment delivered to and accepted by the Sponsor shall be at the Contract price. The Sponsor may withhold from amounts otherwise due the Contractor for such completed equipment, such sum as the Sponsor determines to be necessary to protect the Sponsor against loss because of Contractor default.

Sponsor will not terminate the Contractor's right to proceed with the Work under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such acceptable causes include: acts of God, acts of the Sponsor, acts of another Contractor in the performance of a contract with the Sponsor, and severe weather events that substantially exceed normal conditions for the location.

If, after termination of the Contractor's right to proceed, the Sponsor determines that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the Sponsor issued the termination for the convenience the Sponsor.

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

ARTICLE 26
TRADE RESTRICTION CLAUSE
(49 USC § 50104, 49 CFR part 30)

****NOTE: SEE PROPOSAL FOR SOLICITATION COMPLIANCE. ****

TRADE RESTRICTION CERTIFICATION

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

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

- (b) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and
- (c) has not entered into any subcontract for any product to be used on the Federal 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:

- (a) 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
- (b) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
- (c) 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.

ARTICLE 27
VETERAN'S PREFERENCE
(49 USC § 47112(c))

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.

ARTICLE 28
DOMESTIC PREFERENCES FOR PROCUREMENTS
(2 CFR § 200.322, 2 CFR Part 200, Appendix II(L))

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.

[Signatures of on Following Page]

IN WITNESS WHEREOF, the parties have entered into this Agreement as of the first date written above.

TWO SIGNATURES ARE REQUIRED FOR CORPORATIONS:

- (1) CHAIRPERSON OF THE BOARD, PRESIDENT, OR VICE PRESIDENT; AND
- (2) SECRETARY, CHIEF FINANCIAL OFFICER OR TREASURER.

_____ (Contractor)

By: _____

Date: _____

Name: _____

Title: _____

By: _____

Date: _____

Name: _____

Title: _____

COUNTY OF HUMBOLDT:

By: _____

Date: _____

Cody Raggatz C.M.
Department of Avaitaion

INSURANCE AND INDEMNIFICATION REQUIREMENTS APPROVED:

By: _____

Date: _____

Risk Management

LIST OF EXHIBITS:

Exhibit A – Scope of Work

**EXHIBIT A
SCOPE OF WORK**

The work to be performed by CONTRACTOR shall be as described below.

CONTRACTOR shall furnish all Labor, Tools, Equipment and Materials and perform all the work to provide a complete functional system including, but not limited to:

Rehabilitate Airfield Lighting System

Attachment A – Contract Documents Including Detailed Specifications

Attachment B – Construction Drawings

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.
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.

Paragraph Number	Term	Definition
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	<p>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.</p> <p>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.</p>
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.
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.

Paragraph Number	Term	Definition
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.
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	<p>a. Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis.</p> <p>b. Owner Force Account - Work performed for the project by the Owner's employees.</p>
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

Paragraph Number	Term	Definition
		<p>“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.</p> <p>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.</p>
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.
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 County of Humboldt.
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.

Paragraph Number	Term	Definition
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.
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

Paragraph Number	Term	Definition
		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.
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.

Paragraph Number	Term	Definition
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.
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

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SECTION 20
PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 ADVERTISEMENT (NOTICE TO BIDDERS). This project has been advertised on _____, 2023.

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 per schedule, as bid, with mobilization included into the total.

A non-mandatory prebid conference will be held for 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 in the project bid documents. 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 submitted online per system requirements. No proposal will be considered unless received as specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening will not be accepted.

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 by email before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

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

20-14 DISQUALIFICATION OF BIDDERS. A bidder shall be considered disqualified for any of the following reasons:

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

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

c. If the bidder is considered to be in "default" for any reason specified in 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 six (6) 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 90 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

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. See Special Provisions section of these Contract Documents.

50-05 COOPERATION OF CONTRACTOR. The Contractor shall be supplied with 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): as agreed upon in the pre-construction meeting.

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 advised 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. The Contractor shall provide dedicated space for the use of the engineer, RPR, and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. The Contractor shall furnish water, sanitary facilities, heat, air conditioning, and electricity.

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 indicated 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: None.

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 plan sheet(s) can be found in the project plans. The CSPP report can be found in the Special Provisions of these contract documents.

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 Construction Safety and Phasing Plan (CSPP) located in the Special Provisions section of this document.

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 whatsoever, the Contractor, at their own expense, 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 and the Owners are indicated as follows: a one-call utility location phone number is indicated on the Plans (where one is known to exist).

Please see Special Provisions for contact information.

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 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.

70-15.1 FAA FACILITIES AND CABLE RUNS. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the airport manager a minimum of seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

d. Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.

e. If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a

location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

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 insurance requirements in Agreement.

END OF SECTION 70

**SECTION 80
EXECUTION AND PROGRESS**

80-01 SUBLETTING OF CONTRACT. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the 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 twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

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 as follows:

Portions of the AOA will be closed to aircraft operation intermittently as described in the Special Provisions.

See the Construction Safety and Phasing Plan for AOA closures.

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 calendar 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 CALENDAR DAYS. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

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.

Schedule	Liquidated Damages Cost	Allowed Construction Time
Schedule I	\$2,750 Per Calendar Day	90 Calendar Days

The maximum construction time allowed for Schedule I will be the sum of the time allowed for individual schedules but not more than 90 days. Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Owner of any of its rights under the contract.

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 SPDCD.

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 may be weighed, and such weights will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the 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

Term	Description
	accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
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	<p>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 received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%.</p> <p>In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional</p>

Term	Description
	<p>payment to the Contractor will be allowed for materials previously weighed and recorded.</p> <p>Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them.</p> <p>Scale installations shall have available ten standard 50-pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment.</p> <p>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.</p>
Rental Equipment	<p>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 <i>Payment for Extra Work</i>.</p>
Pay Quantities	<p>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.</p>

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. Contractor must report to RPR monthly amounts paid to DBE subcontractors.

a. From the total of the amount determined to be payable on a partial payment, five (5) 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's 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, monthly and final, 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.

END OF SECTION 90

GENERAL CONSTRUCTION ITEMS

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, 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) ten 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. Submittals 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 paragraph 100-8.
- (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*:

- 8.1.3 Equipment Calibration and Checks;
- 8.1.9 Equipment Calibration, Standardization, and Check Records;
- 8.1.12 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*:

- 7 Test Methods and Procedures
- 8 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 work day 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 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, 25% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.

BASIS OF PAYMENT

100-14 Payment will be made under:

Item C-100 Contractor Quality Control Program (CQCP) – 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.

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

END OF ITEM C-100

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 silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, 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 150/5370-2, *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. Grass that will not compete with the grasses sown later for permanent cover per Item T-901 shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

102-2.2 MULCHES. Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per Item T-908. Mulches shall not create a wildlife attractant.

102-2.3 FERTILIZER. Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

102-2.4 SLOPE DRAINS. Slope drains may be constructed of pipe, fiber mats, rubble, concrete, asphalt, or other materials that will adequately control erosion.

102-2.5 SILT FENCE. Silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

102-2.6 OTHER. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into 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 monitoring compliance to the extent that construction practices, construction operations, and construction work are involved.

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 Item C-102 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control 75 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 identified 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 identify 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 identify 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. Silt fences shall extend a minimum of 16 inches (41 cm) and a maximum of 34 inches (86 cm) above the ground surface. Posts shall be set no more than 10 feet (3 m) on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch (300-mm) overlap and securely sealed. A trench shall be excavated approximately 4 inches (100 mm) deep by 4 inches (100 mm) wide on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the RPR.

METHOD OF MEASUREMENT

102-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the RPR. Completed and accepted work will be measured as follows:

Completed and accepted work will not be measured for payment but shall be considered incidental to the bid items to which they apply or to the project in general.

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 Quantities of temporary water pollution, soil erosion, and siltation control work ordered by the Engineer will not be measured and will not be paid as separate bid items.

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

Temporary control features not covered by contract items that are ordered by the RPR will be paid for in accordance with Section 90, paragraph 90-05 *Payment for Extra 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.

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, per schedule, as bid, with mobilization included into the total.

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. The Contractor shall provide dedicated space for the use of the field Resident Project Representative (RPR) and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. The Contractor shall furnish water, sanitary facilities, heat, air conditioning, and electricity in accordance with local building codes.

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, 25%.
- b. When 25% or more of the original contract is earned, an additional 25%.
- c. When 50% or more of the original contract is earned, an additional 40%.

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 10%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105 Mobilization – 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.

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

**TEM S-6
WATERING**

DESCRIPTION

S-6-1.1 This item shall consist of furnishing and applying water required in the compaction of embankments, subgrades, subbases, base courses, for dust control, and for other purposes in accordance with the requirements of these Specifications or as directed by the Engineer.

CONSTRUCTION METHODS

S-6-2.1 Water, when required, shall be applied at the locations, in the amounts, and during the hours, including nights, as directed by the Engineer. An adequate water supply shall be provided by the Contractor. The equipment used for watering shall be of ample capacity and of such design as to assure uniform application of water in the amounts directed by the Engineer.

METHOD OF MEASUREMENT

S-6-3.1 No measurement will be made of water on any part of the Work. If any material is prewetted prior to weighing, the weight of the water shall be deducted from the scale weight.

BASIS OF PAYMENT

S-6-4.1 No payment will be made separately or directly for water on any part of the Work. Water will be considered a necessary and incidental part of the Work and the Contractor shall include its cost in the Contract Unit Price for the pay items of Work involved.

END OF ITEM S-6

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SITWORK

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. Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. If the material is to be wasted on the airport site, it shall be reduced to a maximum size of 2-inch diameter. Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as advised by the RPR.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlying material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

b. Asphalt pavement removal. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed. If the material is to be incorporated into embankment, it shall be broken to a maximum size of 2-inches.

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 advised 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 JOINTS AND CRACKS PRIOR TO OVERLAY/SURFACE TREATMENT. Remove all vegetation and debris from cracks to a minimum depth of 1 inch. If extensive vegetation exists, treat the

specific area with a concentrated solution of a water-based herbicide approved by the RPR. Fill all cracks greater than 1/2 inch wide), with a crack sealant per ASTM D6690. The crack sealant, preparation, and application shall be compatible with the surface treatment/overlay to be used. To minimize contamination of the asphalt with the crack sealant, underfill the crack sealant a minimum of 1/8 inch, not to exceed ¼ inch. Any excess joint or crack sealer shall be removed from the pavement surface.

Cracks wider than 1 inch and/or those identified by the RPR shall be filled with crack sealant (ASTM D6690) and covered with Stress Relief Interlayer as indicated on the plans. Stress relief interlayer material shall be PavePrep heavy duty high strength pavement repair geo composite or an approved equal and shall consist of a high density asphalt mastic sandwiched between 2 layers of polyester fabric. Stress relief interlayer material shall be a minimum of 20 inches in width. Material shall be installed per manufactures recommendations.

101-3.3 REMOVAL OF FOREIGN SUBSTANCES/CONTAMINATES PRIOR TO OVERLAY or REMARKING.

Removal of foreign substances/contaminates from existing pavement that will affect the bond of the new treatment shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances from the surface of the pavement. Areas that require removal are designated on the plans and as identified by the RPR in the field during construction.

High-pressure water, cold milling, rotary grinding or sandblasting may be used. If chemicals are used, they shall comply with the state's environmental protection regulations. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as identified by the RPR.

Removal of foreign substances shall not proceed until approved by the RPR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be deposited on the pavement shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

101-3.4 CONCRETE SPALL OR FAILED ASPHALTIC CONCRETE PAVEMENT REPAIR.

a. Repair of concrete spalls in areas to be overlaid with asphalt. The Contractor shall repair all spalled concrete as shown on the plans or as identified by the RPR. The perimeter of the repair shall be saw cut a minimum of 2 inches outside the affected area and 2 inches deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphalt mixture with aggregate sized appropriately for the depth of the patch. The material shall be compacted with equipment approved by the RPR until the material is dense and no movement or marks are visible. The material shall not be placed in lifts over 4 inches in depth. This method of repair applies only to pavement to be overlaid.

b. Asphalt pavement repair. The Contractor shall repair all spalled concrete as shown on the plans or as identified 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.

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 underlying 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 in areas designated on the plans. 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 in areas designated on the plans.

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 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.

b. Repair joints and cracks in accordance with paragraph 101-3.2.

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. 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 joint and does not damage the joint.

101-3.8.1 REMOVAL OF EXISTING JOINT SEALANT. All existing joint sealants will be removed by plowing or use of hand tools. Any remaining sealant and or debris will be removed by use of wire brushes or other tools as necessary. Resaw joints removing no more than 1/16 inch from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry.

101-3.8.2 CLEANING PRIOR TO SEALING. Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Allow sufficient time to dry out joints prior to sealing. Joint surfaces will be surface-dry prior to installation of sealant.

101-3.8.3 JOINT SEALANT. Joint material and installation will be in accordance with Item P-605.

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. Widen crack with random crack saw by removing a minimum of 1/16 inch from each side of crack. Immediately before sealing, cracks will be blown out with a hot air lance combined with oil and water-free compressed air.

101-3.9.2 REMOVAL OF EXISTING CRACK SEALANT. Existing sealants will be removed by routing. Following routing any remaining debris will be removed by use of a hot lance combined with oil and water-free compressed air.

101-3.9.3 CRACK SEALANT. Crack sealant material and installation will be in accordance with Item P-605.

101-3.9.4 REMOVAL OF PIPE AND OTHER BURIED STRUCTURES.

- a. **Removal of Existing Pipe Material.** Not used.
- b. **Removal of Inlets/Manholes.** Not used.

METHOD OF MEASUREMENT

101-4.1 COLD MILLING. The unit of measure for cold milling shall be 2 inches of milling per square yard at the depth indicated on the plans. The location and average 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.

101-4.2 CRACK SEALING. The unit of measurement for crack sealing repair shall be by the ton of sealant in place, completed and accepted.

101-4.3 STRESS RELIEF INTERLAYER. The unit of measurement for stress relief interlayer shall be by the linear foot of cracks treated. No allowance will be made for overlapping.

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-101a	Cold Milling– per square yard
Item P-101b	Crack Sealing – per ton
Item P-101c	Stress Relief Interlayer (20 Inch Width) – per linear 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.

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

END OF ITEM P-101

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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 disposed in designated waste areas as shown on the plans. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR.

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 disposed of in waste areas as shown on the plans or as identified by RPR. All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

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 4 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.

Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans.

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 and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the RPR. 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 of as shown on the plans.

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 used to grade the areas of ultimate development or disposed as advised by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

a. Selective grading. When selective grading is indicated on the plans, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas 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. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other

yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard for unclassified excavation. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a part of the embankment. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as unclassified excavation.

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 identified 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 as indicated on the plans. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as identified 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. Borrow areas are not required.

152-2.4 DRAINAGE EXCAVATION. Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as identified by the RPR. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

152-2.5 PREPARATION OF CUT AREAS OR AREAS WHERE EXISTING PAVEMENT HAS BEEN REMOVED. In those areas on which a subbase or base course is to be placed, the top 12 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 D1775. 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.

152-2.6 PREPARATION OF EMBANKMENT AREA.

All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and

part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.7 CONTROL STRIP. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

152-2.8 FORMATION OF EMBANKMENTS. The material shall be constructed in lifts as established in the control strip, but not less than 6 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.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as advised by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within $\pm 2\%$ of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The RPR will take samples of excavated materials which will be used in embankment for testing to develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with D 1557. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the RPR for every 1,000 square yards of compacted embankment for the top lift and one test (minimum) per 1,000 cubic yards of lower lifts, or other appropriate frequencies as determined by the RPR.

If the material has greater than 30% retained on the 3/4-inch sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is 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 D1775. Under all areas to be paved, the embankments shall be compacted to a depth of 12 inches and to a density of not less than 100 percent of the maximum density as determined by ASTM D1775. 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.

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches which shall be prepared for a seedbed in accordance with Item T-901.

The in-place field density shall be determined in accordance with ASTM D1556 or ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The RPR shall perform all density tests. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

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

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches in their greatest dimensions will not be allowed in the top 12 inches of the subgrade. Rockfill shall be brought up in lifts as specified or as identified by the RPR and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-2.9 PROOF ROLLING. Not used.

152-2.10 COMPACTION REQUIREMENTS. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 100 percent of the maximum dry density as determined by ASTM D1557. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D1775.

The material to be compacted shall be within $\pm 2\%$ 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 $\frac{3}{4}$ inch sieve, follow the procedures in AASHTO T180 Annex for correction of maximum dry density and optimum moisture for oversized particles. Tests for moisture content and compaction will be taken at a minimum of 1,000 S.Y. of subgrade. 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 identified 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. In those areas on which a subbase or base course is to be placed, 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 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 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 and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

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. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the RPR, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be paid for as provided in Item T-905. No direct payment will be made for topsoil under Item P-152.

152-2.15 SHOULDER GRADING. Shoulder grading includes salvaging, handling, processing, placing, grading, compacting asphalt millings along the pavement edges salvaged from the project. Millings shall be placed uniformly along the pavement edges to 10 feet from the pavement edge, at a minimum 4 inches thick, as indicated on the plans. Final compacted finish grade shall meet the pavement edge drop and shoulder slope requirements as indicated in the plans. Placed millings shall be compacted by steel wheel roller or a method approved by the engineer. Asphalt millings shall be composed of milled bituminous

pavement and shall be clean, uniform, and well-graded with a maximum particle size of 2 inches in any dimension. Dirt contamination shall be kept to an absolute minimum.

METHOD OF MEASUREMENT

152-3.1 No measurement of excavation or embankment quantity shall be made. All excavation and/or embankment costs shall be incidental to the associated items in which it is required.

152-3.2 Shoulder Grading shall be measured as the number of square yards of area graded and plated with salvaged asphalt millings adjacent to the pavement to the specified thickness and area as indicated on the plans. It is anticipated that approximately 1,732 cubic yards (unadjusted) of millings will be required to complete the item.

BASIS OF PAYMENT

152-4.1 Excavation and Embankment. No direct payment will be made for excavation or embankment. Cost for any required excavation or embankment shall be incidental to the associated items in which it is required to complete that item.

152-4.2 Shoulder Grading shall be paid per square yard, completed and accepted.

Payment will be made under:

Item P-152a	Excavation and Embankment – Incidental
Item P-152b	Shoulder Grading – 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.

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 D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³)

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/ft³)

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

END OF ITEM P-152

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**ITEM P-153
CONTROLLED LOW-STRENGTH MATERIAL (CLSM)**

DESCRIPTION

153-1.1 This item shall consist of furnishing, transporting, and placing a controlled low-strength material (CLSM) as flowable backfill in trenches or at other locations shown on the plans or as identified by the Resident Project Representative (RPR).

MATERIALS

153-2.1 MATERIALS.

a. Cement. Cement shall conform to the requirements of ASTM C150 Type II.

b. Fly ash. Fly ash shall conform to ASTM C618, Class C or F.

c. Fine aggregate (sand). Fine aggregate shall conform to the requirements of ASTM C33 except for aggregate gradation. Any aggregate gradation which produces the specified performance characteristics of the CLSM and meets the following requirements, will be accepted.

Sieve Size	Percent Passing by weight
3/4 inch	100
No. 200	0 - 12

d. Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

MIX DESIGN

153-3.1 PROPORTIONS. The Contractor shall submit, to the RPR, a mix design including the proportions and source of aggregate, fly ash, cement, water, and approved admixtures. No CLSM mixture shall be produced for payment until the RPR has given written approval of the proportions. The proportions shall be prepared by a laboratory and shall remain in effect for the duration of the project. The proportions shall establish a single percentage or weight for aggregate, fly ash, cement, water, and any admixtures proposed. Laboratory costs are incidental to this item.

a. Compressive strength. CLSM shall be designed to achieve a 28-day compressive strength of 100 to 200 psi when tested in accordance with ASTM D4832, with no significant strength gain after 28 days.

b. Consistency. Design CLSM to achieve a consistency that will produce an approximate 8-inch diameter circular-type spread without segregation. CLSM consistency shall be determined per ASTM D6103.

CONSTRUCTION METHODS

153-4.1 PLACEMENT.

a. Placement. CLSM may be placed by any reasonable means from the mixing unit into the space to be filled. Agitation is required during transportation and waiting time. Placement shall be performed so structures or pipes are not displaced from their final position and intrusion of CLSM into unwanted areas is avoided. The material shall be brought up uniformly to the fill line shown on the plans or as identified by the RPR. Each placement of CLSM shall be as continuous an operation as possible. If CLSM is placed in more than one lift, the base lift shall be free of surface water and loose foreign material prior to placement of the next lift.

b. Contractor Quality Control. The Contractor shall collect all batch tickets to verify the CLSM delivered to the project conforms to the mix design. The Contractor shall verify daily that the CLSM is consistent with 153-3.1a and 153-3.1b. Adjustments shall be made as necessary to the proportions and materials as needed. The Contractor shall provide all batch tickets to the RPR.

c. Limitations of placement. CLSM shall not be placed on frozen ground. Mixing and placing may begin when the air or ground temperature is at least 35°F and rising. Mixing and placement shall stop when the air temperature is 40°F and falling or when the anticipated air or ground temperature will be 35°F or less in the 24-hour period following proposed placement. At the time of placement, CLSM shall have a temperature of at least 40°F.

153-4.2 CURING AND PROTECTION

a. Curing. The air in contact with the CLSM shall be maintained at temperatures above freezing for a minimum of 72 hours. If the CLSM is subjected to temperatures below 32°F the material may be rejected by the RPR if damage to the material is observed.

b. Protection. The CLSM shall not be subject to loads and shall remain undisturbed by construction activities for a period of 48 hours or until a compressive strength of 15 psi is obtained. The Contractor shall be responsible for providing evidence to the RPR that the material has reached the desired strength. Acceptable evidence shall be based upon compressive tests made in accordance with paragraph 153-3.1a.

153-4.3 QUALITY ASSURANCE (QA) ACCEPTANCE. CLSM QA acceptance shall be based upon batch tickets provided by the Contractor to the RPR to confirm that the delivered material conforms to the mix design.

METHOD OF MEASUREMENT

153-5.1 MEASUREMENT. No separate measurement for payment shall be made for controlled low strength material (CLSM). CLSM shall be considered necessary and incidental to the work of this Contract.

BASIS OF PAYMENT

153-6.1 PAYMENT. No payment will be made separately or directly for controlled low strength material (CLSM). CLSM shall be considered necessary and incidental to the work of this Contract.

Payment shall be full compensation for all materials, equipment, labor, and incidentals required to complete the work as specified.

Payment will be made under:

Item P-153 Controlled low-strength material (CLSM) - Incidental

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 C33	Standard Specification for Concrete Aggregates
ASTM C150	Standard Specification for Portland Cement
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D4832	Standard Test Method for Preparation and Testing of Controlled Low-Strength Material (CLSM) Test Cylinders
ASTM D6103	Flow Consistency of Controlled Low Strength Material (CLSM)

END OF ITEM P-153

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MISCELLANEOUS

ITEM P-610
CONCRETE FOR MISCELLANEOUS STRUCTURES

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place. This item also includes high early strength (HES) concrete used for trench backfill for the in-pavement lighting or as indicated in the plans.

MATERIALS

610-2.1 GENERAL. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.

If the expansion is greater than 0.20% the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.

610-2.2 COARSE AGGREGATE. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

COARSE AGGREGATE GRADING REQUIREMENTS

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch	467 or 4 and 67
1 inch	57
3/4 inch	67
1/2 inch	7

610-2.2.1 COARSE AGGREGATE SUSCEPTIBILITY TO DURABILITY (D) CRACKING. Not used

610-2.3 FINE AGGREGATE. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 CEMENT. Cement shall conform to the requirements of C-150 Type II for concrete used for miscellaneous structures, and Type III for high Early strength (HES) concrete.

610-2.5 CEMENTITIOUS MATERIALS.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 WATER. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 ADMIXTURES. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 PREMOLDED JOINT MATERIAL. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751.

610-2.9 JOINT FILLER. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 STEEL REINFORCEMENT. Reinforcing shall consist of reinforcing steel conforming to the requirements of ASTM A615.

610-2.11 MATERIALS FOR CURING CONCRETE. Curing materials shall conform to; White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B ASTM C309.

CONSTRUCTION METHODS

610-3.1 GENERAL. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 CONCRETE MIXTURE. The concrete shall develop a compressive strength of 4000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard. The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches as determined by ASTM C143. High early strength concrete shall develop a compressive strength of 3,500 psi in 3 hours. A separate mix design shall be developed for the high early strength concrete.

610-3.3 MIXING. Concrete may be mixed at the construction site, utilizing volumetric mixing trucks, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685. High early strength concrete shall be mixed on-site utilizing volumetric concrete mixing trucks designed for on-site mixing and placement.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F nor more than 100°F. The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 FORMS. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 PLACING REINFORCEMENT. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 EMBEDDED ITEMS. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 CONCRETE CONSISTENCY. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 PLACING CONCRETE. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet. Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 VIBRATION. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 JOINTS. Joints shall be constructed as indicated on the plans.

610-3.11 FINISHING. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 CURING AND PROTECTION. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 COLD WEATHER PLACING. When concrete is placed at temperatures below 40°F, follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 HOT WEATHER PLACING. When concrete is placed in hot weather greater than 85°F, follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 QUALITY ASSURANCE SAMPLING AND TESTING. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The RPR will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077. For high early strength concrete, samples shall be collected once every 5 placement days and tested for compressive strength to verify mix designed is achieving required strength.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 DEFECTIVE WORK. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be considered incidental and no separate measurement shall be made of concrete complete in place and accepted.

BASIS OF PAYMENT

610-6.1 Payment for concrete shall be considered incidental and no separate payment shall be made. This price shall be full compensation for furnishing all materials including reinforcement and embedded items and for all preparation, delivery, installation, and curing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-610a	Concrete – Incidental
Item P-610b	High Early Strength Concrete - Incidental

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 A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete

ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

American Concrete Institute (ACI)

ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to External Curing of Concrete
ACI 309R	Guide for Consolidation of Concrete

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LIGHTING INSTALLATION

ITEM L-108 UNDERGROUND POWER CABLE FOR AIRPORTS**DESCRIPTION**

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the RPR. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

EQUIPMENT AND MATERIALS**108-2.1 GENERAL.**

- a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.
- b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the RPR.
- c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.
- d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.
- e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format and contain a copy of the relevant specification section with the specific items the submittal is intended to fulfill clearly identified with arrows or circles. The RPR reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.
- f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or

replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period when tested in accordance with AC 150/5340-26, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

108-2.2 CABLE. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. Conductors for use on 20 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824, Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type XHHW-2, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, XHHW-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of XHHW-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 BARE COPPER WIRE (COUNTERPOISE, BARE COPPER WIRE GROUND AND GROUND RODS). Wire for counterpoise or ground installations for airfield lighting systems shall be 1/0 AWG bare solid copper wire for counterpoise and/or No. 4 AWG insulated stranded for grounding bond wire per ASTM B3 and ASTM B8, and shall be bare copper wire. For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.

Ground rods shall be copper-clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 10 feet (2.54 m) long and 3/4 inch (19 mm) in diameter.

108-2.4 CABLE CONNECTIONS. In-line connections or splices of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

- a. **THE CAST SPLICE.** A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M™ Company, "Scotchcast" Kit No. ALK-8-2X, or an approved equivalent, used for potting the splice is acceptable.
- b. **THE FIELD-ATTACHED PLUG-IN SPLICE.** Figure 3 of AC 150/5345-26, Specification for L-823 Plug and Receptacle, Cable Connectors, employing connector kits is acceptable for field attachment to single conductor cable. Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish appropriately sized connector kits and/or adapters. Tape with integral sealant shall be in accordance with the manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal is acceptable.
- c. **THE FACTORY-MOLDED PLUG-IN SPLICE.** Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable. Provide Type I, Class A for 5 kV circuits and Type II, Class A for 600 volt circuits.
- d. **THE TAPED OR HEAT SHRINK SPLICE.** Not Applicable.

In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the manufacturer's recommendations and listings.

All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except that a light base ground clamp connector shall be used for attachment to the light base. All exothermic connections shall be made per the manufacturer's recommendations and listings.

108-2.5 SPLICER QUALIFICATIONS. Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the RPR proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

108-2.6 CONCRETE. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

108-2.7 FLOWABLE BACKFILL. Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

108-2.8 CABLE IDENTIFICATION TAGS. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans. They shall be secured to all circuits in each pull box or handhole with a nylon tie wrap designed to be exposed to the environment. Tag shall be placed at each can, fixture, or handhole within 24" from entering or leaving the can, fixture, or handhole and on each side of the splice.

108-2.9 TAPE. Electrical tapes shall be Scotch™ Electrical Tapes –Scotch™ 88 (1-1/2 inch (38 mm) wide) and Scotch™ 130C® linerless rubber splicing tape (2-inch (50 mm) wide, as manufactured by the Minnesota Mining and Manufacturing Company (3M™), or an approved equivalent.

108-2.10 ELECTRICAL COATING. Electrical coating shall be Scotchkote™ as manufactured by 3M™, or an approved equivalent.

108-2.11 EXISTING CIRCUITS. Whenever the scope of work requires connection to an existing circuit, the existing circuit's insulation resistance shall be tested, in the presence of the RPR. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the RPR. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the RPR. The Contractor shall record the results on forms acceptable to the RPR. The Contractor shall perform at least two secondary insulation resistance measurements. After the new work is complete the Contractor shall isolate the new portion of the circuit from any existing portion of the circuits and or from equipment containing existing isolation transformers. The reading of this new section of the circuit shall be no less than the required Megaohms in section 3.10 The second reading shall be the completed circuit containing new cable and components and the existing cable with all existing guidance sign isolation transformers removed from the circuit (isolated and jumper out). The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the existing circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

108-2.12 DETECTABLE WARNING TAPE. Plastic, detectable, American Public Works Association (APWA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend tape shall be polyethylene film with a metalized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item. Detectable warning tape for communication cables shall be orange. Detectable warning tape color code shall comply with the APWA Uniform Color Code.

CONSTRUCTION METHODS

108-3.1 GENERAL. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Cable shall be run without splices, from connection to connection.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the RPR or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed and on both sides of slack loops where a future connector would be installed.

Provide not less than 3 feet (1 m) of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Cables shall not contain splices

where it passes through a base can and is not connected to field equipment. In handholes or manholes cable shall be neatly racked and secured from the point of entrance to the point of exit of the structure; providing 12-inch drip loops between secure points of the cable. Cable shall not loop around the entire interior of the structure. Cable splices shall be made with L-823 connectors between the two cable racks on the full wall which the cable is routed. Cable splices shall not be made on the wall where the cable enters. When a cable enters and exists on an adjacent wall, cable shall be routed on the opposite wall around the structure. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot (30 cm) vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the RPR.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch (6 mm) in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 INSTALLATION IN DUCT BANKS OR CONDUITS. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction. In no case shall the quantity of conductors installed in a ductbank conduit exceed 10 conductors.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the

cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the RPR prior to any cable installation. If required by the RPR, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR. Cable pull tensions shall be recorded by the Contractor and reviewed by the RPR. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the RPR, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 INSTALLATION OF DIRECT-BURIED CABLE IN TRENCHES. Not Applicable.

108-3.4 CABLE MARKERS FOR DIRECT-BURIED CABLE. Not Applicable.

108-3.5 SPLICING. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

- a. **CAST SPLICES.** These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the manufacturer's instructions and to the satisfaction of the RPR.
- b. **FIELD-ATTACHED PLUG-IN SPLICES.** These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint (2) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.
- c. **FACTORY-MOLDED PLUG-IN SPLICES.** These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint. (2) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.
- d. **TAPED OR HEAT SHRINK SPLICES.** Not Applicable.
- e. **ASSEMBLY.** Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations.

All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean all surfaces at least 1/4 inch (6.4 mm) beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.6 BARE COUNTERPOISE WIRE INSTALLATION FOR LIGHTNING PROTECTION AND GROUNDING. If shown on the plans or included in the job specifications, bare solid 1/0 AWG copper counterpoise wire shall be installed for lightning protection of the underground cables. The RPR shall select one of two methods of lightning protection for the airfield lighting circuit based upon sound engineering practice and lightning strike density.

- a. **EQUIPOTENTIAL.** The counterpoise size is as shown on the plans. The equipotential method is applicable to all airfield lighting systems; i.e. runway, taxiway, apron – touchdown zone, centerline, edge, threshold and approach lighting systems. The equipotential method is also successfully applied to provide lightning protection for power, signal and communication systems. The light bases, counterpoise, etc – all components - are bonded together and bonded to the vault power system ground loop/electrode.

Counterpoise wire shall be installed in the same trench for the entire length of buried cable, conduits and duct banks that are installed to contain airfield cables. The counterpoise is centered over the cable/conduit/duct to be protected.

The counterpoise conductor shall be installed no less than 8 inches (200 mm) minimum or 12 inches (300 mm) maximum above the raceway or cable to be protected, except as permitted below:

- (1) The minimum counterpoise conductor height above the raceway or cable to be protected shall be permitted to be adjusted subject to coordination with the airfield lighting and pavement designs.
- (2) The counterpoise conductor height above the protected raceway(s) or cable(s) shall be calculated to ensure that the raceway or cable is within a 45-degree area of protection, (45 degrees on each side of vertical creating a 90 degree angle).

The counterpoise conductor shall be bonded to each metallic light base, mounting stake, and metallic airfield lighting component.

All metallic airfield lighting components in the field circuit on the output side of the constant current regulator (CCR) or other power source shall be bonded to the airfield lighting counterpoise system.

All components rise and fall at the same potential; with no potential difference, no damaging arcing and no damaging current flow.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Equipotential Method of lightning protection.

Reference FAA STD-019E, Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment, Part 4.1.1.7.

- b. **ISOLATION.** Not Used.
- c. **COMMON INSTALLATION REQUIREMENTS.** When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

When a nonmetallic light base is used, the grounding electrode shall be bonded to the metallic light fixture or metallic base plate with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 feet (150 m) apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

- d. **PARALLEL VOLTAGE SYSTEMS.** Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.

108-3.7 COUNTERPOISE INSTALLATION ABOVE MULTIPLE CONDUITS AND DUCT BANKS. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

108-3.8 COUNTERPOISE INSTALLATION AT EXISTING DUCT BANKS. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.9 EXOTHERMIC BONDING. Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the RPR. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the RPR, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

- a. All slag shall be removed from welds.
- b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30 for galvanized light base exception.
- c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.10 TESTING. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

- a. Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.
- b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

- a. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.
- b. That all affected circuits (existing and new) are free from unspecified grounds.
- c. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than **300** megohms. Verify continuity of all series airfield lighting circuits prior to energization.

- d. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments (this applies to all non-high voltage series circuits) is not less than **100** megohms.
- e. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.
- f. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.
- g. That the impedance to ground of each ground rod does not exceed **25** ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 Cable or ground wire installed in trench, duct bank or conduit shall be measured by the number of linear feet (meters) installed, in place, insulation resistance measurement (tested), and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. No separate payment shall be made for the removal of existing airfield lighting cable and the cost of cable removal is incidental to the project with no separate payment. Contractor shall not be paid for new cable that is installed as "pulling cable" in locations where new cable cannot be pulled through and existing cable must be removed and used as "pulling cable". Separate measurement shall be made for each cable or ground wire installed in trench, duct bank or conduit. The measurement for this item shall include additional quantities required for slack.

BASIS OF PAYMENT

108-5.1 1-1/C NO. 8 AWG, 5 KV, L-824C CABLE. Payment will be made at the contract unit price for cable installed in conduit, ductbank, handhole, manhole, base can, or wire-way, complete and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools and all incidentals necessary to complete this item. Payment for cable includes circuit identification tags, L-823 connectors in manholes or handholes and insulation resistance measurement testing. Included in the payment for airfield lighting cable is the removal of airfield lighting cable at the equal length of new cable plus 30% and the cleaning of existing conduit, ductbank, handhole, manhole or base can for re-installation of cable. No separate payment shall be made for removal of airfield lighting cable or the cleaning of existing electrical

infrastructure. The cost for removing and reinstalling existing taxiway centerline or taxiway edge lights required to pull new cable (including new circuit tag) shall be incidental to the contract. No separate payment shall be made for L-823 connectors or permanent connectors and the cost for all connectors shall be incidental to the contract.

108-5.2 1-1/C NO. 6 AWG, 600V GROUND WIRE. Payment will be made at the contract unit price for cable installed in conduit, ductbank, handhole, manhole, base can, or wire-way, complete and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools and all incidentals necessary to complete this item. Payment for cable includes bare copper wire and all necessary connections required to connect ground wire to new, existing, or retrofitted ground lugs in the cans and external ground rods and connections to the handhole ground plate. Included in this payment is the removal of any existing ground wire. No separate payment shall be made for removal of ground wire.

108-5.4 COUNTERPOISE WIRE. Installation of counterpoise wire shall be incidental to contract bid items for ductbank and conduit described in Specification Section L-110.

108-5.5 PAYMENT WILL BE MADE UNDER:

Item L-108-1	1-1/C No. 8 AWG, 5 kV, L-824C Cable	Per Linear Foot (LF)
Item L-108-2	1-1/C No. 6 AWG, 600V Ground Wire	Per Linear Foot (LF)

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 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
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ASTM B8	Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B33	Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM D4388	Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes
Mil Spec	
MIL-PRF-23586F	Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical
MIL-I-24391	Insulation Tape, Electrical, Plastic, Pressure Sensitive
National Fire Protection Association (NFPA)	
NFPA-70	National Electrical Code (NEC)
NFPA-780	Standard for the Installation of Lightning Protection Systems
American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)	
ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
Federal Aviation Administration Standard	
FAA STD-019E	Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment

END OF ITEM L-108

ITEM L-109 AIRPORT TRANSFORMER VAULT AND VAULT EQUIPMENT

109-1.1 This item shall consist of furnishing of all vault equipment, wiring, electrical buses, cable, conduit, potheads, and grounding systems as shown in the plans. This work shall also include the marking and labeling of equipment and the labeling or tagging of wires; the testing of the installation; and the furnishing of all incidentals necessary to place it in operating condition as a completed unit to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

109-2.1 GENERAL.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be certified in AC 150/5345-53, Airport Lighting Equipment Certification Program (ALECP) and listed in the ALECP Addendum.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be provided in electronic pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-3.1 ELECTRICAL VAULT BUILDING - Not used.

109-3.2 CONCRETE – Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

109-3.3 PRECAST CONCRETE STRUCTURES – Not used.

109-3.4 REINFORCING STEEL – Not used.

109-3.5 BRICK – Not used.

109-3.6 RIGID STEEL CONDUIT. Rigid steel conduit and fittings shall be per Underwriters Laboratories Standards 6 and 514B.

109-3.7 PLASTIC CONDUIT AND FITTINGS – Not used.

109-3.8 LIGHTING – Not used.

109-3.9 OUTLETS – Not used.

109-3.10 SWITCHES – Not used.

109-3.11 PAINT – Not used.

109-3.12 GROUND BUS – Not used.

109-3.13 SQUARE DUCT – Not used.

109-3.14 GROUND RODS – Not used.

109-3.15 VAULT PREFABRICATED METAL HOUSING – Not used.

109-3.16 FAA-APPROVED EQUIPMENT. Certain items of airport lighting equipment installed in vaults are covered by individual ACs listed below:

AC 150/5345-3	Specification for L-821, Panels for Remote Control of Airport Lighting
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-10	Specification for Constant Current Regulators and Regulator Monitors
AC 150/5345-13	Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits.
AC 150/5345-49	Specification for L-854, Radio Control Equipment
AC 150/5345-56	Specification for L-890 Airport Lighting Control and Monitoring System (ALCMS)

109-3.17 OTHER ELECTRICAL EQUIPMENT. Distribution transformers, oil switches, cutouts, relays, terminal blocks, transfer relays, circuit breakers, and all other regularly used commercial items of electrical equipment not covered by FAA equipment specifications and ACs shall conform to the applicable rulings and standards of the Institute of Electrical and Electronic Engineers (IEEE) or the National Electrical Manufacturers Association (NEMA). When specified, test reports from a testing laboratory indicating that the equipment meets the specifications shall be supplied. In all cases, equipment shall be new and a first-grade product. This equipment shall be supplied in the quantities required for the specific project and shall incorporate the electrical and mechanical characteristics specified in the proposal and plans. Equipment selected and installed by the Contractor shall maintain the interrupting current rating of the existing systems or specified rating whichever is greater.

109-3.18 WIRE. Wire (in conduit) rated up to 5,000 volts shall be per AC 150/5345-7, Specification for L-824 Underground Electrical Cables for Airport Lighting Circuits. For ratings up to 600 volts, moisture and heat resistant thermoplastic wire conforming to Commercial Item Description A-A-59544A Type THWN-2 shall be used. The wires shall be of the type, size, number of conductors, and voltage shown in the plans or in the proposal.

a. CONTROL CIRCUITS. Unless otherwise indicated on the plans, wire shall be not less than No. 12 American wire gauge (AWG) and shall be insulated for 600 volts. If telephone control cable is specified, No. 19 AWG telephone cable per ANSI/Insulated Cable Engineers Association (ICEA) S-85-625 specifications shall be used.

b. POWER CIRCUITS.

- (1) 600 volts maximum – Wire shall be No. 6 AWG or larger and insulated for at least 600 volts.
- (2) 3,000 volts maximum – Wire shall be No. 6 AWG or larger and insulated for at least 3,000 volts.
- (3) Over 3,000 volts-Wire shall be No. 6 AWG or larger and insulated for at least the circuit voltage.

109-3.19 SHORT CIRCUIT / COORDINATION / DEVICE EVALUATION / ARC FLASH ANALYSIS. The Contractor shall, based upon the equipment provided, include as a part of the submittal process the electrical system “Short Circuit / Coordination / Device evaluation / Arc Flash Analysis”. The analysis shall be performed by the equipment manufacturer and submitted in a written report. The analysis shall be signed and sealed by a registered professional Engineer from the state in which the project is located. The analysis shall comply with NFPA-70E and IEEE 1584.

The analysis will include: one line diagrams, short circuit analysis, coordination analysis, equipment evaluation, arc flash analysis and arc flash labels containing at a minimum, equipment name, voltage/current rating, available incident energy and flash protection boundary.

The selected firms field service Engineer shall perform data gathering for analysis completion and device settings, perform device setting as recommended by the analysis and will furnish and install the arc flash labels. The components worst case incident energy will be considered the available arc flash energy at that specific point in the system. Submit three written copies and one electronic copy of the report.

CONSTRUCTION METHODS

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-4.1 GENERAL – Not used.

109-4.2 FOUNDATION AND WALLS – Not used.

109-4.3 ROOF – Not used.

109-4.4 FLOOR – Not used.

109-4.5 FLOOR DRAIN – Not used.

109-4.6 CONDUITS IN FLOOR AND FOUNDATION – Not used.

109-4.7 DOORS – Not used.

109-4.8 PAINTING – Not used.

109-4.9 LIGHTS AND SWITCHES – Not used.

INSTALLATION OF EQUIPMENT IN VAULT OR PREFABRICATED METAL HOUSING

109-5.1 GENERAL. The Contractor shall furnish, install, and connect all equipment, equipment accessories, conduit, cables, wires, buses, grounds, and support necessary to ensure a complete and operable electrical distribution center for the airport lighting system as specified herein and shown in the plans. When specified, an emergency power supply and transfer switch shall be provided and installed.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and local code agency having jurisdiction. All electrical work shall comply with the NEC and local code agency having jurisdiction including the separation of under 600V work from 5,000V work.”

109-5.2 POWER SUPPLY EQUIPMENT. Transformers, regulators, booster transformers, and other power supply equipment items shall be furnished and installed at the location shown in the plans or as directed by the RPR. The power supply equipment shall be set on steel “H” sections, “I” beams, channels, or concrete blocks to provide a minimum space of 1-1/2 inch (38 mm) between the equipment and the floor. The equipment shall be placed so as not to obstruct the oil-sampling plugs of the oil-filled units; and nameplates shall, so far as possible, not be obscured.

If specified in the plans and specifications, equipment for an alternate power source or an emergency power generator shall be furnished and installed. The alternate power supply installation shall include all equipment, accessories, an automatic changeover switch, and all necessary wiring and connections. The emergency power generator set shall be the size and type specified.

109-5.3 SWITCHGEAR AND PANELS. Oil switches, fused cutouts, relays, transfer switches, panels, panel boards, and other similar items shall be furnished and installed at the location shown in the plans or as directed by the RPR. Wall or ceiling mounted items shall be attached to the wall or ceiling with galvanized

bolts of not less than 3/8-inch (9 mm) diameter engaging metal expansion shields or anchors in masonry or concrete vaults.

109-5.4 DUCT AND CONDUIT. The Contractor shall furnish and install square-type exposed metallic ducts with hinged covers for the control circuits in the vault. These shall be mounted along the walls behind all floor-mounted equipment and immediately below all wall-mounted equipment. The hinged covers shall be placed to open from the front side with the hinges at the front bottom.

Wall brackets for square ducts shall be installed at all joints 2 feet (60 cm) or more apart with intermediate brackets as specified. Conduit shall be used between square ducts and equipment or between different items of equipment when the equipment is designed for conduit connection. When the equipment is not designed for conduit connection, conductors shall enter the square-type control duct through insulating bushings in the duct or on the conduit risers.

109-5.5 WIRING AND CONNECTIONS. The Contractor shall make all necessary electrical connections in the vault per the wiring diagrams furnished and as directed by the RPR. In wiring to the terminal blocks, the Contractor shall leave sufficient extra length on each control lead to make future changes in connections at the terminal block. This shall be accomplished by running each control lead the longest way around the box to the proper terminal. Leads shall be neatly laced in place.

109-5.6 MARKING AND LABELING. All equipment, control wires, terminal blocks, etc., shall be tagged, marked, or labeled as specified below:

a. WIRE IDENTIFICATION. The Contractor shall furnish and install self-sticking wire labels or identifying tags on all control wires at the point where they connect to the control equipment or to the terminal blocks. Wire labels, if used, shall be of the self-sticking preprinted type and of the manufacturer's recommended size for the wire involved. Identification -markings designated in the plans shall be followed. Tags, if used, shall be of fiber not less than 3/4 inch (19 mm) in diameter and not less than 1/32 inch (1 mm) thick. Identification markings designated in the plans shall be stamped on tags by means of small tool dies. Each tag shall be securely tied to the proper wire by a nonmetallic cord.

b. LABELS. The Contractor shall stencil identifying labels on the cases of regulators, breakers, and distribution and control relay cases with white oil paint as designated by the RPR. The letters and numerals shall be not less than one inch (25 mm) in height and shall be of proportionate width. The Contractor shall also mark the correct circuit designations per the wiring diagram on the terminal marking strips, which are a part of each terminal block.

METHOD OF MEASUREMENT

109-6.1 NEW CONSTANT CURRENT REGULATOR (CCR). Payment will be made per each cost for the installation of each CCR, ready for operation and accepted by the engineer. Included in this bid item is furnishing and installing the following: removal of existing Constant Current Regulator (CCR), new CCR, ground conductor and grounding connections, 480V and 120V power cable, conduit, fittings, connectors and connections, testing, completed and accepted by the engineer. This price is for full compensation for furnishing all materials and for all preparations and installation of these materials, and for all labor, equipment, tools and all incidentals necessary to complete this item. Different bid items will be provided for each size of CCR.

109-6.2 AIRFIELD LIGHTING VAULT MODIFICATIONS. Payment will be made at the contract lump sum cost for the installation of vault equipment complete in place, ready for operation and accepted by the engineer. Included in this item is the removal of existing conduit and cable, all conduit can cable inside the airfield lighting vault, testing, connections to the control system, commissioning, and other incidentals, and any other materials, labor or incidentals to complete modifications to the existing vault per this specification and the contract drawings.

BASIS OF PAYMENT

109-7.1 Payment will be made at the contract unit price for each completed and accepted vault or prefabricated metal housing equipment installation. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item L-109-1	10KW Constant Current Regulator (CCR) – Per Each
Item L-109-2	Airfield Lighting Vault Modifications – 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 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-3	Specification for L-821, Panels for Remote Control of Airport Lighting
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-10	Specification for Constant Current Regulators and Regulator Monitors
AC 150/5345-13	Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits
AC 150/5345-49	Specification L-854, Radio Control Equipment;
AC 150/5345-53	Airport Lighting Equipment Certification Program

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/ICEA S-85-625	Standard for Telecommunications Cable Aircore, Polyolefin Insulated, Copper Conductor Technical Requirements
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ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM C62	Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)

ASTM C90	Standard Specification for Loadbearing Concrete Masonry Units
ASTM D2823	Standard Specification for Asphalt Roof Coatings, Asbestos Containing
ASTM D4479	Standard Specification for Asphalt Roof Coatings – Asbestos-Free

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation) Institute of Electrical and Electronic Engineers (IEEE)
IEEE 1584	Guide for Performing Arc-Flash Hazard Calculations

Master Painter's Institute (MPI)

MPI Reference #9	Alkyd, Exterior, Gloss (MPI Gloss Level 6)
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Underwriters Laboratories (UL)

UL Standard 6	Electrical Rigid Metal Conduit – Steel
UL Standard 514B	Conduit, Tubing, and Cable Fittings
UL Standard 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
UL Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-70E	Standard for Electrical Safety in the Workplace
NFPA-780	Standard for the Installation of Lightning Protection Systems

END OF ITEM L-109

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ITEM L-110 AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS**DESCRIPTION**

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits. It shall also include all turving trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS**110-2.1 GENERAL.**

- a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.
- b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, that comply with these specifications, at the Contractor's cost.
- c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.
- d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format and contain a copy of the relevant specification section with the specific items the submittal is intended to fulfill clearly identified with arrows or circles. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.
- e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

110-2.1 STEEL CONDUIT. Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and 1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with a 10-mil thick coat of asphaltum sealer or shall have a factory-bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions. In lieu of PVC coated RGS, corrosion wrap tape shall be permitted to be used where RGS is in contact with direct earth."

110-2.2 PLASTIC CONDUIT. Plastic conduit and fittings shall conform to the following requirements:

- a. UL 514B covers W-C-1094-Conduit fittings all types, classes 1 thru 3 and 6 thru 10.
- b. UL 514C covers W-C-1094- all types, Class 5 junction box and cover in plastic (PVC).
- c. UL 651 covers W-C-1094-Rigid PVC Conduit, types I and II, Class 4.
- d. UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

- a. Type I—Schedule 40 and Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.
- b. Type II—Schedule 40 PVC suitable for either above ground or underground use.
- c. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.
- d. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

110-2.2 SPLIT CONDUIT. Not Used.

110-2.3 CONDUIT SPACERS. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.4 CONCRETE. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

110-2.5 PRECAST CONCRETE STRUCTURES. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

110-2.6 FLOWABLE BACKFILL. Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

110-2.7 DETECTABLE WARNING TAPE. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item.

The tape shall read "CAUTION: BURIED POWER CABLE BELOW" or similar for power ductbanks. The tape shall be red of power.

For communications ductbank the tape shall read "CAUTION: BURIED FIBER OPTIC CABLE BELOW" or "CAUTION: BURIED COMMUNICATIONS CABLE BELOW" or similar. The tape shall be orange for communication.

CONSTRUCTION METHODS

110-3.1 GENERAL. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The RPR shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches (50 mm) inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches (75 mm) per 100 feet (30 m). On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches (0.5 m) below the subgrade; in other locations, the top of the duct bank or underground conduit shall be not less than 18 inches (0.5 m) below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch (6 mm) smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200-pound (90 kg) test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet (1.5 m).

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. Flowable backfill may alternatively be used. The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be incidental to the conduit line item.

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the RPR. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet (60 cm).

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the RPR, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Additional duct bank supports shall be installed, as approved by the RPR.

All excavation shall be unclassified and shall be considered incidental to Item L-110. Dewatering necessary for duct installation, and erosion per federal, state, and local requirements is incidental to Item L-110.

Unless otherwise specified, excavated materials that are deemed by the RPR to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the RPR and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation.

Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

- a. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred
- b. Trenching, etc., in cable areas shall then proceed with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

110-3.2 DUCT BANKS. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches (0.5 m) below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches (0.5 m) below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet (1 m) beyond the edges of the pavement or 3 feet (1 m) beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches (75 mm) thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches (75 mm) apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches (75 mm) thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot (1.5-m) intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct. The pavement removed shall become property of the Contractor and shall be removed from Airport property.

Install a plastic, detectable, color as noted, 3 to 6 inches (75 to 150 mm) wide tape, 8 inches (200 mm) minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch (75-mm) wide tape only for single conduit runs. Utilize the 6-inch (150-mm) wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches (600 mm) in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the RPR shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the RPR.

110-3.3 CONDUITS WITHOUT CONCRETE ENCASEMENT. Not Applicable.

110-3.4 MARKERS. Not Applicable

110-3.5 BACKFILLING FOR CONDUITS. Not Applicable.

110-3.6 Backfilling for duct banks. After the concrete has cured, the remaining trench shall be backfilled and compacted per Item P-152 "Excavation and Embankment" except that the material used for backfill shall be select material not larger than 4 inches (100 mm) in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet (76 m) of duct bank or one work period's construction, whichever is less.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.7 RESTORATION. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The restoration shall include any necessary sodding, topsoiling, fertilizing, liming, seeding, sprigging, or mulching. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item. Following restoration of all trenching near airport movement surfaces, the Contractor shall

thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

110-3.8 OWNERSHIP OF REMOVED CABLE. All cable or conduit removed shall be the property of the contractor and shall be disposed off airport property in accordance with all applicable Utah laws. Cost shall be incidental to the project with no separate payment.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and restoration, and for drain lines, the termination at the drainage structure and installation of counterpoise as described in Specification Section L-108, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for removal and disposal of existing duct banks and conduits as shown on the plans, furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications. Note; the cost for counterpoise wire installed with duct bank shall be incidental to the individual duct bank pay item. This basis of payment covers all conduit installation except for the conduit installed in between the new base cans for the Runway Touchdown Zone lights and the new conduit required to connect the exterior base can to the existing conduit. Note; the cost of the conduit for the TDZ cans shall be incidental contract with no separate payment.

110-5.2 PAYMENT WILL BE MADE UNDER:

Item L-110-1	Concrete Encased, Electrical Conduit, 1-Way 2-inch, in Native Soil	Per Linear Foot (LF)
Item L-110-2	Concrete Encased, Electrical Conduit, 1-Way 2-inch, in New Asphalt	Per Linear Foot (LF)

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 Circular (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
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National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
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Underwriters Laboratories (UL)

UL Standard 6	Electrical Rigid Metal Conduit - Steel
UL Standard 514B	Conduit, Tubing, and Cable Fittings
UL Standard 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL Standard 1242	Electrical Intermediate Metal Conduit Steel
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
UL Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit

END OF ITEM L-110

ITEM L-125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS**DESCRIPTION**

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS**125-2.1 GENERAL.**

- a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not perform as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.
- b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.
- c. All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.
- d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format and contain a copy of the relevant specification section with the specific items the submittal is intended to fulfill clearly identified with arrows or circles. The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.
- e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

- f. All LED light fixtures, with the exception of obstruction lighting (AC 150/5345-43) must be warranted by the manufacturer for a minimum of 4 years after date of installation inclusive of all electronics. Obstruction lighting warranty is set by the individual manufacturer.

125-2.2 CONDUIT/DUCT. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 CABLE AND COUNTERPOISE. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-2.4 TAPE. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.5 CABLE CONNECTIONS. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 RETROREFLECTIVE MARKERS. Not used.

125-2.7 RUNWAY AND TAXIWAY LIGHTS. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
L-862(L)			N/A	No Arctic Kit	L-867B	White/White	Sized by MFG	LED, 14" Height
L-862(L)			N/A	No Arctic Kit	L-867B	White/Yellow	Sized by MFG	LED, 14" Height
L-862E(L)			N/A	No Arctic Kit	L-867B	Red/Red	Sized by MFG	LED, 14" Height
L-862E(L)			N/A	No Arctic Kit	L-867B	Green/Yellow	Sized by MFG	LED, 14" Height
L-862E(L)			N/A	No Arctic Kit	L-867B	Green/Obscure	Sized by MFG	LED, 14" Height
L-850C(L)			3	No Arctic Kit	L-868B	Red/ Yellow	Sized by MFG	LED
L-861T(L)			3	No Arctic Kit	L-868B	Blue	Sized by MFG	LED, 14" Height
L-850B(L)			3	No Arctic Kit	L-868B	White /White (Right toe-in and Left Toe-in)	Sized by MFG	LED
L-850A(L)			3	No Arctic Kit	L-868B	White /White & White/Red	Sized by MFG	LED. Fixture shall be provided

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
								as one-circuit.

125-2.8 RUNWAY AND TAXIWAY SIGNS. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

Signs

Type	Size	Style	Class	Mode	Notes
L-858Y(L) (Directional Sign)	1	2	2	2	LED
L-858R(L) (Mandatory Sign)	1	2	2	2	LED
L-858L(L) (Location Sign)	1	2	2	2	LED
L-858B(L) (Runway Distance Remaining Sign)	4	2	2	2	LED

125-2.9 RUNWAY END IDENTIFIER LIGHT (REIL). Not Applicable.

125-2.10 PRECISION APPROACH PATH INDICATOR (PAPI). Not Applicable.

125-2.11 CIRCUIT SELECTOR CABINET. Not Applicable.

125-2.12 LIGHT BASE AND TRANSFORMER HOUSINGS. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867 or L-868, Class 1A, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

Base cans shall be supplied with plywood covers, and shall have grommet holes for conduit, duct and drain lines as indicated on the plans. Contractor shall provide 1/8-inch mud plates on top of 3/4" plywood covers. Nylon grommets shall be provided for each hole. Base cans shall be provided with an internal and external ground straps and two ground lugs.

Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

125-2.13 ISOLATION TRANSFORMERS. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47. The transformer identified lamp loads on the drawings shall not be exceeded unless written approval is obtained from the Engineer.

125-2.14 L-868 BASIC SPACER RING PACKAGE. A basic spacer ring package shall be installed with each elevated or in-pavement fixture installed on an L-868B base can and shall meet the requirements of AC 150/5345-42. The basic spacer ring package for an L-868B installation shall consist of the following:

- One Each of 3/8" Flange with Pavement Dam.
- One Each of 1/16" Spacer Ring.
- One additional spacer ring no larger than 3/4".

125-2.15 L-867 BASIC SPACER RING PACKAGE. Not Applicable

125-2.16 SEALANT. Sealants shall conform to the requirements of FAA specification for P-606 "Adhesive Compounds, Two-Component For Sealing Wire and Lights in Pavement".

125-2.17 LIGHT IDENTIFICATION MARKERS. Light identification markers shall be provided for lights installed on new base cans in new or existing pavement. One (1) marker shall be installed flat on the pavement immediately beside each fixture or blank cover plate. Installation shall be such that the identification tag cannot be pried up or sheared off. Letters and numbers identifying fixtures shall be 3/8-inch numbers with black background stamped into a stainless steel marker (3/4"x2"x1/8") with a 3" threaded stainless steel stud welded to the bottom of the marker. The other marker shall be installed on the fixtures secondary leads inside the base can when installed. Letters and numbers identifying fixtures shall be 3/8-inch numbers with black background stamped into a stainless steel marker with a hole for plastic tie rap at the end.

Contractor shall submit installation methods, materials and sample ID marker for approval prior to installation.

INSTALLATION

125-3.1 INSTALLATION. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans. The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction. The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

a. INSTALLING BASE CANS.

1. Base cans and accessories shall be new and contractor furnished, installed as shown on the plans. Not more than four (4) conduits shall enter a base can. Conduit shall enter a base can from the side, entry through the bottom shall not be permitted. Prior to trenching or excavating, base can locations shall be surveyed and set within the tolerances as indicated on the contract documents. When the base can is installed properly, the top edge of the light fixture shall be +0 inch to - 1/16 inch from the finished grade of the adjacent pavement on the low side of the cross slope. All light bases shall be installed using an approved installation and alignment tool. Light bases shall be properly oriented and leveled at the proper elevation and shall be held securely in place so that during placement of concrete the base does not become misaligned. The Contractor will be held responsible for the correct leveling, adjustment and orientation of all base cans installed within indicated tolerances.
2. Conduits entering base cans shall extend 1-1/2" including bell end into the can to allow for thermal contraction and expansion.

3. Contractor shall ensure, at Contractor's own expense, that a qualified representative, from the manufacturer of the base can, is present on-site to oversee, assist, and train in the initial installation of the base can. Where a new light base will connect to existing conduit, flexible metallic liquid tight conduit may be used to provide a smooth transition in accommodating grade differences, as indicated on the drawings.
 - b. **IDENTIFICATION NUMBER.** All new lights shall be provided with a new identification marking. The markers shall be installed flat on the pavement immediately beside each fixture. Installation shall be such that the identification tag cannot be pried up or sheared off. Contractor shall submit installation methods, materials and sample ID marker for approval prior to installation. A cable tag see tag description in Section L-108 indicating the fixture ID shall be installed on the fixture secondary lead.
 - c. **ISOLATING TRANSFORMERS.** The isolating transformer shall be placed in the base can as required by the plans. The primary cable connections shall be made as shown on the plans. The secondary lead of the transformer shall be brought into position at the bottom of mounting assembly fitting. The attached connector on the transformer lead shall be fastened to the fitting by means of the holder provided for this purpose. Provide 3-foot slack, measured from the ground when the light fixture is placed on the ground, to permit connections of the primary leads to the transformer with a disconnecting plug, receptacle and heat shrink kit.
 - d. **CABLE AND CONDUIT INSTALLATION.** New conduit shall be installed as shown on the Drawings. See also sections L-108 and L-110.

125-3.2 SHIPPING AND STORAGE. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-3.3 ELEVATED AND IN-PAVEMENT LIGHTS. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light. A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

125-3.4 GUIDANCE SIGN AND FOUNDATION (ANY MODULE LENGTH).

125-3.5 RUNWAY DISTANCE REMAINING SIGN AND FOUNDATION.

METHOD OF MEASUREMENT

125-4.1 LED L-862(L) ELEVATED RUNWAY EDGE LIGHT AND TRANSFORMER. The quantity of light fixtures to be paid for under this item shall be measured per each type installed complete in place, ready for operation, and accepted by the Engineer. The price for this item includes all material and work required to install the light fixture to the full satisfaction of the Engineer: (a) removal and salvage of existing light

fixture, isolation transformer and cable; (b) furnishing and installation of the following: LED L-862 light fixture; isolation transformer, mounting bolts anti-seize (if applicable), fixture identification tags (2 per light; one on the pavement and one inside the base can), all required connections; and all other incidentals, materials, and labor required to complete the installation. All components shall be new unless otherwise noted.

125-4.2 LED L-862E(L) ELEVATED RUNWAY END/THRESHOLD LIGHT AND TRANSFORMER. The quantity of light fixtures to be paid for under this item shall be measured per each type installed complete in place, ready for operation, and accepted by the Engineer. The price for this item includes all material and work required to install the light fixture to the full satisfaction of the Engineer: (a) removal and salvage of existing light fixture, isolation transformer and cable; (b) furnishing and installation of the following: LED L-862E light fixture; isolation transformer, mounting bolts anti-seize (if applicable), fixture identification tags (2 per light; one on the pavement and one inside the base can), all required connections; and all other incidentals, materials, and labor required to complete the installation. All components shall be new unless otherwise noted.

125-4.3 LED L-850C(L) RUNWAY EDGE LIGHT INPAVEMENT AND TRANSFORMER. The quantity of light fixtures to be paid for under this item shall be measured per each type installed complete in place, ready for operation, and accepted by the Engineer. The price for this item includes all material and work required to install the light fixture to the full satisfaction of the Engineer: (a) removal and salvage of the existing light fixture; and (b) furnishing and installing the following: light fixture, isolation transformer, mounting bolts and CEC washers; anti-seize, fixture identification tag, and all required connections; and all other incidentals, materials, and labor required to complete the installation. All components shall be new unless otherwise noted.

125-4.4 LED L-850B(L) RUNWAY TOUCHDOWN ZONE LIGHT & ISOLATION TRANSFORMER. The quantity of light fixtures to be paid for under this item shall be measured per each type installed complete in place, ready for operation, and accepted by the Engineer. The price for this item includes all material and work required to install the light fixture to the full satisfaction of the Engineer: (a) removal and salvage of the existing light fixture; and (b) furnishing and installing the following: light fixture, isolation transformer, mounting bolts and CEC washers; anti-seize, fixture identification tag, new 2" conduit within 2.5' of edge of each base can and associated concrete encasement, and all required connections; and all other incidentals, materials, and labor required to complete the installation. All components shall be new unless otherwise noted.

125-4.5 LED L-850A(L) RUNWAY CENTERLINE LIGHT & ISOLATION TRANSFORMER. The quantity of light fixtures to be paid for under this item shall be measured per each type installed complete in place, ready for operation, and accepted by the Engineer. The price for this item includes all material and work required to install the light fixture to the full satisfaction of the Engineer: (a) removal and salvage of the existing light fixture; and (b) furnishing and installing the following: light fixture, isolation transformer, mounting bolts and CEC washers; anti-seize, fixture identification tag, and all required connections; and all other incidentals, materials, and labor required to complete the installation. All components shall be new unless otherwise noted.

125-4.6 LED L-861T(L) TAXIWAY EDGE LIGHT AND TRANSFORMER. The quantity of light fixtures to be paid for under this item shall be measured per each type installed complete in place, ready for operation, and accepted by the Engineer. The price for this item includes all material and work required to install the light fixture to the full satisfaction of the Engineer: (a) removal and salvage of existing light

fixture, isolation transformer and cable; (b) furnishing and installation of the following: light fixture; isolation transformer, mounting bolts anti-seize (if applicable), base plate, fixture identification tags (2 per light; one on the pavement and one inside the base can), all required connections; and all other incidentals, materials, and labor required to complete the installation. All components shall be new unless otherwise noted.

125-4.7 REMOVE AND REINSTALL MALS R LIGHT. The quantity of light fixtures to be paid for under this item shall be measured per each type installed complete in place, ready for operation, and accepted by the Engineer. The price for this item includes all material and work required to install the light fixture to the full satisfaction of the Engineer: removal, store, and reinstall the existing light fixture with new bolts, washers, connectors, and all required connections; and all other incidentals, materials, and labor required to complete the installation.

125-4.8 L-868B BASE CAN. The quantity of base cans to be paid for under this item shall be measured per each type installed, complete in place, ready for operation and accepted by the Engineer. The price for this item includes all work, labor, and material required to furnish and install the following: core and remove existing base can; installing the new base can, excavation, compaction; backfill, concrete (P-610 or high early strength); connecting the conduits, ground strap and ground lug, ground rod, ground conductor connections; and all other incidentals and labor required to complete the installation. All components shall be new unless otherwise noted.

125-4.9 L-868B EXTENSION & SPACER PACKAGE. The quantity of extensions to be paid for under this item shall be measured per each type installed, complete in place, ready for operation and accepted by the Engineer. The price for this item includes all work, labor, and material required to furnish and install the following: pilot hole; coring; L-868B base can extension, spacer package (spacer rings and flange ring with pavement dam), P-606 sealant, bolts, sealant between spacer rings, and all other incidentals and labor required to complete the installation. All components shall be new unless otherwise noted. L-868B spacer package includes the following; 3/8" flange ring with pavement dam and 'O'- ring, one (1) 1/4" thick spacer ring and one (1) 1/8" thick spacer ring and one (1) 1/16" to 3/8" spacer ring (size depends on thickness required to meet final grade).

125-4.10 NEW L-868C EXTENSION & SPACER PACKAGE FOR MALS R THRESHOLD BAR & STA. 2. The quantity of extensions to be paid for under this item shall be measured per each type installed, complete in place, ready for operation and accepted by the Engineer. The price for this item includes all work, labor, and material required to furnish and install the following: field investigation to confirm existing bold pattern, pilot hole; coring; cover plate for milling operations; L-868C base can extension, spacer package (spacer rings and flange ring with pavement dam), P-606 sealant, bolts, sealant between spacer rings, and all other incidentals and labor required to complete the installation. All components shall be new unless otherwise noted. L-868B spacer package includes the following; 3/8" flange ring with pavement dam and 'O'- ring, one (1) 1/4" thick spacer ring and one (1) 1/8" thick spacer ring and one (1) 1/16" to 3/8" spacer ring (size depends on thickness required to meet final grade).

125-4.11 NEW AIRFIELD GUIDANCE SIGN OR RDR SIGN AND FOUNDATION (ANY MODULE LENGTH). The payment for furnishing and installing airfield guidance signs on new foundations shall be measured per each and shall include but not be limited to the following work: sign, excavation, compaction, rebar, asphalt, base can for the sign, cover plate, conduit, J-bolts, concrete backfill, maintenance and housekeeping pad, transformer, splice connector kits, cable between transformer and sign, secondary wire between transformer and sign, mounting plates, frangible couplings, mounting legs, bolts, epoxy,

testing, commissioning, and all other work, material, and labor required to install the sign to the full satisfaction of the engineer. The contractor shall be paid separately for each type and number of modules of a sign and separately for the RDR signs. However, payment shall be the same for a single sided or double-sided sign. Note; new signs shall be LED (L).

125-4.12 ADJUST MALSR STATION 4. The payment for adjustment of the existing MALSR Station 4 shall include but not be limited to the following work: remove and reinstall the MALSR par lamp on new pole and frangible coupling, reconnection of all wiring, pole, frangible coupling, survey, and all other work, material, and labor required to install the sign to the full satisfaction of the engineer. Note; this bid item includes stamped survey showing the elevation of all par lamps on Station 4.

BASIS OF PAYMENT

125-5.1 Payment will be made at the Contract unit price for each complete runway or taxiway light, base can, or cover plate installed by the Contractor and accepted by the RPR. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

a. Payment will be made under:

L-125-1	LED L-862E(L) Runway Elevated End/Threshold Light & Isolation Transformer	Per Each
L-125-2	LED L-862(L) Runway Elevated Edge Light & Isolation Transformer	Per Each
L-125-3	LED L-850C(L) Runway Inpavement Edge light & Isolation Transformer	Per Each
L-125-4	LED L-850B(L) Touchdown Zone Light & Isolation Transformer	Per Each
L-125-5	LED L-850A(L) Runway Centerline Light, Isolation Transformer	Per Each
L-125-6	LED L-861T(L) Taxiway Edge Light & Isolation Transformer	Per Each
L-125-7	Remove and Reinstall MALSR Light	Per Each
L-125-8	L-868B Base Can	Per Each
L-125-9	L-868B Extension and Spacer Package	Per Each
L-125-10	L-868C Extension and Spacer Package for MALSR Threshold Bar & STA. 2	Per Each
L-125-11	Size 1 Airfield Guidance Sign & Foundation - 1 MOD	Per Each
L-125-12	Size 1 Airfield Guidance Sign & Foundation - 2 MOD	Per Each
L-125-13	Size 1 Airfield Guidance Sign & Foundation - 3 MOD	Per Each
L-125-14	RDR Sign & Foundation	Per Each
L-125-15	Adjust MALSR STA. 4	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 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures
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END OF ITEM L-125

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ITEM L-128 TEMPORARY AIRFIELD ELECTRICAL WORK, AND MISCELLANEOUS ELECTRICAL ITEMS**DESCRIPTION**

128-1.1 GENERAL. This item shall include the demolition and removals of existing airfield electrical equipment and facilities for all areas within the limits of construction as provided in these specifications, as shown on the Drawings, or as required by the RPR.

EQUIPMENT AND METHODS

128-2.1 GENERAL. Objects, surfaces and items including the underground utilities designated to remain shall be carefully avoided and left undisturbed. Any damage to these items shall be immediately corrected by the Contractor to the satisfaction of the RPR.

128-2.2 EQUIPMENT. Equipment used in conjunction with this work shall be in first class working condition and shall be capable of removing the material in an efficient manner.

128-2.3 SALVAGEABLE ITEMS. Equipment, materials and components designated to be salvaged will remain the Department of Airport's property. These items shall be carefully removed and shall be delivered to the Airport's maintenance yard and stockpiled in a neat orderly fashion as directed by the RPR. If it is determined that through the Contractor's operations of removing and handling, these items are being damaged, the RPR reserves the right to withhold payment from the Contractor for compensation of these items.

128-2.4 CABLE REMOVAL. All the existing cables to be removed shall become the property of the Contractor to be promptly removed from the airport property. Temporary storage of these items on airport property shall be subject to the approval of the RPR. The contractor shall assume that the length of cable to be removed shall equal the amount of new cable to be installed.

128-2.5 CONDUIT, REMOVAL AND ABANDONMENT. Existing conduit shall be removed as shown on the Drawings, or as directed by the RPR. Removed items shall become the property of the Contractor and shall be promptly removed from airport property.

Conduit designated to be abandoned in place shall be capped on each end as approved by the RPR with existing cable to be removed. Where conduit comes to the surface, the conduit shall be cut back to minimum one (1) foot below ground, final grade, and capped.

128-2.6 DUCT BANK REMOVAL AND ABANDONMENT. Existing ductbank shall be removed as shown on the Drawings, or as directed by the RPR. Removed items shall become the property of the Contractor and shall be properly removed and disposed off Airport property.

128-2.7 REMOVAL OF EXISTING BASE CANS. Base Cans shall be removed as detailed on the construction drawings. A 24" hole shall be cored drilled to a depth of at least 40-inches enabling the base can and core to be removed. The conduits in the hole shall be sealed and the hole backfilled with P-610 concrete to new asphalt grade or CLSM to 3" below new pavement grade. The surface of concrete shall be hand troweled level with existing surface.

128-2.8 REMOVAL AND SALVAGE OF EXISTING LIGHT FIXTURES AND/OR COVER PLATES. Prior to performing any demolition work, the Contractor shall perform a visual inspection in conjunction with the

Airport to determine if any of the existing taxiway edge light fixtures to remain are missing, damaged, or have a burned-out lamp. This visual inspection shall be performed during the day and at night with the light fixtures powered on, and the Contractor shall provide the RPR with a written document detailing the deficiencies found. If any of the light fixtures are damaged or lost during the construction project, the Contractor shall replace the damaged or lost light fixture with a new, equal or approved equal light fixture at the Contractor's own expense.

Light Fixtures, signs, transformers, and other electrical materials not be protected or remained in place shall be removed off Airport property and shall be disposed by the Contractor.

128-2.9 TEMPORARY AIRFIELD LIGHTING. Provide all cables, conduits, fixtures, and temporary CCR connections at the Airfield Lighting Vaults to provide temporary airfield lighting required to maintain the function of the airfield during all stages of reconstruction. This shall include all necessary splices at manholes as shown on the drawings to ensure that the circuits are operational at other areas of the airfield during the entire construction period. Refer to electrical phasing drawings for work. Contractor shall provide a detailed work plan showing the temporary connections for RPR approval prior to commencement of phase. This work shall include opening/closing all handholes/manholes or light fixtures shown on the area plans to ascertain and confirm the circuit routing and develop the temporary wiring required to maintain the light fixtures and signs and cover the sign panels as required and as detailed in the electrical phasing. It is anticipated that the field investigation required to ascertain the circuiting and confirm cable routing will take place at night for a duration no shorter than 10 business days. Contractor shall open all necessary base cans, handholes, and/or manholes to ascertain and provide the RPR in writing a schematic wiring diagram showing the number of cables and circuits in existing light base configuration. This item includes pumping and removing the water that may be located inside the handholes and manholes. The Contractor shall assume that all handholes shown in the project area and layout drawings must be opened and pumped of water to ensure circuit continuity.

128-2.10 EXISTING MANHOLES, HANDHOLES AND LIGHT BASE CANS MAINTENANCE. The contractor shall clean out and repair miscellaneous items in all electrical manholes and handhole structures requiring to pull cable for this project. The contractor shall provide the following work:

a. Manhole and Handhole Structures. The contractor shall clean-out all manhole and handhole structures entered during the work of this project. Cleaning of the structure shall include vacuuming of the structure with a vacuum truck and pressure washing the sides and floor of the structure. The contractor shall also survey the interior of the structure including identifying all conduits and cable entering and exiting the structure, creating fold-down drawing sheets and photographing each wall. All information shall be compiled in a report and submitted to the RPR at the completion of the project.

b. Installation and Repair of Conduit Bell Ends. The contractor shall remove existing damaged conduit bell ends and install new ends or install new bell ends on conduits with missing bell ends. The work shall be consider the same regardless of the size of the conduit. The work shall include removal of the existing damaged ends, cutting of conduit, chiseling and patching of concrete, cleaning and installation. The contractor shall assume 15% of the quantity of conduits entering structures as indicated on the drawings require repair and replacement.

c. Base Cans Maintenance. Base can maintenance shall include cleaning, install bell housings, and installing a ground lug. Cleaning shall include vacuuming the interior with a vacuum truck. The contractor shall install bell housing on the ends of conduit, including removal of broken ends, cutting conduit, cleaning and installation. The contractor shall assume 15% of all light base cans require bell housing work. All light base cans shall be cleaned.

128-2.11 OTHER ITEMS. Items to be removed not listed above shall be removed from airport property by the contractor unless otherwise directed by the RPR. Any questionable items shall be brought to the RPR's attention, which will direct the Contractor for final disposition of the item.

128-2.12 SUPPORT FOR PHOTOMETRIC TESTING. Contractor shall provide support for owner-furnished photometric testing company to perform photometric testing of the airfield lighting fixtures. The support shall include the following:

- a. Five (5) nights of contractor support for the testing. This includes providing a crew of at least 2 electricians to clean the light fixtures. The electricians shall have all of the necessary tools to make remedial corrections of failed light fixtures including replacement parts for breakage. Contractor shall ensure that the CCRs are energized in the final configuration and have the appropriate output intensity (Amps) for each circuit.
- b. Due to the long lead items of replacement light fixtures, Contractor shall have sufficient materials on hand to accommodate any breakage that may result. This is required to ensure that the runway can be opened with all of the lights energized and operating in accordance with FAA standards. Accordingly, the contractor shall have a minimum of 4 additional light fixtures for each type of light fixture and color as well as 4 additional transformers for each type of transformer utilized. Any additional material not used shall be handed off to the Airport at completion of the job. Cost for this additional material shall be included in bid item L-128.

METHOD OF MEASUREMENT

L-128-3.1 AIRFIELD LIGHTING DEMOLITION. Demolition and Removal of airfield electrical items shall be paid for as a lump sum bid item. This work shall include but not be limited to the following: removal of abandoned junction cans, conduit and cable removal and all other removal not specifically included in other bid items and all other work required to remove the existing electrical appurtenances as showed in the drawings.

L-128-3.2 MISCELLANEOUS ELECTRICAL WORK. Miscellaneous airfield electrical work shall be paid for as a lump sum amount. This work shall include but not be limited to the following:

- (a) Coordination with civil contractor
- (b) As-Builts
- (c) Field Investigation to ascertain cable routing
- (d) Cable butterflies details of handhole/manholes, cleaning handholes, photographs of walls and floors, pumping out water (regardless of number of times required to enter handhole/manhole), confined space permit as required,
- (e) Tapping of existing base cans to accommodate broken bolts (Contractor shall assume 25% of existing bolts are broken)
- (f) Installation of internal ground lug on existing base cans(Contractor shall assume that all existing base cans require tapping),
- (g) Electrical cable testing and meggering of all circuits

- (h) Training of airport personnel in the proper operation of all new light fixtures
- (i) all the material, equipment, labor, and coordination necessary to complete the work shown in the construction drawings and described herein and not covered for under other bid items.

Payment shall be made as follows:

L-128-1	Airfield Lighting Demolition	Per Lump Sum
L-128-2	Miscellaneous Airfield Electrical Work	Per Lump Sum

END OF ITEM L-128

**ITEM P-606 ADHESIVE COMPOUNDS, TWO-COMPONENT FOR
SEALING WIRE AND LIGHTS IN PAVEMENT**

DESCRIPTION

606-1.1 This specification covers two types of material; a liquid suitable for sealing electrical wire in saw cuts in pavement and for sealing light fixtures or bases in pavement, and a paste suitable for embedding light fixtures in the pavement. Both types of material are two-component filled formulas with the characteristics specified in paragraph 606-2.4. Materials supplied for use with asphalt and/or concrete pavements must be formulated so they are compatible with the asphalt and/or concrete.

606-2 MATERIALS

606-2.1 CURING. When pre-warmed to 77°F (25°C), mixed, and placed in accordance with manufacturer's directions, the materials shall cure at temperatures of 45°F (7°C) or above without the application of external heat.

606-2.2 STORAGE. The adhesive components shall not be stored at temperatures over 86°F (30°C), unless otherwise specified by the manufacturer.

606-2.3 CAUTION. Installation and use shall be in accordance with the manufacturer's recommended procedures. Avoid prolonged or repeated contact with skin. In case of contact, wash with soap and flush with water. If taken internally, call doctor. Keep away from heat or flame. Avoid vapor. Use in well-ventilated areas. Keep in cool place. Keep away from children.

606-2.4 CHARACTERISTICS. When mixed and cured in accordance with the manufacturer's directions, the materials shall have the following properties shown in Table 1.

Table 1. Property Requirements

Physical or Electrical Property	Minimum	Maximum	ASTM Method
Tensile			
Portland cement concrete	1,000 psi (70 kg/sq cm)		D 638
Asphalt concrete	500 psi (35 kg/sq cm)		
Elongation			
Portland cement concrete		See note ¹	D 638
Asphalt concrete	50%		D 638
Coef. of cub. exp. cu. cm/cu. cm/°C	0.00090	0.00120	D 1168
Coef. of lin. exp. cm/cm/°C	0.000030	0.000040	D 1168
Dielectric strength, short time test	350 volts/mil.		D 149
Arc resistance	125 sec		
Pull-off			
Adhesion to steel	1,000 psi (70 kg/sq cm)		
Adhesion to Portland cement concrete	200 psi (14 kg/sq cm)		
Adhesion to asphalt concrete	No test available.		
Adhesion to aluminum	250 psi		

¹20% or more (without filler) for formulations to be supplied for areas subject to freezing.

606-3 SAMPLING, INSPECTION, AND TEST PROCEDURES

606-3.1 TENSILE PROPERTIES. Tests for tensile strength and elongation shall be conducted in accordance with ASTM D638.

606-3.2 EXPANSION. Tests for coefficients of linear and cubical expansion shall be conducted in accordance with, Method B, except that mercury shall be used instead of glycerin. The test specimen shall be mixed in the proportions specified by the manufacturer, and cured in a glass tub approximately 2 inch (50 mm) long by 3/8 inch (9 mm) in diameter. The interior of the tube shall be precoated with a silicone mold release agent. The hardened sample shall be removed from the tube and aged at room temperature for one (1) week before conducting the test. The test temperature range shall be from 35°F (2°C) to 140°F (60°C).

606-3.3 TEST FOR DIELECTRIC STRENGTH. Test for dielectric strength shall be conducted in accordance with ASTM D149 for sealing compounds to be furnished for sealing electrical wires in pavement.

606-3.4 TEST FOR ARC RESISTANCE. Test for arc resistance shall be conducted for sealing compounds to be furnished for sealing electrical wires in pavement.

606-3.5 TEST FOR ADHESION TO STEEL. The ends of two smooth, clean, steel specimens of convenient size (1 inch by 1 inch by 6 inch) (25 mm by 25 mm by 150 mm) would be satisfactory when bonded together with adhesive mixture and allowed to cure at room temperature for a period of time to meet formulation requirements and then tested to failure on a Riehle (or similar) tensile tester. The thickness of adhesive to be tested shall be 1/4 inch (6 mm).

606-3.6 ADHESION TO PORTLAND CEMENT CONCRETE

a. CONCRETE TEST BLOCK PREPARATION. The aggregate grading shall be as shown in Table 2.

The coarse aggregate shall consist of crushed rock having a minimum of 75% of the particles with at least one fractured face and having a water absorption of not more than 1.5%. The fine aggregate shall consist of crushed sand manufactured from the same parent rock as the coarse aggregate. The concrete shall have a water-cement ratio of 5.5 gallons (21 liters) of water per bag of cement, a cement factor of 6, ± 0.5 , bags of cement per cubic yard (0.76 cubic meter) of concrete, and a slump of 2-1/2 inch (60 mm), $\pm 1/2$ inch (60 mm ± 12 mm). The ratio of fine aggregate to total aggregate shall be approximately 40% by solid volume. The air content shall be 5.0%, $\pm 0.5\%$, and it shall be obtained by the addition to the batch of an air-entraining admixture such as Vinsol[®] resin. The mold shall be of metal and shall be provided with a metal base plate.

Means shall be provided for securing the base plate to the mold. The assembled mold and base plate shall be watertight and shall be oiled with mineral oil before use. The inside measurement of the mold shall be such that several one inch (25 mm) by 2-inch (75 mm) by 3-inch (25 mm by 50 mm by 75 mm) test blocks can be cut from the specimen with a concrete saw having a diamond blade. The concrete shall be prepared and cured in accordance with ASTM C192.

TABLE 2. AGGREGATE FOR BOND TEST BLOCKS

Type	Sieve Size	Percent Passing
Coarse Aggregate	3/4 inch (19.0 mm)	97 to 100
	1/2 inch (12.5 mm)	63 to 69
	3/8 inch (9.5 mm)	30 to 36
	No. 4 (4.75 mm)	0 to 3
Fine Aggregate	No. 4 (4.75 mm)	100
	No. 8 (2.36 mm)	82 to 88
	No. 16 (1.18 mm)	60 to 70
	No. 30 (600 μ m)	40 to 50
	No. 50 (300 μ m)	16 to 26
	No. 100 (150 μ m)	5 to 9

b. BOND TEST. Prior to use, oven-dry the test blocks to constant weight at a temperature of 220°F to 230°F (104°C to 110°C), cool to room temperature, 73.4°F ±3°F (23°C ±1.6°C), in a desiccator, and clean the surface of the blocks of film or powder by vigorous brushing with a stiff-bristled fiber brush. Two test blocks shall be bonded together on the one inch by 3 inch (25 mm by 75 mm) sawed face with the adhesive mixture and allowed to cure at room temperature for a period of time to meet formulation requirements and then tested to failure in a Riehle (or similar) tensile tester. The thickness of the adhesive to be tested shall be 1/4 inch (6 mm).

606-3.7 COMPATIBILITY WITH ASPHALT CONCRETE. Test for compatibility with asphalt in accordance with ASTM D5329.

606-3.8 ADHESIVE COMPOUNDS – CONTRACTOR'S RESPONSIBILITY. The Contractor shall furnish the vendor's certified test reports for each batch of material delivered to the project. The report shall certify that the material meets specification requirements and is suitable for use with asphalt concrete pavements. The report shall be provided to and accepted by the Resident Project Representative (RPR) before use of the material. In addition, the Contractor shall obtain a statement from the supplier or manufacturer that guarantees the material for one year. The supplier or manufacturer shall furnish evidence that the material has performed satisfactorily on other projects.

606-3.9 APPLICATION. Adhesive shall be applied on a dry, clean surface, free of grease, dust, and other loose particles. The method of mixing and application shall be in strict accordance with the manufacturer's recommendations. When used with Item P-605, such as light can installation, Item P-605 shall not be applied until the Item P-606 has fully cured.

606-4 METHOD OF MEASUREMENT.

606-4.1 The adhesive compound shall not be measured for payment and shall be considered incidental to other items of work. When required in the installation of an in-runway lighting system or portion thereof, no measurement will be made for direct payment of adhesive, as the cost of furnishing and installing shall be considered as a subsidiary obligation in the completion of the installation.

606-5 BASIS OF PAYMENT.

606-5.1 Payment for adhesive compound (sealant) shall be not be made. The cost of sealant shall be considered incidental to other items of work and shall be considered full compensation. This includes full compensation for furnishing all materials, and for all preparation, delivering, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

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 C192 Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory

ASTM D149 Standard Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

ASTM D638 Standard Test Method for Tensile Properties of Plastics

ASTM D5329

Standard Test Methods for Sealants and Fillers, Hot-applied, for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements

END OF ITEM P-606

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SPECIAL PROVISIONS

- 1. GENERAL.** Work to be done under this Agreement consists of furnishing all labor, materials, equipment and accessories and performing all operations necessary to complete the Work in accordance with the Drawings and Specifications.

The following "Special Provisions" shall govern in case of any discrepancies in any or all of the following Specifications, and the intent, either expressed or implied in these "Special Provisions", shall govern in the interpretation of the Plans and Specifications.

The Bidder is required to examine carefully the site of the Proposed Work, the Proposal, Plans and Specifications. He shall satisfy himself as to the character, quality and quantities of Work to be performed, materials to be furnished, and as to the requirements of these Specifications. The submission of a Proposal shall be evidence that the Bidder has made such an examination.

- 2. PLANS.** The Plans governing and controlling the Work and to which reference is made throughout the Technical Specifications and other Contract Documents are those plans prepared by Armstrong Consultants, Inc. entitled "California Redwood Coast-Humboldt County Airport – McKinleyville, California, AIP No. 3-06-0010-0xx-2023".
- 3. LOCATION.** California Redwood Coast-Humboldt County Airport is located in McKinleyville, California.
- 4. WORK SCHEDULE AND PROJECT PHASING.** After the Award of Contract and prior to receiving the Notice to Proceed, the Contractor shall submit to the Engineer a Safety Plan Compliance Document (located in Special Provisions 27). The Sponsor reserves the right to request changes in the sequence of Project schedules if such change is required in the interest of safety or airport operation. The Project schedule shall clearly identify runway closure time(s) which shall be kept to the absolute minimum necessary and shall be in compliance with the CSPP.

Construction shall be phased in a manner to minimize disruption to air traffic operations. Access shall be maintained from the aircraft parking area and the fuel pumps to the runway at all times.

- 5. PRE-CONSTRUCTION CONFERENCE.** After the Notice to Proceed has been issued and prior to commencement of any Work, the Airport Manager as the Sponsor's Representative will meet with the Engineer and the Contractor to discuss the Work in general, including administrative matters, the Contractor's Quality Control Program, accident prevention, and safety; to answer any questions of the Engineer or Contractor; and to resolve any potential problems before the Work commences.
- 6. UNDERGROUND UTILITIES.** All known existing utilities have been depicted on the Plans as accurately as possible. In many cases, exact location, depth, and pipe size and type are not known. The Contractor is responsible for contacting appropriate utility locator services prior to construction.

In the State of California: USA North 811, 811 or (800) 642-2444. Where the Plans call for the Contractor to relocate an existing utility and the affected utility material composition differs from that shown on the Plans, the Contractor shall immediately notify the Engineer.

- 7. PERMITS, TAXES & COMPLIANCE WITH LAWS.** The Contractor shall procure and pay for all permits, taxes, licenses, and bonds necessary for the prosecution of his Work, and/or required by local, State, and Federal regulations, and laws, as pertains particularly to permits and transportation of materials and equipment, or other operations which are not a specific requirement of these Specifications. The Contractor shall give all notices, pay all fees and taxes, and comply with all Federal, State and local laws, ordinances, rules, and regulations, and building and construction codes bearing on the conduct of the Work. Costs of compliance and/or all taxes shall be included in the Unit Prices Bid for each Contract Item.
- 8. FIELD OFFICE.** The Contractor will not be required to provide a field office and furnishings as noted in Section 60, Paragraph 5 of the General Provisions
- 9. HAUL ROADS.** The Contractor shall obtain approval from the Engineer prior to establishing haul roads within the airport property. Once established, the haul roads shall be utilized for all equipment traffic, and the equipment shall not be allowed to stray or wander away from the established routes. The haul roads shall be the responsibility of the Contractor and shall be maintained and kept in good order at all times. Water when required, shall be applied at the locations and in the amounts necessary to minimize dust and dirt in the air operations area. Haul roads across any active runway or taxiway shall be kept clean and in good order at all times. The Contractor shall repair any damage caused by the movement of equipment on any of the haul roads, whether in designated or undesignated areas. After completion of the Project, the Contractor shall be required to regrade any unpaved portions of the haul road and to reseed the area with local native grasses to match the existing conditions of the area. The performance of any Work as specified by this provision, including watering, maintenance, and repair of the haul roads, shall not be measured and paid for directly, but shall be considered as necessary and incidental to the Work.
- 10. TESTING & STAKING.** The Contractor is responsible for conducting and payment for all quality control testing, survey and staking noted in these Specifications. Acceptance testing will be furnished by an independent testing laboratory that is retained and paid by the Owner. The person responsible for conducting the testing/staking shall be approved by the Engineer. Field test results shall be furnished daily by the Contractor and the independent testing laboratory in written form to the Engineer's Representative on the Project site and shall be submitted weekly by the Contractor and the independent testing laboratory to the Engineer typed on the forms supplied with the Construction Management Plan. Failure to submit written test results daily or typed test results weekly shall be grounds for suspension of Work (but not Contract Time) until the test results are submitted to the Engineer. Any requested testing data and/or surveying notes shall be supplied to the Engineer by the Contractor and the independent testing laboratory at no cost.
- 11. AIRPORT SECURITY.** During the course of the construction operations, the Contractor will be allowed to utilize an agreed upon number of airport accesses as entrances to the construction site. These gates and the associated haul roads shall be designated by the Engineer. The Contractor shall be required to keep these gates and all other temporary gaps in fencing closed during non-construction hours and guarded as necessary during construction hours to protect the runway from stray livestock. Occupants of any vehicles allowed on the airport shall be the responsibility of the Contractor and the Contractor shall control which vehicles are allowed to enter the airport property during construction except for normal airport operations uses.

12. **CLOSURE OF AIR OPERATIONS AREAS.** Barricades are considered a necessary and incidental part of the work and no separate measurement or payment will be made therefore. The Contractor shall consider the costs and distribute them to the various bid items.
13. **ACCIDENT PREVENTION.** Precautions shall be exercised at all times for the protection of persons (including employees) and property, and that the safety provisions of applicable laws and of applicable building construction codes shall be observed, and that machinery, equipment, and explosives shall be guarded and all hazards shall be eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law.
14. **EXISTING UNDERGROUND CABLES.** The Contractor shall attempt to locate the Sponsor's and/or FAA's underground cables prior to construction. Damage to the underground cables by the Contractor will require replacement by the Contractor at no cost to the Sponsor. Any splicing or replacing of damaged cable shall meet current FAA specifications.
15. **UTILITIES.** Any utilities required by the Contractor for the prosecution of the Work shall be paid for by the Contractor.
16. **STANDARD OF CARE/WARRANTY.** The Contractor shall perform all of the work required under the Contract Documents, in accordance with the expertise and skill that would be expected of a Contractor, expert in airport construction projects in general, and the Work required under the Contract Documents, in particular. In addition, the Contractor warrants that materials and equipment furnished under the Contract Documents will be of good quality and new, unless otherwise required by the Contract Documents, that the Work will be free from defects not inherent in the Work involved, and that the Work will conform, in all respects, to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective. The Contractor's warranty excludes defects due to abuse not caused by the Contractor, Subcontractors, or other third parties operating under the direction or control of the Contractor, modifications not executed or approved by the Contractor, improper or insufficient maintenance, by the Sponsor, improper operation by the Sponsor, or normal wear and tear under normal usage.
17. **ATTORNEY'S FEES.** Should either party breach its obligations under the Agreement to be executed between the Contractor and Sponsor, or under any of the other Contract Documents, the breaching party shall be responsible for reimbursing the non-breaching party for all reasonable Attorney's fees and court costs incurred by the non-breaching party in enforcing its rights under the Contractor's agreement or the other Contract Documents.
18. **DRUG FREE WORKPLACE.** While the federal provision for Drug Free Workplace does not apply to the Contractor as an entity, the airport that the Contractor is working on does have to comply with the provision. As such, the Contractor is hereby notified that while working on the airport and all Sponsor-owned land and facilities the Contractor and its representatives shall be drug free. Failure to comply can result in the Contractor being considered in breach of contract terms.
19. **CSPP VIOLATION PENALTIES.**

Penalty for moving violation of Airport CSPP. In addition to the suspension of work outlined in GP 80-04 and elsewhere in the Construction Agreement, a driver who causes an incursion into an open

runway area will be prohibited from driving any vehicle in the AOA until the contractor demonstrates understanding of the cause of the violation. A written proposed change in construction operations ensuring the cause is remedied shall be submitted by the Contractor to the Sponsor and the change must have been implemented to reinstate their AOA driving privileges. The second violation for the same driver will result in them and their immediate supervisor having their AOA driving privileges revoked for the duration of the project in progress at the time of the second violation.

Penalty for non-moving violations of Airport CSPP. These violations do not include driving violations but all other CSPP violations, such as the improper layout of barricades, construction traffic routing, or lack of communicating required events to Sponsor or Engineer. In addition to the suspension of work outlined in GP 80-04 and elsewhere in the Construction Agreement, all construction items' acceptance testing and measurement for payment shall cease at no cost to the project or Sponsor. Work may only resume after the violation is remedied.

None of this shall be construed as relating to any standard or recognized construction and construction safety activities outside of the CSPP. The Contractor is solely responsible for all recognized safety items relating to all aspects of applicable construction activities and material supply logistics operations. Such activities include, but are not limited to, OSHA requirements, trench shoring, proper driver licensing, personal protective equipment, confined space activities, asphalt and concrete plant safety, etc. The Sponsor and the Engineer have no authority or burden of review or acceptance of any such safety items and practices.

- 20. OPERATIONS AFFECTED BY COVID-19 PANDEMIC.** If at any point construction is suspended due to issues related to the COVID-19 pandemic, the contract time for the project will be temporarily stopped at no penalty to the Contractor. Prior to ceasing operations, the Contractor shall ensure that the project site is safe and can be left largely unattended. The Contractor will be required to perform periodic inspections as directed by Airport Staff, to ensure that all safety equipment is functioning and that the project site is safe. The Contractor will not be eligible for any additional payment due to demobilizing/remobilizing to the site nor additional payment due to lost production.
- 21. CONSTRUCTION MANAGEMENT PLAN.** At the Pre-Construction Conference, the Contractor will be given copies of the Construction Management Plan for this Project which will identify the various individuals along with their authority and responsibilities for quality control. That document will detail the measures and procedures to be followed to comply with the Quality Control Provision of the Construction Contract, including, but not limited to the quality control and acceptance tests required by the Project Specifications. The following pages include the Acceptance Testing Checklist and the forms which shall be used by the Contractor and the Independent Testing Laboratory to report test results to the Engineer. The checklist and forms will also be included in the Construction Management Plan when it is prepared for this Project.
- 22. STORMWATER DISCHARGE PERMIT.** The Contractor shall secure and maintain a General Permit for Storm Water Discharges from Construction Sites for this project in accordance with Section 402(p) of the Federal Clean Water Act and Section 405 of the Federal Water Quality Act of 1987. A Notice of Intent shall be filed by the Contractor.
- 23. PROTECTION OF AIRPORT PAVEMENT.** The Contractor is specifically cautioned that this airport was constructed to support light aircraft. Pavement and other structures on the airport project site are not rated the same as the surrounding roadway network. Pavement or other structures damaged by

the Contractor's equipment or operations must be repaired or replaced to a condition as good, or better than, before the project began. Cost of this repair or replacement shall be borne solely by the Contractor.

- 24. CONTRACTORS AFFIDAVIT.** In addition to indemnification of the Owner on the release of claims that is to be delivered prior to the final payment, the Contractor shall extend that indemnification to Armstrong Consultants, Inc.
- 25. SAFETY.** Representatives of the Owner or the Engineer are not responsible during site visits or as a result of observations or inspections of the Contractor's work in progress for any safety precautions or programs incident to the Work of the Contractor or for any failure of the Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to safety precautions or programs.
- 26. CONSTRUCTION SAFETY AND PHASING PLAN WITH CONSTRUCTION SAFETY DRAWINGS.** To follow on next page.

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27. SAFETY PLAN COMPLIANCE DOCUMENT

I, _____ (Name), (CONTRACTOR), have read the California Redwood Coast-Humboldt County Airport, AIP No. 3-06-0010-0xx-2023 Construction Safety and Phasing Plan (CSPP), approved on _____, 2022, and will abide by it as written and with the following additions as noted:

Notes:

- 1. *If no supplemental information is necessary for any specific section, write "NO SUPPLEMENTAL INFORMATION"*
- 2. *Do not duplicate information in the CSPP.*

1. COORDINATION – Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors

2. PHASING – Discuss proposed construction schedule elements including:

- a. Duration of each phase
- b. Daily start and finish of construction, including "night only" operation
- c. Duration of construction activities during:
 - i. Normal runway operations
 - ii. Closed runway operations
 - iii. Modified runway "Aircraft Reference Code" usage

3. AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY – Areas and operations are identified in the CSPP

NO SUPPLEMENTAL INFORMATION

4. PROTECTION OF NAVAIDS – Discuss specific methods proposed to protect operating NAVAIDs

5. CONTRACTOR ACCESS – Provide the following:

- a. Details on how the integrity of the airport security fence will be maintained (gate guards, daily log of construction personnel, or other)
- b. List individuals required for driver training (as required)
- c. Radio communications
 - i. Types of radios and backup capabilities
 - ii. Who will be monitoring radios
 - iii. Whom to contact if ATCT cannot reach the contractor’s designated person by radio
- d. Details on how material delivery vehicles will be escorted on site

6. WILDLIFE MANAGEMENT – Discuss the following:

- a. Methods and procedures to prevent wildlife attraction
- b. Wildlife reporting procedures

7. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT – Discuss equipment and methods for controlling FOD, including construction debris and dust

8. HAZARDOUS MATERIAL (HAZMAT) MANAGEMENT – Discuss equipment and methods for responding to hazardous spills

9. NOTIFICATION OF CONSTRUCTION ACTIVITIES – Provide the following:

- a. Contractor points of contact
- b. Contractor emergency contact
- c. Listing of tall or other requested equipment proposed for use on the airport and the timeframe
- d. Batch plant details

10. INSPECTION REQUIREMENTS – Discuss daily (or more frequent) inspections and special inspection procedures

11. UNDERGROUND UTILITIES – Discuss proposed methods of identifying and protecting underground utilities

12. PENALTIES – Penalties are identified in the CSPP

NO SUPPLEMENTAL INFORMATION

13. SPECIAL CONDITIONS – Discuss proposed actions for each special condition identified in the CSPP

14. RUNWAY AND TAXIWAY VISUAL AIDS – Discuss proposed visual aids (marking, lighting, signs, and visual NAVAIDs) including the following:

- a. Equipment and methods for covering signage and airfield lights
 - b. Equipment and methods for temporary closure markings (paint, fabric, other)
 - c. Types of temporary Visual Guidance Slope Indicators (VGSI)
-
-
-

15. MARKING AND SIGNS FOR ACCESS ROUTES – Discuss proposed methods of demarcating access routes for vehicle drivers

16. HAZARD MARKING AND LIGHTING – Discuss proposed equipment and methods for identifying excavation areas

17. PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS – Discuss proposed methods of identifying, demarcating, and protecting airport surfaces (safety areas, object free areas, obstacle free zones, and approach/departure zones) including:

- a. Equipment and method for maintaining Runway or Taxiway Safety Area standards
- b. Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

18. OTHER LIMITATIONS ON CONSTRUCTION – Other limitations (if any) shall be identified in the CSPP

NO SUPPLEMENTAL INFORMATION

This Safety Plan Compliance Document (SPCD) must be submitted and approved by the Sponsor prior to issuing the Notice to Proceed for Construction. The contractor should allow at least two weeks for review by the Sponsor.

(CONTRACTOR) certifies that it understands the operational safety requirements of the CSPP and will not deviate from the approved CSPP and this SPCD unless written approval is granted by the Sponsor. It is our understanding that upon review and approval of this SPCD, we may request issuance of Notice to Proceed.

By _____, _____, _____
Title Date

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U.S. Department
of Transportation

Federal Aviation
Administration

Advisory Circular

Subject: Painting, Marking, and Lighting of
Vehicles Used on an Airport

Date: April 1, 2010

AC No: AC 150/5210-5D

Initiated by: AAS-100

Change:

1. **PURPOSE.** This advisory circular (AC) provides guidance, specifications, and standards for painting, marking, and lighting of vehicles operating in the airport air operations area (AOA). The approved lights, colors, and markings herein assure the conspicuity of vehicles operating in the AOA from both the ground and the air.

2. **CANCELLATION.** This AC cancels AC 150/5210-5C, Painting, Marking, and Lighting of Vehicles Used on an Airport, dated August 31, 2007.

3. **APPLICATION.** The Federal Aviation Administration (FAA) recommends the guidelines and standards in this Advisory Circular for vehicles operating in the airport AOA. In general, use of this AC is not mandatory. *However*, use of this AC is mandatory for vehicles funded with federal grant monies through the Airport Improvement Program (AIP) and/or with revenue from the Passenger Facility Charges (PFC) Program. See Grant Assurance No. 34, "Policies, Standards, and Specifications," and PFC Assurance No. 9, "Standard and Specifications."

Vehicles covered by this AC that do not meet this standard may be used until the vehicle is repainted or replaced, but no later than **December 31, 2010**.

4. **PRINCIPAL CHANGES.** This AC contains new specifications and recommendations for the painting, marking, and lighting of Towbarless Tow Vehicles (TLTVs).

5. **METRIC UNITS.** To promote an orderly transition to metric units, this AC includes both English and metric dimensions. The metric conversions may not be exact equivalents, and until there is an official changeover to the metric system, the English dimensions will govern.

6. **COMMENTS OR SUGGESTIONS** for improvements to this AC should be sent to:

Manager, Airport Engineering Division
Federal Aviation Administration
ATTN: AAS-100
800 Independence Avenue, S.W.
Washington, DC 20591

Michael J. O'Donnell
Director of Airport Safety and Standards

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PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT

1. SOURCES OF APPLICABLE DOCUMENTS.

- a.** American National Standards Institute, Inc. (ANSI), 25 West 43rd St. 4th Floor, New York, NY 10036. Website: www.ansi.org
- b.** American Society for Testing & Materials (ASTM), ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959. Website: www.astm.org
- c.** The National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts 02169-7471. Website: www.nfpa.org
- d.** The U. S. General Services Administration (GSA), Centralized Mailing List Services, 501 West Felix Street, Whse 9, South End P.O. Box 6477, Fort Worth, Texas 76115-6477. Website: www.gsa.gov
- e.** The Superintendent of Documents, U.S. Government Printing Office, 732 North Capitol St. NW, Washington, DC 20401.
- f.** Society of Automotive Engineers, Inc. (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001. Website: www.sae.org
- g.** FAA Advisory Circulars: U.S. Department of Transportation, Subsequent Distribution Office, Ardmore East Business Center, 3341 Q 75th Ave., Landover, MD 20785. Website: www.faa.gov
- h.** FAA Engineering Briefs: www.faa.gov/airports/engineering/engineering_briefs/

2. DEFINITIONS. The following definitions apply in this AC:

- a. Vehicle** – All conveyances, except aircraft, used on the ground to transport persons, cargo, equipment or those required to perform maintenance, construction, service, and security duties.
- b. Air Operations Area (AOA)** – The portion of airport that encompasses the landing, take off, taxiing, and parking areas for aircraft.
- c. Airport Emergency Vehicles** – Vehicles that are authorized in the AOA for emergency purposes (e.g., ambulances, aircraft rescue and fire fighting (ARFF) vehicles and emergency response vehicles) as authorized by the airport traffic control tower (ATCT) or an authorized on-site accident/incident commander.
- d. Airport Operations Vehicles** – Vehicles routinely used by airport operations personnel for airport inspection and duties associated with airfield operations (such as airfield condition reporting and Incident Command) on the AOA and Movement Area.
- e. Airport Security Vehicles** – Vehicles that are authorized in the AOA for security purposes, as needed (e.g. police cars).

- f. Airfield Service Vehicles** – Vehicles that are routinely used in the AOA for airfield service, maintenance, or construction (e.g. snow blowers, snowplows, maintenance trucks, and tractors).
- g. Aircraft Support Vehicles** – Vehicles that are routinely used in the AOA to support aircraft operations (e.g. aircraft pushback tractors, baggage/cargo tractors or trucks, air conditioning and aviation fuel trucks). These vehicles are typically owned by airlines, vendors, or contractors and are not eligible for Federal funding.
- h. Reduced Visibility** – Prevailing visibility is less than one statute mile (1609 meters) and/or the runway visual range (RVR) is less than 6,000 feet (1830 meters).
- i. Movement Area** – The runways, taxiways, and other areas of an airport/heliport that are used for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with an operating airport traffic control tower (ATCT), specific approval for entry onto the movement area must be obtained from air traffic control (ATC).
- j. Other Vehicles** – Vehicles that are not routinely authorized in the AOA (e.g. construction vehicles). These vehicles are typically owned by airlines, vendors, or contractors and are not eligible for Federal funding.
- k. Peak Intensity** – Peak intensity, for purposes of this document, means the maximum magnitude of luminescence as measured in candela.
- l. Towbarless Tow Vehicle (TLTV)** – a type of aircraft support vehicle whose main purpose is to tow aircraft in the AOA by way of nose gear capture.

3. VEHICLE PAINTING.

NOTE: *Airport vehicle paint and markings are a safety of flight requirement. The approved colors/markings herein assure conspicuity of vehicles operating in the AOA from both the ground and air.*

a. Airport Emergency Vehicles.

(1) Ambulances. Ambulance vehicles are painted per the most current version of Federal Specification KKK-A-1822, *Federal Specification for the Star-of-Life Ambulance*. Ambulances are not considered vehicles routinely operating on the AOA.

(2) Aircraft Rescue and Fire Fighting (ARFF) Vehicles. Yellowish-green is the vehicle color standard. Color specifications are per Appendix A.

NOTE: *A yellowish-green color provides optimum visibility during all light levels encountered during a 24-hour day and under variations of light that result from weather and seasonal changes.*

b. Airport Operations Vehicles. Airport operations vehicles may be painted in colors designated by the airport operator. The characteristics must be coordinated with the respective ATCT and identified in the tower letter of agreement.

c. Airport Security Vehicles. Comply with specific state or local requirements.

d. Airfield Service Vehicles. Chrome yellow is the vehicle color standard. Color specifications are per Appendix A. When vehicles are equipped with bumper bars 8 inches (200 mm) or more in depth, the bars must be painted in alternate stripes 4 inches (100 mm) in width of chrome yellow and black inclined 45° to the vertical.

e. Aircraft Support Vehicles.

(1) Any color or combination of colors other than yellowish-green or chrome yellow. The bumper bar paint scheme in paragraph 3.d (of alternating chrome yellow and black stripe) is recommended.

(2) **TLTVs.** International orange is the vehicle color standard. Retroreflective tape covering more than 25 percent of the vehicle's vertical surfaces may be used as a temporary measure to meet this standard prior to scheduled vehicle painting.

f. Other Vehicles. Any color or combination of colors other than solid black or white.

4. VEHICLE MARKING.

a. Airport Emergency Vehicles.

(1) **Ambulances.** Ambulances are marked per the most current version of Federal Specification KKK-A-1822.

(2) **ARFF Vehicles.** Emergency rescue and fire fighting vehicles are marked with the letters "ARFF," "Fire," or "Rescue" and in accordance with 4.c.(1)-(5) of this AC.

b. Airport Operations Vehicles. Airport operations vehicles may be marked as designated by the airport operator. Marking must be coordinated with the respective ATCT and identified in the tower letter of agreement.

c. Airfield Service Vehicles and Aircraft Support Vehicles.

(1) Airport operator owned vehicles must display an identification number on each side and on the roof (the hood should be used if the vehicle has no roof).

(2) Side numbers will be a minimum of 16 inches (410 mm) in height and conspicuously located.

(3) Roof numbers will be a minimum of 24 inches (610 mm) in height and affixed with their bases toward the front of the vehicle. The identification numbers should provide sharp color contrast to the vehicle color.

(4) In addition to the identification numbers, airport operator-owned vehicles must display either the name of the airport and/or the airport insignia.

(5) To further improve night-time recognition of vehicles, a minimum 8 inch (200 mm) wide horizontal band of high gloss white paint or white reflective tape (Retroreflective, ASTM-D 4956-09, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Type III & above) must be used around the vehicle's surface. Figures 1, 2, and 3 show suggested locations for the horizontal reflective band.

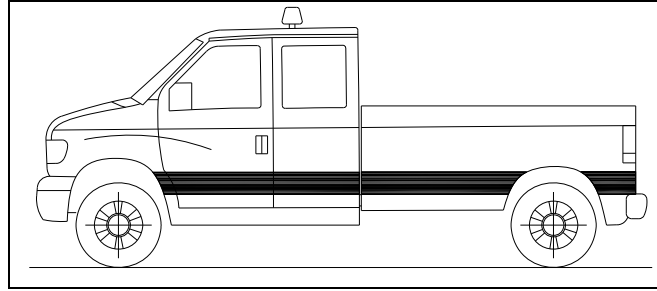


Figure 1: Suggested location for the horizontal reflective band, Option 1

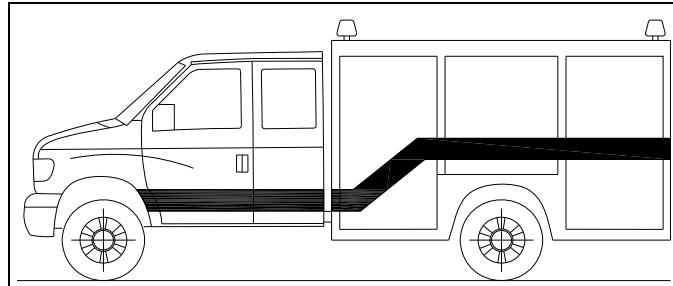


Figure 2: Suggested location for the horizontal reflective band, Option 2

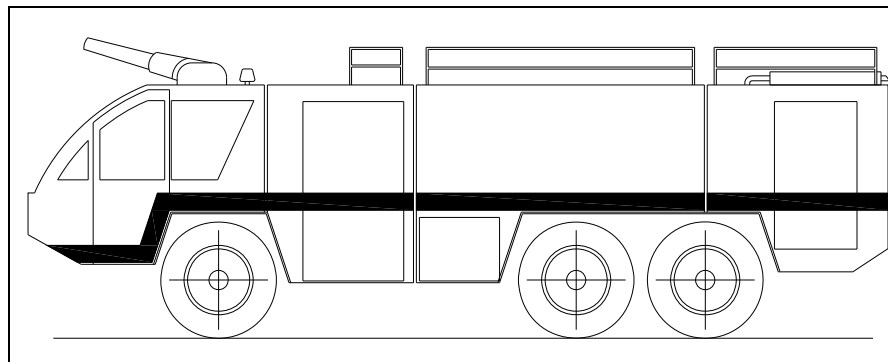


Figure 3: Suggested location for the horizontal reflective band, Option 3

(6) **TLTVs.** Retroreflective tape is used to outline the shape of a TLTV. If the vertical edge of the vehicle is rounded, the tape should be placed on the rounded portion to reflect light in both the horizontal and vertical planes. Where the placement of the tape may interfere with, or may be worn down by, maintenance or operational activities, tape is not required. Suggested locations for the retroreflective bands are shown in Figure 4.

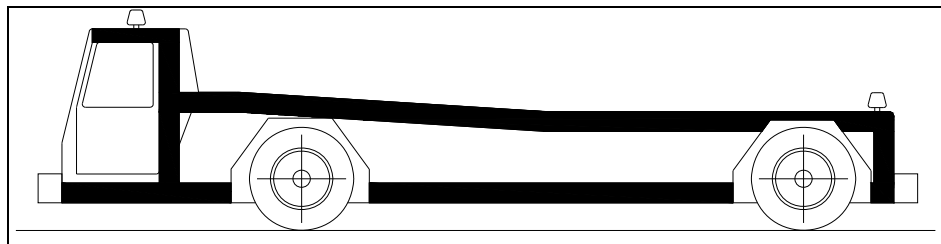


Figure 4: Suggested placement of retroreflective tape on a TLTV

d. Airport Security and Other Vehicles.

- (1) Vehicles other than those that routinely traverse any portion of the AOA under the control of ATC, which are not escorted by a vehicle in constant two-way radio communication with ATC and properly equipped and authorized to operate in the AOA, must be provided with a flag on a staff attached to the vehicle so that the flag will be readily visible.
- (2) At airports without air traffic control facilities, flags must be provided on all vehicles.
- (3) The flag must be at least a 3-foot by 3-foot (0.9 meter by 0.9 meter) square having a checkered pattern of international orange and white squares at least 1 foot (300 mm) on each side (see Appendix A for the fabric color specification).

5. VEHICLE LIGHTING.

a. Airfield Service, Aircraft Support, and Airport Operations Vehicles.

- (1) The standard for identification lighting is a yellow flashing light that is mounted on the uppermost part of the vehicle structure. A steady yellow light designates vehicles limited to non-movement areas.
- (2) The light must be visible from any direction, day and night, including from the air.
- (3) Color specifications for vehicle identification lights are per Appendix B.
- (4) **TLTVs.** An LED light bar placed above the operator's cab may be used in place of the rotating yellow flashing light. In addition, a yellow flashing light (of any type) must be installed on the upper left-rear and right-rear corners of the TLTV, and must be activated when an aircraft is in tow. The size of the rear flashing lights must be large enough to meet the requirements of Section 5.c, but not so large as to interfere with the normal or towing operations of the TLTV.

b. Airport Emergency, Security, and Other Vehicles, which are not escorted by a properly lighted vehicle, must be identified during periods of low visibility by a light.

c. Characteristics of Flashing Lights:

- (1) Ambulance lights must meet the specifications in the most current version of Federal Specification KKK-A-1822, and ARFF vehicles must meet NFPA, state, and local requirements.
- (2) Lights must have peak intensity within the range of 40 to 400 candelas (effective) from 0° (horizontal) up to 10° above the horizontal and for 360° horizontally. The upper limit of 400 candelas (effective) is necessary to avoid damage to night vision.
- (3) From 10° to 15° above the horizontal plane, the light output must be 1/10th of peak intensity or between 4 and 40 candelas (effective).

- (4) Lights must flash at 75 ± 15 flashes per minute.

NOTES:

1. *The effective intensity of a flashing light is equal to the intensity of a steady-burning (fixed) light of the same color that produces the same visual range under identical conditions of observation.*

2. *If xenon flashtubes are used, refer to AC 150/5345-43, Specification for Obstruction Lighting Equipment, for guidance concerning methods of calculating effective intensity.*

d. Light Colors.

(1) Airport Emergency Vehicles.

(a) **Ambulances.** Per the most current version of Federal Specification KKK-A-1822.

(b) **ARFF Vehicles.** Red or a combination of red-and-white flashing lights per the chromaticity requirements in Appendix B.

(2) Airport Security Vehicles. Signal blue or a combination of red and signal blue flashing light per the chromaticity requirements in Appendix B.

(3) Airfield Service, Aircraft Support, Airport Operations, and Other Vehicles. Yellow flashing light per the chromaticity requirements in Appendix B.

APPENDIX A. COLOR SPECIFICATIONS

A-1. SPECIFICATIONS. Colors specified in Table A-1 are per the Commission Internationale de l'Eclairage (CIE) L*a*b* system of color specification. For a description of this system, refer to American Society for Testing & Materials (ASTM) D 2244, *Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates*.

Table A-1. Specification for vehicle and flag colors

Standard Illuminant D65 Usage	Chrome Yellow			Yellowish-Green			International Orange		
	Vehicle Paint			Vehicle Paint			Vehicle Paint / Flag Fabric		
CIELAB DATA	L*	a*	b*	L*	a*	b*	L*	a*	b*
Centroid Color	72.8	24.4	77.6	78.3	-10.2	80.4	45.0	53.5	52.0
Point 1	72.8	31.8	82.9	78.3	-9.0	92.0	45.0	61.4	47.8
Point 2	72.8	25.5	66.7	78.3	-7.6	73.2	45.0	53.9	41.4
Point 3	72.8	18.0	69.3	78.3	-11.0	69.3	45.0	53.5	53.4
Point 4	72.8	22.4	86.0	78.3	-13.4	86.2	45.0	49.7	60.4
Light Limit	77.8			83.3			49.9		
Dark Limit	67.8			73.3			41.6		
Max ΔE	11.1			11.7			10.7		

A-2. COLOR TESTS. Acceptable colors are those that meet the gloss rating test and either a visual or an instrumental color test as follows:

NOTE: *Flag fabric colors must meet either the instrumental tests in Table A-1 or the visual method described in paragraph A-2b(1).*

a. Gloss Rating Test. This test is performed per ASTM D 523, *Standard Test Method for Specular Gloss*, on a paint sample of the color to be applied on the vehicle. An acceptable color sample is high gloss with a minimum gloss rating of 70 units, for 60° geometry.

b. Color Test Methods:

(1) Visual. Prepare a master specimen of the color (per Table A-1) and gloss (per paragraph A-2a). This specimen will be the master color and be used as the basis of comparison per ASTM D 5531-05, *Standard Guide for the Preparation, Maintenance, and Distribution of Physical Product Standards for Color and Geometric Appearance of Coatings*. To verify the paint color of a vehicle visually, vehicle paint samples must be

prepared and viewed per ASTM D 1729-96 (Reapproved 2009), *Standard Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials*.

(2) Instrumental. This test requires a test specimen sample and reference to Table A-1. All test specimen measurements should be conducted per ASTM E 1164-09a *Standard Practice for Obtaining Spectrometric Data for Object-Color Evaluation*. Test specimen tolerances must be per Table A-1 per the following:

(a) Plot the centroid color using the a* and b* CIELAB coordinate data from Table A-1 on graph paper or by entry of the coordinate data into a computer program. Plot and connect points 1 through 4 from the same table to form a quadrilateral; noting that the centroid color is within this figure. See Figure A-1 for plots of all three color specifications in Table A-1.

(b) Perform color sample measurements per ASTM E 1164-09a. If necessary, convert measurements to CIELAB L*, a*, and b* color space. See ASTM E 308-08, *Standard Practice for Computing the Colors of Objects by Using the CIE System*, for color space conversion formulae.

(c) An acceptable color is one that meets:

(i) the chromaticity requirements of the color samples a* and b* CIELAB coordinate data by falling within the quadrilateral;

(ii) the L* data lightness requirement by falling within the range defined by the light and dark data of Table A-1;

(iii) the total color difference (ΔE) by not exceeding the limits in Table A-1 when the CIELAB data are computed in the following formula:

$$\Delta E = (\Delta L^{*2} + \Delta a^{*2} + \Delta b^{*2})^{\frac{1}{2}}$$

where ΔL^* , Δa^* , and Δb^* values are the differences between those values for the centroid color in Table A-1 and those of the color sample measurements.

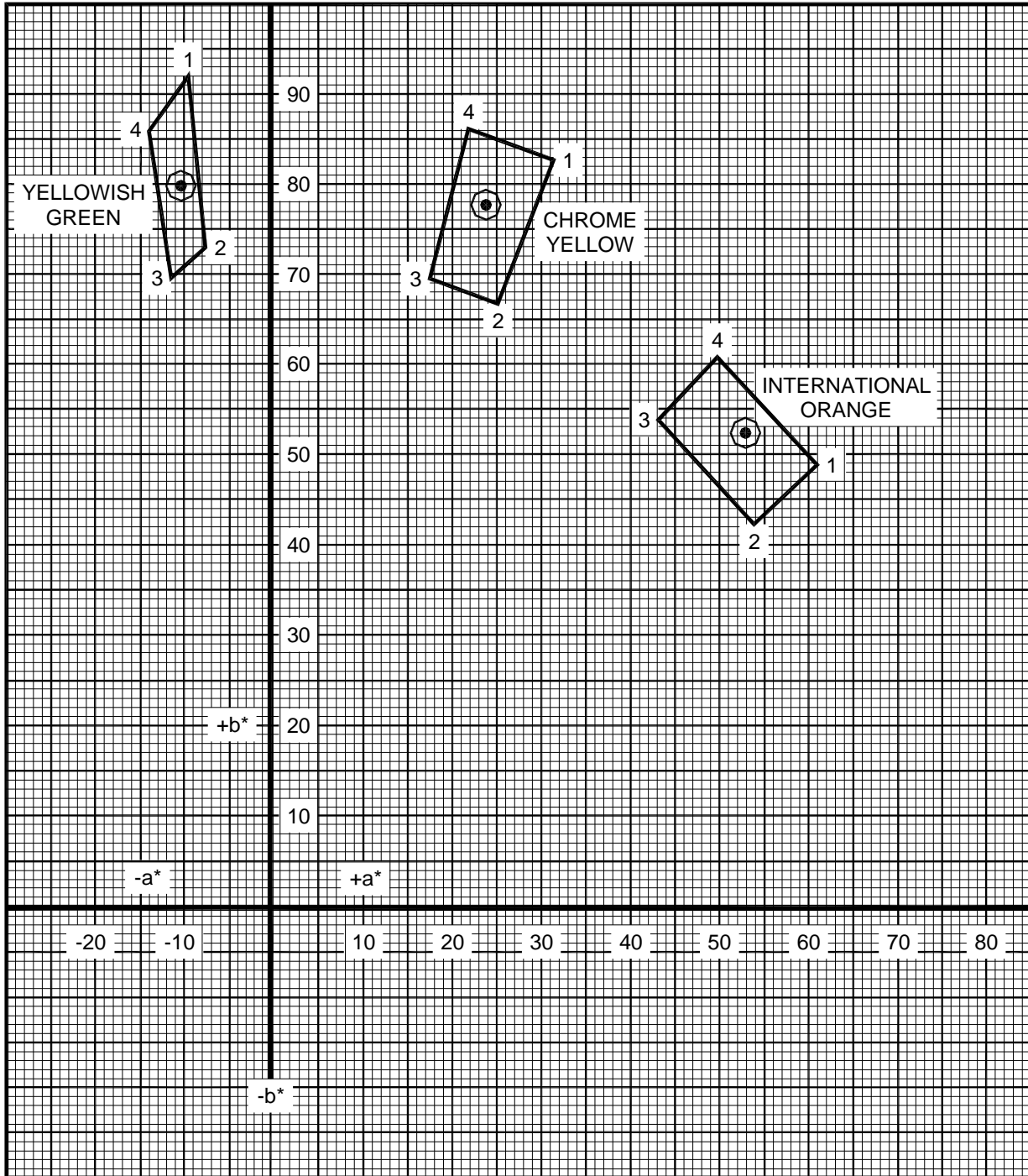


Figure A-1. Plot of selected color paint specifications

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APPENDIX B. COLOR SPECIFICATIONS FOR VEHICLE IDENTIFICATION LIGHTS

B-1. SPECIFICATIONS. The Society of Automotive Engineers (SAE) Standard J578 Revised December 2006, *Color Specification*, defines the acceptable color boundary limits and measurement of emitted red, white, signal blue, and yellow light for vehicle lights. This standard applies to the overall emitted color of light from the device in lieu of emitted light from any small area of the lens. The color of emitted light must fall within the color boundaries per SAE J578 Revised December 2006 (color boundary equations are in the standard) using color measurement methods detailed in the standard. See FAA Engineering Brief #67, *Light Sources Other Than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures*, for additional information and *Alternative Lighting Devices*.

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: Ground Vehicle Operations to include
Taxiing or Towing an Aircraft on Airports

Date: 9/1/2015

AC No: 150/5210-20A

Initiated By: AAS-300

1 **Purpose.**

This Advisory Circular (AC) and the attached appendices provide guidance to airport operators to develop training programs for safe ground vehicle operations, personnel taxiing or towing an aircraft, and pedestrian control on the movement and safety areas of an airport. The term vehicle includes aircraft being taxied under their own power by a non-pilot, or being towed with no intention for flight. Not all the items addressed in this document will be applicable at every airport. The Federal Aviation Administration (FAA) recommends that each airport operator evaluate their program on how it may apply to the size, complexity, and scope of operation of the airport. This AC contains recommended operating procedures, a sample Training Curriculum (Appendix A), sample Training Manual (Appendix B), and a sample Letter of Agreement (LOA) (Appendix C).

2 **Applicability.**

The overall responsibility for the operation of vehicles on an airport rests with the airport operator. The airport operator is also responsible for compliance with the requirements of part 139 at airports holding an airport operating certificate and with the provisions of any applicable Federal grant agreements. In general, use of this advisory circular is not mandatory. Adherence to the provisions contained in this AC may materially assist the airport operator in complying with these requirements. FAA recommends the guidelines and specifications in this AC for ground vehicle operations on airports.

3 **Cancellation.**

This AC cancels AC 150/5210-20, *Ground Vehicle Operations on Airports*, dated June 21, 2002, and Change 1 to AC 150/5210-20, dated March 31, 2008.

4 **Background.**

Each year accidents, incidents, and runway incursions occur involving aircraft, pedestrians, ground vehicle drivers, and personnel taxiing or towing aircraft at airports. These accidents and incidents can lead to property damage, injuries, and even death. Many of these events result from inadequate security, inadequate training, a failure to maintain visual aids, or a lack of such aids. Ground vehicle operation plans and training promote the safety of airport users by helping identify authorized areas of vehicle operation, outlining vehicle identification systems, addressing vehicle and operator requirements, and coordinating construction, maintenance, and emergency activities.

5 **Principal Changes.**

Changes to this AC include the following:

1. Addresses aircraft being taxied by persons other than certificated pilots;
2. Adds a definition for Airport Operations Area;
3. Revises the definition for Non-Movement Area;
4. Replaces the term “Ramp” with “Apron” to harmonize with the International Civil Aviation Organization (ICAO) Annex 14 Volume 1;
5. Adds a definition for Vehicle or Pedestrian Deviation;
6. Provides guidance for towered airports on Part 139 requirements for people and equipment in the Runway Safety Area (RSA);
7. Calls for a Letter of Agreement at towered airports between the airport operator, the tower, and FAA Technical Operations;
8. Provides guidance on taxiing and/or towing aircraft in the movement area by non-pilots; and
9. Incorporates numerous changes to format and content throughout the document.

6 **Comments or Suggestions.**

Use the Advisory Circular Feedback form at this end of this AC to send comments or suggestions for improving this AC.

7 **Related Reading Material.**

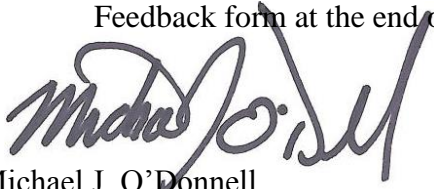
You will find additional information in the following publications:

1. 14 CFR part 139, Certification of Airports
2. Current editions of the following advisory circulars:
 - a. AC 90-67, *Light Signals from the Control Tower for Ground Vehicles, Equipment, and Personnel*
 - b. AC 120-57, *Surface Movement Guidance and Control System*
 - c. AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*

- d. AC 150/5340-1, *Standards for Airport Markings*
 - e. AC 150/5340-18, *Standards for Airport Sign Systems*
 - f. AC 150/5340-30, *Design and Installation Details for Airport Visual Aids*
 - g. AC 150/5370-2, *Operational Safety on Airports During Construction*
 - h. AC 150/5300-13A, *Airport Design*
 - i. AC 150/5210-18, *Systems for Interactive Training of Airport Personnel*
 - j. AC 150/5200-30, *Airport Winter Safety and Operations*
 - k. AC 150/5210-21, *Airport Surface Safety Training Programs For Mechanics and Ramp Personnel*
 - l. AC 00-65, *Towbar and Towbarless Movement of Aircraft*
3. To view electronic copies of the ACs listed above, visit the FAA website at http://www.faa.gov/regulations_policies/advisory_circulars/.
 4. FAA Order 5200.10, Procedures for Conducting Investigations of Vehicle/Pedestrian Deviations
<https://www.faa.gov/airports/resources/publications/orders/>

8 Feedback on this AC.

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.



Michael J. O'Donnell
Director, Office of Airport Safety and Standards

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CHAPTER 1. VEHICLE ACCESS PROCEDURES AND REGULATORY REQUIREMENTS

1.1 Airport Procedures and Policies for Vehicle Access.

Airport operators are ultimately responsible for establishing procedures and policies for vehicle access and operation on the movement and safety areas of the airport. Aircraft can also act as vehicles. When an aircraft is not intended for flight, anyone (except pilots) taxiing or towing an aircraft needs vehicle training to access the movement and safety areas of the airport. The airport operators may provide the employer, organization, or person (if the aircraft is privately owned) with procedures and policies to train their personnel. Airport operators can also incorporate vehicle and pedestrian operations and enforcement into tenant leases and agreements. The airport operator is accountable for the training and actions of all airfield vehicle operators approved to operate on the airport. The FAA Office of Airports is responsible for investigations and enforcement, where applicable, for any potential violations of all vehicle/pedestrian deviations. However, the FAA Flight Standards District Office is responsible for investigating and enforcing any potential violations of a mechanic taxiing an aircraft.

1.2 Regulatory Change.

Establishing procedures for the safe and orderly access to the movement and safety areas, as well as procedures to operate in those areas, are required at all certificated airports under 14 C.F.R. §139.329(b). Initial and recurrent training in procedures for access to the movement and safety areas are required for all persons under revised §139.303(c). Additionally, initial and recurrent training is required for all persons, under revised § 139.329(e).

1.3 Ground Vehicle Operations During Construction.

Each bidding document, such as construction plans and/or specifications, used for development work on an airport, or for installing an air navigation facility (NAVAID), will incorporate a section on ground vehicle operations on airports during construction activity if the project is funded through the Airport Improvement Program (AIP). The airport operator is encouraged to coordinate this plan with the local FAA Technical Operations office if the proposed construction affects their routes to and from their equipment worksites. Additional guidance on developing construction plans and/or specifications can be found in Appendix 1 of AC 150/5370-2, *Operational Safety on Airports during Construction*.

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CHAPTER 2. TRAINING

2.1 **Vehicle Operator Requirements.**

Vehicle operators on airports face conditions that are not normally encountered on public streets and highways. Therefore, anyone with vehicular access to the movement and safety areas, and a need to be there, must have an appropriate level of knowledge of airport rules and regulations. The airport's ground vehicle driving program can give this information. Airport operators can require vehicle operators maintain a current driver's license, and may establish identification requirements that would permit the operation of a vehicle on the movement and safety areas of an airport. Any person expected to operate on the movement and safety areas should be qualified and authorized to operate in the environment.

2.2 **Training Requirements.**

Under Part 139, all personnel with duties requiring access to the movement and safety areas are required to have initial and recurrent training. We encourage non-certificated airports to develop a driver training program appropriate to their airports' needs.

2.2.1 Sample Training Curriculum.

Appendix A includes a sample training curriculum. Airport operators may include this curriculum in initial, recurrent, and/or remedial instruction of airport employees, government employees, tenants, contractors, and other users with access to the movement and safety areas of the airport. The airport operator or his/her designated representative will retain records of this training for 24 months after an individual's access to the movement and safety areas ends. Escorts are to be properly trained. Those being escorted who intend to drive and follow the escort should be briefed on staying with the escort at all times. The airport operators may develop formalized procedures for escorting. Airport operators might find it beneficial to have a tiered program requiring different levels of training based on the type of airfield, movement, and non-movement areas access. Operators may modify these documents to meet their individual situations, such as one for vehicles operated on the movement area, one solely focused on the apron areas, and others as required. There also are commercial driving simulators available for airport driver training.

2.2.2 Mandatory Requirements for Initial, Recurrent, and Remedial Training.

2.2.2.1 **Initial Training.**

For Part 139 airports, initial training is the training provided to a new employee or airport user allowing a driver to demonstrate how to safely operate a vehicle under the airport's procedures, while functioning independently on the movement and safety areas. Airports may choose to conduct other training for operators who will drive in the non-movement area. A sample Ground Vehicle Operating Familiarization Program Training Record is in Appendix B.

2.2.2.2 **Recurrent Training.**

Recurrent training (required for part 139 certificated airports) is the training provided to an employee or airport user every twelve Consecutive Calendar Months (CCM) to enable that person to maintain a satisfactory level of proficiency. An example of twelve CCM is when training occurs on July 1, 2014 and the training remains valid through July 31, 2015. The training would expire on August 1, 2015. Appropriate schedules for recurrent training will vary widely from airport to airport and from one employee to another. Airport operators should consider requiring annual recurrent training when a vehicle operator renews an expired airport ID badge, or when a tenant renews a lease agreement.

2.2.2.3 **Remedial Training.**

Remedial training is required when a violation of the rules and regulations is committed. Use remedial training with the chosen enforcement action (see Chapter 6 Enforcement and Control).

2.2.3 On-the-Job Training.

The FAA also recommends on-the-job training before personnel have unescorted access to the movement and safety areas of the airport. Supervised vehicle operations and practical exams are the recommended training curriculum process.

2.2.4 Training Format.

Airports use a variety of methods, to include “train the trainer” for instructing ground vehicle operators. The airport operator is accountable for the training and actions of all airfield vehicle operators approved to operate on the airport. In some cases, airport operator delegates the requirement of employee training to airport tenants or a contractor. Airport operator will annually validate any training program that is provided to or used by the tenants for ground vehicle operations on the airport. Some airport operators choose to include training manuals or vehicle-operating requirements as part of tenant lease or use agreements. An airport operator may choose to distribute training manual information via a web page, videos, or booklets. Formal classroom instruction provided by the airport operator or tenant can include either personal instruction or a computer-based interactive training system. (See AC 150/5210-18, *Systems for Interactive Training of Airport Personnel.*)

2.2.5 Testing.

The airport operator or a designated representative can test trainees on the information presented. In addition to standard question and answer classroom testing methods, potential ground vehicle operators can demonstrate their proficiency in operating a vehicle on the movement and safety areas before authorizing driving privileges.

CHAPTER 3. VEHICLES

3.1 Vehicles on Airports.

Airport operators should keep vehicular and pedestrian activity on the movement and safety areas on the airport to the minimum required for operations. Vehicles on the movement and safety areas on the airport may be limited to those vehicles necessary to support the operation of aircraft services, cargo and passenger services, emergency services, and maintenance of the airport. Vehicles on the movement area should be limited to those necessary to inspect and maintain the movement areas, as well as emergency vehicles responding to an aircraft emergency. Vehicles should use service roads or public roads in lieu of crossing movement areas whenever possible. When activities need to take place in the RSA, they should occur either between aircraft operations or when a runway is closed via NOTAM.

3.1.1 Runway Crossings.

When necessary, runway crossing should occur at the departure runway end rather than the midpoint. An aircraft has more time and runway length to react if the vehicle incursion is at the opposite end of the runway from the aircraft.

3.1.2 Aircraft Operations.

Every airport will require individual solutions to prevent vehicle or pedestrian traffic from endangering aircraft operations. Aircraft ALWAYS have the right-of-way over vehicles when maneuvering on non-movement areas. Aircraft also have the right-of-way on the movement areas, except when the Airport Traffic Control Tower (ATCT) has specifically instructed an aircraft to hold or give way to vehicle(s) on a runway or taxiway.

3.1.3 Vehicle Marking and Lighting.

Vehicles that routinely operate on the movement and safety areas will be marked or flagged for high daytime visibility and, if appropriate, lighted for nighttime operations. Vehicles that are equipped with marking and lighting devices can escort vehicles that are not marked and lighted. (See AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport.*) Vehicles needing intermittent identification can be marked with magnetically attached identification markers, which are commercially available.

3.1.4 Runway Safety Areas.

3.1.4.1 The Runway Safety Area (RSA) must normally be clear at all times during air carrier/aircraft operations. However, there may be situations and/or circumstances where airport operations require vehicles or equipment to be in the RSA for a limited amount of time. Examples may include scheduled or unscheduled NAVAID maintenance/repair, mowing operations, or other airport safety-related circumstances where personnel and equipment will be in the RSA during air carrier/aircraft operations. When circumstances

allow, drivers will drop needed equipment within the RSA and park the vehicle outside the RSA.

3.1.4.2 A Letter of Agreement (LOA) is required at each towered airport to clarify the specific activities allowed in the RSA during air carrier/aircraft operations. This LOA will include the airport operator, the local Air Traffic Control Tower (ATCT), FAA Technical Operations, and any other airport tenant that may be permitted into the RSA during air carrier/aircraft operations. The LOA will describe the specific procedures for personnel and equipment in the RSA during air carrier/aircraft operations. Additionally, the LOA must also emphasize that vehicles avoid the Instrument Landing System (ILS) or Localizer arrays during low visibility conditions. Standard communication requirements between the ATCT and individuals operating in the RSA should be established in accordance with Order 7110.65. Any LOA between the airport operator and the ATCT must be included in the airport operator's Airport Certification Manual (ACM). See Appendix C, Sample Letter of Agreement for guidance and details on creating the LOA. Appropriate procedures must be implemented to notify air carriers and pilots when personnel and equipment are in the RSA.

3.1.4.3 The LOA's will be placed in the airport's ACM, if certificated. Office of Airport Regional Divisions will forward any issues associated with the LOA to the Office of Safety and Operations (AAS-300). AAS-300 will coordinate with ATO, the Office of Airports Regional Division, and the airport as required.

3.1.5 Surface Movement Guidance and Control System (SMGCS).

SMGCS is a system of lighting, markings, and signs on the airport that allow pilots to continue to operate in bad weather below minimums. Low Visibility Operations (LVO) allows an airport to continue operation when weather conditions deteriorate significantly below 1200 feet Runway Visual Range (RVR). Drivers need to be aware of and trained in this area to be safe when aircraft are moving around the airport during SMGCS condition. Only airports that have an active SMGCS program in use to control aircraft and vehicles in the movement area should train on it. For additional information on the SMGCS Plan, refer to AC 120-57, *Surface Movement Guidance and Control System*.

3.2 **Vehicular Access Control.**

Controlling vehicular activity on the movement and safety areas of an airport is vitally important. The airport operator is responsible for developing procedures, procuring equipment, and providing training on vehicle operations to ensure aircraft and personnel safety. Even with the most sophisticated procedures and equipment, vehicle operators need training to achieve safety. The airport operator should give special consideration to

training temporary operators, such as construction workers, even if escorts are being provided.

3.2.1 Airports with an Operating Air Traffic Control Tower (ATCT).

At airports with an operating ATCT, controllers and vehicle operators can use two-way radios to control vehicles when on the movement area. To accomplish this task, the FAA at each towered airport is creating with the airport operator a letter of agreement outlining standard operating procedures to include delineating movement and non-movement areas. When there is construction on an airport, whether federally funded or not, the airport operator can follow the ground vehicle practices contained in AC 150/5370-2, *Operational Safety on Airports During Construction*.

3.2.2 Airports without an Operating ATCT.

At airports without an operating ATCT, vehicles, fixed-based operators, or others can use two-way radio control. Everyone should pay attention to frequencies used by aircraft and announce intentions on Common Traffic Advisory Frequency (CTAF) to avoid inadvertent incidents and or accidents while operating on the movement and safety areas.

3.2.3 Restricting Movement and Safety Areas Access.

3.2.3.1 Inadvertent entry by vehicles onto movement and non-movement areas of an airport poses a danger to both the vehicle operator and aircraft on the airport. Methods for controlling access to the movement and safety areas will vary depending on the type and location of the airport. The ACM is a useful tool for accomplishing this. Airports may erect a fence or provide for other natural or physical barriers around the entire airport, in addition to providing control measures at each access gate, such as guards, magnetic card activated locks, or remotely controlled locks.

3.2.3.2 Gates may either be opened/closed electronically or secured by lock and chain. The FAA strongly encourages Airport Operators to change access gate codes regularly. A best practice that an airport may wish to consider is also to assign different codes to different gates. Physical barriers might include natural objects, such as earthen berms, large boulders, tree trunks, and manmade culverts that could help control remote vehicle access points.

3.3 **Vehicle Requirements.**

Requirements for vehicles will vary depending on the airport, the type of vehicle, and where the vehicle will operate on the airport. An airport operator should limit vehicle operations on the movement areas of the airport to only those vehicles necessary to support the operational activity of the airport. Airport operators might find it beneficial to have a tiered program requiring different levels of training based on the type of airfield, movement, and non-movement areas access.

3.3.1 Vehicle Inspection Programs.

Some airports have benefited from establishing their own vehicle inspection program to ensure that all vehicles are maintained in a safe operating condition. In establishing vehicle requirements, some items to consider include:

1. Marking and identifying vehicles.
2. Establishing fire extinguisher or other equipment requirements for vehicles, such as Super Tugs or Specialty Vehicles.
3. Placing in all vehicles a current placard diagram depicting the airport's movement area, including Hot Spots. Aircraft being taxied or towed are exempt from placard diagram placement. The diagram can display prominent landmarks and/or perimeter roads.
4. Placing in vehicles operating in the movement area a placard showing the meaning of ATCT light gun signals, as well as airfield sign, lighting, and marking information.
5. Establishing vehicle condition requirements and inspection.
6. Ensuring appropriate insurance coverage.

3.4 **Vehicle Operations.**

The airport's rules and regulations for vehicle operations should provide adequate procedures for the safe and orderly operation of vehicles and aircraft that are taxied or towed by anyone on the movement and safety areas of the airport. In developing such procedures, airport operators should consider:

1. Requiring vehicle operators and anyone authorized to taxi or tow an aircraft, an ability to communicate in and understand the English language. English language proficiency rests with the hiring authority.
2. Requiring that vehicles operating on the movement areas have radio contact with ATCT or are escorted by a radio-equipped vehicle. This is a requirement of Part 139.329 (b) for certificated airports.
3. Requiring specific procedures for vehicle operations on airports without an operating ATCT.
4. Requiring advanced notice and approval for operating a non-airport owned vehicle on the movement area.
5. Establishing speed limits.
6. Establishing procedures to reduce distracted driving. This can include reducing personal calls and texting on mobile devices while vehicle is in motion.
7. Prohibiting:
 - a. Passing other vehicles and taxiing aircraft;
 - b. Leaving a vehicle unattended and running;
 - c. Driving under an aircraft except when servicing the aircraft; and
 - d. Driving under passenger bridges.

8. Determining when drivers must use vehicle lights.
9. Using dedicated vehicle lanes and perimeter roads whenever possible.
10. Designating where vehicles may and may not park.
11. Establishing rules of right-of-way (e.g. for aircraft, emergency vehicles, other vehicles).
12. Designating areas where vehicles may be serviced.
13. Establishing procedures for inoperative radios while on a movement area.
14. Require reporting of all accidents involving ground vehicles on the movement and safety areas.
15. Require making the vehicle operator responsible for passenger's behavior in the movement area.
16. Ensuring each aircraft operator maintains a Memorandum of Understanding (MOU) with the airport to conduct tow operations.
 - a. Elements of the MOU can include but are not limited to:
 - i. Compliance with AC 00-65, *Towbar and Towbarless Movement of Aircraft*
 - ii. Local Operating Conditions
 1. Low Visibility
 2. Weather
 3. Driving Routes
 4. Time Constraints (placed on movement of aircraft)
 5. Tug-Type Requirements

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CHAPTER 4. EMERGENCY OPERATIONS AND OTHER NON-ROUTINE OPERATIONS

4.1 Introduction.

Airport operators allow a number of non-routine operations to occur on the movement and safety areas of the airport. These include airfield construction, airshows, aircraft static displays, Very Important People (VIP) arrivals/departures, commercial photo shoots, and a host of other activities. In addition, airport operators can recognize and prepare for the unique challenges to vehicle operations during non-routine operations. Airport operators can review non-routine operations that involve ground vehicles and develop vehicle operation procedures to accommodate these special operations.

4.2 Planning Meetings for Non-Routine Operations.

Planning meetings associated with non-routine activities offer an opportunity to review driving rules and regulations, communications and procedures, and air traffic control procedures as well as NAVAID requirements that can be affected by vehicle operations and other important operational issues. These meetings can help with paying special attention to the following activities:

4.2.1 Movement and Safety During Construction.

The airport operator or his/her designated representative can develop procedures, assess equipment, and ensure training has occurred on vehicle operations for aircraft safety during construction as specified in AC 150/5370-2, *Operational Safety on Airports During Construction*.

4.2.2 Emergency Response/Mutual Aid.

Many airports rely on local emergency services to provide aircraft rescue and firefighting services or emergency medical services. Airport operators can ensure that such emergency service providers receive initial and recurrent training in the subject areas identified in **Chapter 3, Vehicles**, also maintain records of such training. Alternatively, the airport may escort the responders. In addition, any mutual aid agreement between the local emergency service providers and the airport operator can specify vehicle operations training requirements.

4.2.3 Snow and Ice Removal.

Airport Operators who use contractors for snow and ice control operations can ensure agreements include vehicle operations procedures, training requirements, consequences of non-compliance, and vehicle communications requirements. The FAA recommends that, when possible, airport operators limit contractors to non-movement areas. When an ATCT is not in operation, or there is no ATCT, airports can develop procedures to advise air traffic on the CTAF of any intentions to remove snow and ice in the movement area.

4.2.4 Low-Visibility Operations.

Additional consideration can be given to vehicle operations during low visibility. Poor weather conditions (snow, fog, rain, etc.) may obscure visual cues, roadway markings, and airport signs. During low visibility conditions, particular detail can address the emphasis of avoiding ILS or Localizer arrays, e.g. mowing operations and snow removal.

CHAPTER 5. SITUATIONAL AWARENESS

5.1 **Training for Situational Awareness.**

There are ways to enhance situational awareness. A ground vehicle operator's training program may concentrate on having vehicle operators visually scan fixed and moving objects coming into the vehicle's path. Airport operators can also promote using clear and concise communications by vehicle operators. Most importantly, airport operators can alert vehicle operators to distractions caused by social interactions while operating a vehicle on the movement and safety areas. Having an airport diagram and notepad available in each vehicle to record movement instructions is considered a best practice when communicating with ATCT.

5.2 **Movement and Safety Areas Improvements to Increase Situational Awareness.**

Airport operators may also be able to increase situational awareness for vehicle operators with enhancements on the movement and safety areas. Such enhancements may include establishing dedicated marked routes for vehicles that avoid high activity, congested areas, or blind spots. Eliminating or relocating fixed objects that hinder a vehicle operator's line of sight or block radio transmissions may also enhance safety. Some airport operators may soon have an added aid in the fight against distractions – Automatic Dependent Surveillance - Broadcast (ADS-B) at select airports. This system enables equipped aircraft and ground vehicles to continually broadcast information, such as identification, current position, altitude, and velocity. More information on this technology will be available in a future advisory circular on Ground Vehicle ADS-B Operations. Technology can't totally replace clearing for aircraft. You must ensure that you look both ways down the runway to visually acquire aircraft landing or departing even if you have a clearance to cross.

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CHAPTER 6. ENFORCEMENT AND CONTROL

6.1 Enforcement Procedures.

Airport operators should establish consequences for non-compliance of airport rules, including penalties for violations. Tenant lease or use agreements may include these enforcement provisions.

6.2 Control Issues.

Listed below are some control issues that airport operators can address as part of a control program for ground vehicle and anyone taxiing or towing aircraft. This list is not all inclusive.

1. Implementing a tiered identification badging system that permits easy recognition of a vehicle operator's permitted driving area privileges. A recommended practice is that the airport should have the ability to turn badges off for violations, or when access is no longer needed.
2. Prohibiting transferring registration media to different vehicles.
3. Creating policies for surrendering permits to airport management when a vehicle is no longer authorized entry into a facility.
4. Conducting periodic checks to ensure that only properly authorized persons operate vehicles, and only properly authorized personnel taxi or tow aircraft on the movement and safety areas.
5. Creating a system to control commercial or delivery truck movement onto and out of the movement and safety areas of an airport.
6. Briefing or training for commercial drivers if they are permitted direct access to the movement and safety areas.
7. Implementing a progressive penalty policy for violations of the airport's driving program.

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APPENDIX A. GROUND VEHICLE ACCESS PROGRAM TRAINING CURRICULUM**A.1 Purpose of the Training Curriculum.**

- A.1.1 The purpose of the Ground Vehicle Access Program training curriculum is to provide airport operators with a minimum list of training topics for educating vehicle operators, with access to the movement and safety areas of an airport. This includes anyone taxiing or towing aircraft who is not a pilot. Each individual airport has unique situations that might require site-specific training. Airport operators may use this training curriculum as a guide for developing and implementing a detailed training program tailored to the airport's individual situation.
- A.1.2 The training program provides vehicle operators and anyone taxiing or towing aircraft with the level of training necessary for their positions to operate safely on the movement and safety areas of an airport and avoid causing a runway incursion. Airports may choose to tailor their specific programs from the items listed below:
1. Infield aircraft navigation aids
 2. Identifying a given point on a grid map or other standard map used at the airport
 3. Applicable airport rules, regulations, or procedures for vehicle operations
 4. Airport layout, including runways and taxiway designations
 5. Known hot spots
 6. Boundaries of movement, non-movement, and safety areas
 7. Interpretation and color coding of airfield signs, pavement markings, and lighting
 8. Location and understanding of critical areas associated with instrument landing system (ILS) and very high frequency omnidirectional ranges (VORs)
 9. Proper terminology (including phonetic alphabet) and procedures for radio communications with the ATCT
 10. ATCT light gun signals
 11. Established routes for emergency response vehicles
 12. Dangers associated with jet blast and prop wash
 13. Traffic patterns associated with each runway (left or right) and location of each leg (i.e., downwind, base, final, and crosswind)
 14. Situational awareness (staying alert in the environment of operation)

A.2 Training Program for Vehicle Operations on Apron Only.

An airport operator may choose to develop tiered training programs for vehicle operators, such as airline employees and other tenants, who are restricted to operating ground vehicles only on the apron areas. This will allow them to have knowledge of the boundaries associated with the area.

A.3 Areas of Training.

All drivers should have training in the following areas:

A.3.1 Discussion of Runway Incursions, Airfield Safety, and Security.

Training Outcome(s): Trainee will be able to define a runway incursion, describe how to avoid causing an incursion, what they can do if involved in an incursion, and explain the benefits of airfield safety/security.

A.3.2 Definitions and Terms.

Training Outcome(s): Trainee will be knowledgeable of airport signage, runway markings, lighting, and the terms used on an airport.

A.3.3 Vehicle Operating Requirements.

1. Authorized Vehicles and Vehicle Identification
2. Vehicle Lighting
3. Vehicle Insurance
4. Vehicle Inspection
5. Vehicle Parking
6. Accident Reporting
7. Perimeter Roadways
8. Aircraft Lighting

A.3.4 Anyone Taxiing or Towing an Aircraft Requirements.

The employer will provide the airport operator with documentation showing that the individual is qualified to start, run, taxi or tow that particular type of aircraft.

A.3.5 Rules and Regulations.

1. Review
2. Noncompliance/Penalties

Training Outcome(s): Trainee will be knowledgeable of ground vehicle and aircraft taxiing and towing rules and regulations.

A.3.6 Testing.

3. Written Test
4. Practical Test

Training Outcome(s): Trainee can pass a written examination with a minimum score of 70 percent.

A.3.7 Airport Familiarization at Least One Day and One Night Evaluation or as Required for Job Performance.

1. Runway Configuration/Safety Area

2. Taxiway Configuration/Safety Area
3. Movement Areas and Non-Movement Areas
 - a. Confusing Areas and designated Hot Spots
4. Airport Lighting
 - a. Runway
 - i. Runway Edge Lights
 - ii. Centerline Lights
 - iii. Touchdown Zone
 - iv. Taxiway Lead-Off Lights
 - b. Threshold
 - i. Runway Approach Light System
 - c. Taxiway
 - i. Taxiway Edge Lights
 - ii. Taxiway Centerline Lights
 - iii. Stop Bars
 - iv. Runway Guard Lights
5. Airfield Signage (Airport Specific)
 - a. Runway Position Holding Sign
 - i. Runway Location Sign
 - ii. Destination Sign
 - iii. Information Sign
 - iv. Approach Sign
 - b. Taxiway Location Sign
 - c. ILS Critical Area Sign
 - d. Direction Sign
 - e. Distance Remaining Sign
6. Airfield Markings (Airport Specific)
 - a. Runways
 - i. Centerline
 - ii. Edge Markings
 - iii. Runway ID Numbers
 - iv. Threshold Markings
 - v. Fixed Distance Markers
 - vi. Hold Short Lines
 - b. Taxiways
 - i. Hold Lines

- ii. ILS Hold Line
- iii. Geographic Position Markings
- iv. Centerline and Enhanced Centerlines
- v. Edge Markings
- c. ILS Critical Areas
- d. Non-Movement Area Boundary Marking
- e. Surface Painted Signs
- 7. Airport NAVAIDS and Visual Approach Aids
 - a. Location
 - b. Non-interference

Training Outcome(s): Trainee will be able to label all critical parts on the airport, identify, and explain the purpose of all marking, lighting, and signs on the airport.

A.3.8 Communications.

- 1. Ground Vehicle, anyone towing an aircraft, and anyone taxiing an aircraft Communications
 - a. Radio Frequencies
 - b. Procedural Words and Phrases
- 2. Aviation Phonetic Alphabet
- 3. Aviation Terminology and phrases
- 4. Procedures for Contacting the ATCT
- 5. Airfield Communications at Airports without Operating ATCT
- 6. Light Gun Signals as a means of communication
- 7. Procedures for when the vehicle operator or anyone taxiing or towing aircraft are lost or disoriented in the movement areas or RSA, etc.
 - a. Description of how to respond to Light Gun Signals
 - b. Description of how to Signal the Tower

Training Outcome(s): Trainee will be able to adequately send and receive radio messages as well as interpret light gun signals and respond properly.

APPENDIX B. SAMPLE GROUND VEHICLE OPERATIONS TRAINING MANUAL

NOTE: This sample training manual provides airport operators with a template for developing and implementing proposed policies or procedures for controlling ground vehicles, or taxiing, and towing aircraft. This includes equipment access in the movement and safety areas of an airport. Airport operators may use the format below but adapt the requirements to specific conditions found on their airport. The Operator would fill in the appropriate blanks or blocks of text and/or revise the document for specific airport conditions.

Section 1 covers the Authority, Applicability, and Definitions of the Ground Vehicle Operation Manual. It includes: driving, taxiing or towing aircraft rules and regulations that could be adopted by the airport operator.

Section 2 would serve as a suggested driver, taxiing, or towing aircraft training for the Non-Movement Area Manual.

Section 3 would serve as a suggested driver, taxiing, or towing aircraft training for the Movement Area Manual. In this section, the airport operator could add or delete information as it applies to the airport. For example, if the airport has no instrument approach, reference to the ILS signs and protection of critical areas could be deleted. Also, the airport operator is encouraged to replace illustrations of signs with those found on the airport.

Section 4 would serve as a suggested driver, taxiing, or towing aircraft training for Communications on the airport.

Finally, there is a sample Ground Vehicle Operations Training Record that can be modified by the airport operator to document training on the airport.

Section 1. Airport Driving and Anyone Taxiing or Towing Aircraft Rules and Regulations

- 1.1 Authority for Implementation of Rules and Regulations.** The (NAME) Airport operates under the authority of (JURDISTICTION). (CITY/COUNTY ORDINANCE OR STATE STATUTE) has granted the (AIRPORT OPERATOR) the authority to make bylaws for the management and supervision of its airport affairs.
- 1.2 Applicability.** This regulation applies to all users of, and persons on any portion of, the property owned or controlled by (Airport Operator). No persons are exempt from airport operating training requirements for operating a vehicle on the movement and safety areas of an airport. Tenant organizations must be responsible for the dissemination of, accessibility to, and compliance with these rules and regulations by their employees.

These Rules and Regulations may be amended, changed, or modified by (Airport Operator), as necessary.

- 1.3 Definitions.** The following terms are defined as indicated in this section for the purpose of this Ground Vehicle Operation Training Manual. *(The airport operator can include only those definitions applicable to its airport and conditions.)*

- 1.3.1 Accident**—a collision between one aircraft or vehicle and another aircraft, vehicle, person, or object that results in property damage, personal injury, or death.
- 1.3.2 Air Carrier Apron**—an apron for air carriers. Only authorized personnel and vehicles may operate on this apron. Unauthorized vehicles and aircraft are prohibited from operating on it.
- 1.3.3 Air Operations Area (AOA)** — the air operations area includes paved or unpaved areas used or intended to be used for the unobstructed movement of aircraft, in addition to its associated runways, taxiways, or aprons. Commonly refers to anything within the secured and fenced-in area of the airport.
- 1.3.4 Airport Traffic Control Tower (ATCT)**—operated by an appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.
- 1.3.5 Aircraft**—a device that is used or intended to be used for flight in the air.
- 1.3.6 Airport**—(NAME) International Airport Facility, owned and operated by (Airport Operator), including all improvements and equipment existing or to be developed.
- 1.3.7 Apron**—a defined area on an airport or heliport intended to accommodate aircraft for the purposes of parking, loading and unloading passengers or cargo, refueling, or maintenance.
- 1.3.8 Common Traffic Advisory Frequency (CTAF)**—radio frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating ATCT or when the tower is closed. The CTAF may be a UNICOM, MULTICOM, FSS, or tower frequency and is identified in appropriate aeronautical publications. (See below for definitions of UNICOM, MULTICOM, and FSS.)
- 1.3.9 Fixed-Based Operator (FBO)**—a person, firm, or organization engaged in a business that provides a range of basic services to general aviation. Services may include the sale and dispensing of fuel, line services, aircraft parking and tie-down, pilot and passenger facilities, airframe and power plant maintenance, aircraft sales and rental, and pilot instruction.
- 1.3.10 Flight Service Station (FSS)**—air traffic facilities that provide pilot briefings, en route communications, and visual flight rules search and rescue services; assist lost aircraft and aircraft in emergency situations; relay air traffic control clearances; originate Notices to Airmen; broadcast aviation weather and National Airspace System information; receive and process instrument flight rules flight plans; and monitor NAVAIDs. In addition, at selected locations, FSSs provide En Route Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of trans-border flights.
- 1.3.11 Foreign Object Debris (FOD)**—debris that can cause damage to aircraft engines, tires, or fuselage from rocks, trash, or the actual debris found on runways, taxiways, and aprons.

- 1.3.12 General Aviation (GA)**—that portion of civil aviation that encompasses all facets of aviation except air carriers holding a certificate of public convenience and necessity.
- 1.3.13 Ground Vehicle**—all conveyances and aircraft not operated for the purpose of flight, vehicles used on the ground to reposition aircraft, transport persons, cargo, fuel, or equipment.
- 1.3.14 ILS Critical Area**—an area provided to protect the signals of the localizer and glideslope.
- 1.3.15 Jet Blast**—jet engine exhaust or propeller wash (thrust stream turbulence).
- 1.3.16 Law Enforcement Officer (LEO)**—any person vested with police power of arrest under Federal, state, county, or city authority and identifiable by uniform, badge, and other indication of authority.
- 1.3.17 Light Gun**—a hand-held, directional light-signaling device that emits a bright narrow beam of white, green, or red light, as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot or vehicle actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.
- 1.3.18 Mobile Fueler**—a vehicle owned and/or operated by authorized agents to pump and dispense Jet A and 100 LL fuel at an airport. This may include fuel tankers, in-to-plane fueling pumpers, and hydrant carts.
- 1.3.19 Movement Area**—the runways, taxiways, and other areas of an airport that aircraft use for taxiing, takeoff, and landing, exclusive of loading aprons and aircraft parking areas.
- 1.3.20 MULTICOM**—a mobile service not open to public correspondence used to provide communications essential to conduct the activities being performed or directed from private aircraft.
- 1.3.21 Non-movement Areas**—the area, other than that described as the movement area, used for the loading, unloading, parking of aircraft. This may include the apron areas and on-airport fuel farms.
- 1.3.22 Operator**—any person who is in actual physical control of an aircraft or a motor vehicle.
- 1.3.23 Owner**—a person who holds the legal title of an aircraft or a motor vehicle.
- 1.3.24 Protected Area**—the protected area of a surface intended for landing or takeoff includes the area inside the runway hold position markings (e.g., hold line) on paved taxiways or bridges and the designated runway safety area.
- 1.3.25 Restricted Areas**—areas of the airport posted to prohibit or limit entry or access by the general public. All areas other than public areas.
- 1.3.26 Runway**—a defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length.

- 1.3.27 Runway Incursion**—any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.
- 1.3.28 Runway in Use or Active Runway**—any runway or runways currently being used for takeoff or landing. When multiple runways are used, they are all considered active runways.
- 1.3.29 Runway Safety Area**—a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes (Typically 250 feet off the runway centerline and 1,000 feet off each end or as required) in the event of an excursion, overshoot, or undershoot from the runway. Note: Guidance for RSA is located in AC 150/5300-13A, *Airport Design*.
- 1.3.30 Surface Incident**- Unauthorized or unapproved movement within the designated movement area (excluding runway incursions) or an occurrence in that same area associated with the operation of an aircraft that affects or could affect the safety of flight.
- 1.3.31 Surface Movement Guidance and Control System (SMGCS)**—a system of guidance, control, and regulation of all aircraft, ground vehicles, and personnel of the airport during low-visibility operations. Guidance relates to facilities and information necessary for pilots and ground vehicle operators to find their way about the airport. Control or regulation means the measures necessary to prevent collisions and to ensure that traffic flows smoothly and efficiently.
- 1.3.32 Taxiways**—those parts of the movement and safety areas designated for the surface maneuvering of aircraft to and from the runways and aircraft parking areas.
- 1.3.33 Tie Down Area**—an area used for securing aircraft to the ground.
- 1.3.34 Uncontrolled Airport**—an airport without an operating airport traffic control tower or when airport traffic control tower is not operating.
- 1.3.35 UNICOM**—a non-Federal communication facility that may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.
- 1.3.36 Vehicle or Pedestrian Deviation (V/PD)**—any entry or movement on the airport movement area or safety area by a vehicle operator or pedestrian that has not been authorized by air traffic control (includes surface incidents involving aircraft operated by non-pilots, such as anyone).
- 1.3.37 Vehicle Service Road**—a designated roadway for vehicles in a non-movement area.
- 1.3.38 Very High Frequency Omnidirectional Range (VOR)**—a ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the National Airspace System.

- 1.3.39 Wake Turbulence**—phenomenon resulting from the passage of an aircraft through the atmosphere. The term includes vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air.
- 1.4 Severability.** If any section, subsection, subdivision, paragraph, sentence, clause, or phrase of these Rules and Regulations or any part thereof is for any reason held to be unconstitutional, invalid, or ineffective by any court of competent jurisdiction or other competent agency, such decision will not affect the validity or effectiveness of the remaining portions of these Rules and Regulations.
- 1.5 Violation of Rules—Penalties and Suspension of Driving or Anyone taxiing or towing an aircraft Privileges.** Any person, who does not comply with any of the provisions of these Rules and Regulations, or any lawful order issued pursuant thereto, will be subject to progressive penalties for repeat violations. These penalties may include being denied use of the Airport by (Airport Operator) in addition to the penalties described pursuant to Federal, state, or local authorities. *(The airport operator can tailor this section to discuss its enforcement policies.)*
- 1.5.1** Penalties for failure to comply with the Movement and safety areas Vehicular Traffic Regulations must consist of written warnings, suspension of movement and safety areas driving privileges, and/or revocation of movement and safety areas driving privileges. Receipt of _____ written warnings by an operator of a vehicle in any 12-month period will automatically result in suspension of movement and safety areas driving privileges. Receipt of written warnings in any 12-month period will automatically result in revocation of movement and safety areas driving privileges.
- 1.5.2** Based on an evaluation of the circumstances or the severity of a particular incident or incidents, the (Airport Operator) reserves the exclusive right to assess any penalty it deems appropriate at any time to any individual authorized to operate a vehicle on the movement and safety areas without regard to prior operating history.
- 1.5.3** Suspension of movement and safety areas driving privileges must be no less than _____ calendar days and no greater than _____ calendar days.
- 1.5.4** The (Airport Operator) will provide a copy of all written warnings issued to an operator to the local manager of the company owning or in possession and control of the vehicle or vehicles involved in the violation(s).
- 1.6** The (Airport Operator) must require any individual involved in a runway incursion or other vehicle incident to complete remedial airfield driver training.
- 1.7** Regulations on the Movement and Safety Areas of an Airport for Drivers and Anyone Taxiing or Towing an Aircraft.
- 1.7.1** Vehicle Operator and Anyone Taxiing or Towing and Aircraft Requirements.
- a. All applicants must satisfactorily complete the applicable driver’s training class before receiving a movement and safety areas driver’s license or

- badge. Non-based personnel require escort from airport qualified movement/non movement area personnel.
- b. All applicants are required to pass the written test with a grade of at least ___ percent. Applicants who do not pass the written test may retake the test after additional study and a ____ day period.
 - c. Applicants for movement area driving, taxiing, or towing an aircraft privileges are required to successfully complete a movement and safety areas driving test by a designated representative of (Airport Operator).
 - d. No vehicle can be operated or anyone taxi or tow an aircraft on the movement and safety areas unless—
 - (1) The driver is authorized to operate the class of vehicle by an appropriate state-licensing agency and/or by the driver's employer through a company training/certification program.
 - (2) The driver properly displays an approved, airport-issued ID card with the Authorized Driver designation (*if applicable*).
 - e. For taxiing or towing an aircraft, the owner/operator needs to ensure the person is trained by the owner or aircraft operator to start, run, taxi, or tow that particular type of aircraft. When towing an aircraft with a "Towbarless tractor," to guard against if the tow bar breaks, there should be a trained person in the cockpit that can stop the aircraft.
 - f. No person operating or driving a vehicle on any aircraft apron should exceed a speed greater than _____ miles per hour. Factors including, but not limited to, weather and visibility should be taken into consideration when determining safe operating speed.
 - g. No vehicle may pass another ground vehicle in a designated vehicle roadway.
 - h. FAA recommends: No vehicles pass between an aircraft and passenger terminal or passenger lane when the aircraft is parked at a gate position except those vehicles servicing the aircraft. All other vehicles must drive to the rear of the aircraft and must pass no closer than
 - i. Moving aircraft and passengers enplaning or deplaning aircraft must have the right-of-way at all times over vehicular traffic. Vehicle drivers must yield the right-of-way.
 - j. No vehicle operator may enter the movement and safety areas (includes controlled and non- controlled movement areas) unless authorized by (Airport Operator) or the vehicle is properly escorted.
 - k. No vehicle operator or anyone taxiing or towing an aircraft can enter the movement area—
 - (1) Without first obtaining the permission of Airport Operator, Aircraft operator, and clearance from the ATCT to enter the movement area for taxiing or towing;

- (2) Unless equipped with an operable two-way radio in communication with the ATCT; or
 - (3) Unless escorted by an (Airport Operator) approved vehicle and as long as the vehicle remains under the control of the escort vehicle.
 - (4) Anyone taxiing or towing an aircraft, without the authorization of the airport operator, must receive ATCT clearance to enter the airport movement area.
- l. No person may operate any motor vehicle that is in such physical or mechanical condition as to endanger persons or property or that the (Airport Operator) considers an endangerment.
 - m. No person may—
 - (1) Operate any vehicle that is overloaded or carrying more passengers than for which the vehicle was designed.
 - (2) Ride on the running board or stand up in the body of a moving vehicle.
 - (3) Ride with arms or legs protruding from the body of a vehicle except when the vehicle was designed for such use.
 - n. A vehicle guide person is required whenever the vision of the vehicle operator is restricted.
 - o. No fuel truck may be brought into, stored, or parked within 50 feet of a building. Fuel trucks may not be parked within 10 feet from other vehicles.
 - p. Container carriers and tugs may tow no more carts, pods, or containers than are practical, under control, tracking properly, and safe.
 - q. When not serving aircraft or undertaking their intended functions, apron vehicles and equipment may be parked only in approved areas.
 - r. Vehicle operators should not operate or park vehicles under any passenger loading bridge.
 - s. No person may park a vehicle in an aircraft parking area, safety area, grass area, or in a manner that obstructs or interferes with operations in the aircraft movement area or apron area.
 - t. No person may park, or leave unattended, vehicles or other equipment that interfere with the use of a facility by others or prevent movement or passage of aircraft, emergency vehicles, or other motor vehicles or equipment.
 - u. No person may park a vehicle or equipment within ____ feet of a fire hydrant or in a manner that prohibits a vehicle from accessing the fire hydrant.

- v. No person may operate a vehicle or other equipment within the movement and safety areas under the influence of alcohol or any drug that impairs, or may impair, the operator's abilities.
- w. Each vehicle operator using an airport perimeter (security) gate must ensure the gate closes behind the vehicle prior to leaving the vicinity of the gate. The vehicle operator must also ensure no unauthorized vehicles or persons gain access to the movement and safety areas while the gate is open.
- x. Vehicle operators must not operate vehicles in a reckless or careless manner. A reckless or careless manner is one that intentionally or through negligence threatens the life or safety of any person or threatens damage or destruction to property.
- y. Vehicles may not enter the movement area or cross runways unless the operator of the vehicle has received required training and authorization from the (Airport Operator) to operate on the movement area. Whenever possible, all airport vehicles must utilize the airport perimeter and service roads to transition between areas on the airport.
- z. Each vehicle operator is responsible for the activities of each vehicle passenger on the movement and safety areas of the airport.

1.7.2 Vehicle Regulations.

- a. No vehicle may be operated on the movement and safety areas unless it has proper registration in the (State) or is a qualified off-road vehicle that is not normally operated on public streets but has received the approval of the (Airport Operator).
- b. All vehicles operated on the movement and safety areas must have vehicle liability insurance, as required by the (Airport Operator).
- c. The (Airport Operator) must approve tenant vehicles operated on the movement area. It is highly recommended the airport operator institute similar approval procedures for vehicles operated in the non-movement area. These vehicles may display a (Airport Operator) sticker or an airport-approved company logo that is at least _____ inches.
- d. Carts or pieces of equipment being towed or carried after darkness must have side and rear reflectors or rear lights.
- e. No vehicle must be permitted on the movement and safety areas unless—
 - (1) It is properly marked, as outlined in FAA Advisory Circular 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*.
 - (2) It is in sound mechanical condition with unobstructed forward and side vision from the driver's seat.
 - (3) It has the appropriately rated and inspected fire extinguishers (fuel trucks or other vehicles).

- (4) It has operable headlamps and brake lights.
- f. Vehicles operating on the movement area must be equipped with operating rotating beacon or equivalent per AC 150/5210-5 as required.
- g. All aircraft refueling vehicles and any other vehicles 8-feet or more in width must be equipped with clearance lights, a flashing amber beacon and flashing front, and tail lights that are activated at all times when operating on the movement and safety areas.

1.7.3 Vehicular Accidents. Operators of vehicles involved in an accident on the airport that results in injury to a person or damage to an aircraft, airport property, or a vehicle must—

- (1) Immediately stop and remain at the scene of the accident.
- (2) Render reasonable assistance, if capable, to any person injured in the accident.
- (3) Report the accident immediately to the (Airport Operator) before leaving the scene, if possible.
- (4) Provide and surrender the following to any responding (Airport Operator) personnel: name and address, airport identification card, state driver's license, and any information such personnel need to complete a motor vehicle accident report.

Section 2. Driving on the Non-Movement Areas

2.1 Non-movement areas include aprons, portions of the runway safety areas (RSA), and other areas not under control of the ATCT. Anyone authorized to operate a motorized vehicle on the movement and safety areas may do so on the non-movement areas (except RSA) without being in positive radio contact with the ATCT. These areas include—

- a. Service roads
- b. Cargo aprons
- c. General aviation apron
- d. Air carrier apron(s)

2.2 Driving. Operating within the apron areas requires the vehicle driver to exercise extreme caution as aircraft are always moving, aircraft passengers may be walking from an aircraft to the gate, and noise levels are high.

2.2.1 Vehicle drivers—

- a. Never drive between safety cones or across delineated passenger walkways.
- b. Watch cockpit blind spots—pilots typically cannot see behind or below the aircraft.
- c. Avoid jet blast or prop wash, which can blow debris or overturn vehicles.

- d. Be aware and avoid moving propellers that can cause damage, injury, or death.
 - e. Be aware of other vehicle movements—you may not hear them approaching due to aircraft engine noise.
 - f. Yield to aircraft, passengers, and emergency vehicles, which ALWAYS have the right-of-way on the Air Operations Area of the airport.
 - g. Pay particular attention when aircraft beacons are illuminated, as they may be moving or preparing to move. Obey the directions of flaggers (if available).
- 2.2.2** When traveling on the apron, always use designated vehicle service roads. Driving close to buildings, around vehicles, or aircraft is prohibited. This policy helps to establish a predictable order to vehicle movements in congested areas and helps to ensure their visibility to aircraft and other vehicles.
- 2.2.3** Parked aircraft may still have their engines running, so be aware of the hazards of jet blast or prop wash, which may overturn vehicles. Before an aircraft engine is started, pilots are supposed to turn on the anti-collision beacon(s) which may be flashing red or white. However, don't assume that if the beacon(s) aren't flashing that the engine(s) isn't (aren't) running. In some instances, propellers and engine spinners are marked to indicate when the engine is operating. A pilot's ability to maneuver quickly on the ground is limited. Propellers and jet engines can cause significant damage and injury to personnel. In addition, cockpit visibility prohibits the pilot from seeing under the nose or behind the aircraft and limits the pilot's ability to avoid ground vehicles.
- 2.2.4** **Nighttime and Poor Weather Driving Conditions.** Poor weather (snow, fog, rain, etc.) conditions can and will obscure visual cues, roadway markings, and airport signs. Vehicle operators will remain vigilant of their surroundings and operating boundaries. Watch out for snow removal equipment and aircraft operating in the vicinity under low-visibility conditions. There are additional risks present under these conditions consult AC 150/5200-30C, *Airport Winter Safety and Operations* and the airports *Snow and Ice Control Plan*.

Section 3. Driving, Taxiing or Towing Aircraft on the Movement Areas

- 3.1** Drivers, anyone taxiing, or towing an aircraft who are authorized to operate on the movement area require more training and vigilance since there are dangers associated with this area that are not present on non-movement areas. In addition to the principals for driving on the non-movement area, drivers and anyone that has access to the movement area must be cognizant of the meanings of airfield signs, markings, and lighting configurations. Additionally, they must be able to communicate with air traffic control (ATC) and be able to follow ATC directions. Airport Operator must have a MOU or LOA with the local ATCT regarding any specific procedures for operations on the movement areas.

3.2 ATCT Control all Movement Areas as defined: the runways, taxiways, and other areas of the airport that are used for taxiing, hover taxiing, air taxiing, and takeoff and landing of aircraft, exclusive of loading aprons and aircraft parking areas. Movement areas are considered “positive control,” meaning that all vehicle operators and anyone taxiing or towing an aircraft will need permission from ATC before entering the area.

3.3 Authorized Vehicles and Anyone Taxiing or Towing an Aircraft. Only vehicles, taxiing, or towing an aircraft, that are needed for airport operations may enter a movement area with radio contact through ATCT. Therefore, fuel trucks, maintenance vehicles, catering trucks, and other non-essential vehicles will not be permitted to enter the movement areas without being escorted. Exceptions may include Airport Operator authorized (radio equipped) vehicles with appropriately trained personnel. Airport Operations/Maintenance must coordinate all other vehicle operations within the movement areas.

3.4 Taxiways.

3.4.1 Designations. Aircraft use taxiways to move to and from the aprons and the runways. Taxiways are designated by letters or by a letter/number combination such as A, B, G2, or B3. (The Airport Operator can include a diagram of the airport here with the taxiway and runway designations.)

3.4.2 Lighting. Taxiways are lighted with **blue** edge lighting and/or reflectors. Some taxiways are also lighted with **green** in-pavement, centerline lighting that also include Taxiway Lead On/Off lights, which alternate yellow/green. (*Use airport-specific example here.*)

3.4.3 Signs. The signs used on taxiways are direction, destination, location, and taxiway ending marker signs.

3.4.3.1 *Direction and Designation Signs* have black lettering and a directional arrow or arrows on a yellow background. The arrow indicates the direction to that taxiway, runway, or destination.



Taxiway Direction Sign

3.4.3.2 *Location Signs* have **yellow lettering** on a **black background**. The location sign below indicates that the operator of the vehicle/equipment is located on the named taxiway or runway. Black square, you are here.



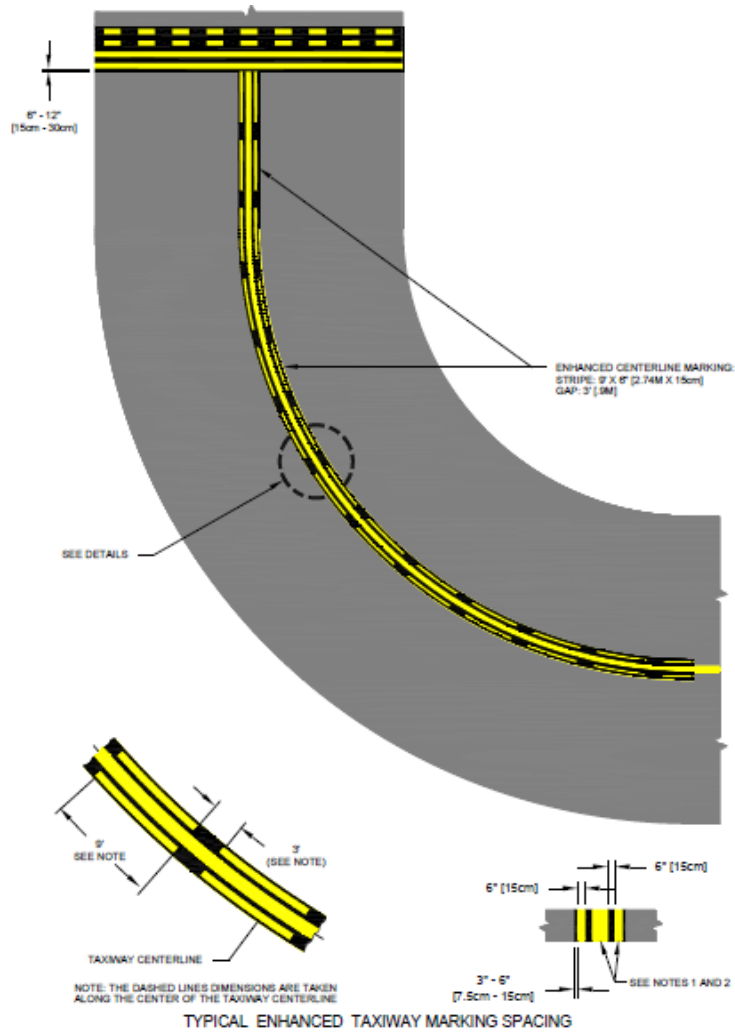
Taxiway Location Sign

- 3.4.3.3** *Runway Safety Area/Object Free Zone (RSA/OFZ) and Runway Approach Area Boundary Signs*, when required, identify the boundary of the runway safety area/OFZ or the runway approach area to the pilot and vehicle operator. The driver can use these signs to identify when the vehicle is clear of the runway environment. It has a **black inscription** that depicts the hold line marking on a **yellow background**.



Runway Safety Area/OFZ and Runway Approach Boundary Symbol

- 3.4.4** *Markings*. Pavement markings on taxiways are always yellow. The taxiway centerline is painted on all taxiways. On the edges of some taxiways, there is a solid, double yellow line or double-dashed line. If pavements are usable on both sides of the line, the lines will be dashed; if not, the lines will be solid.
- 3.4.4.1** **Enhanced Taxiway Centerline Markings** provide supplemental visual cues to alert pilots of an upcoming runway holding position marking (Pattern A) for minimizing the potential for runway incursions. To reinforce situational awareness before entering a runway, this safety enhancement is only used on those taxiways that directly enter a runway.

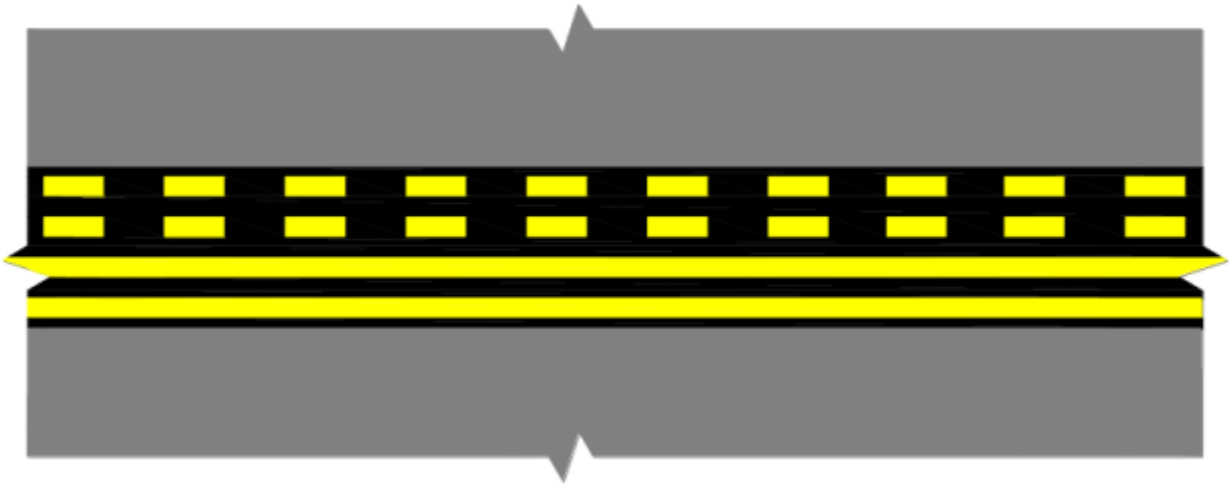


Enhanced Taxiway Centerline Markings

Notes:

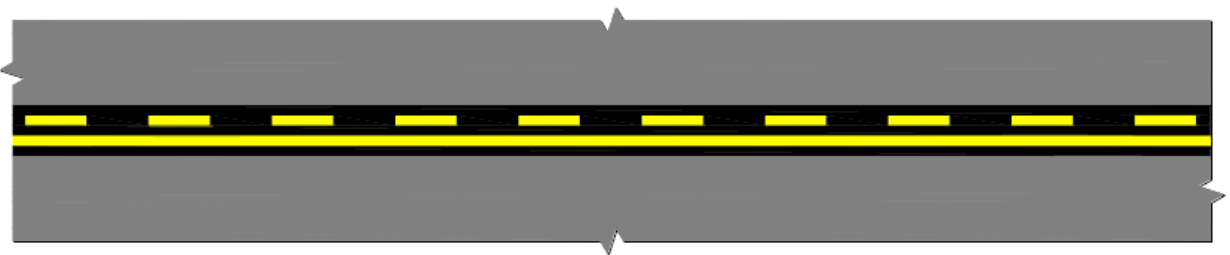
1. Dashed lines for the enhanced taxiway centerline marking are 6 inches (15 cm) in width and separated 6 inches (15 cm) from the taxiway centerline. This applies to both 6 inches (15 cm) and 12 inches (30 cm) taxiway centerline markings.
2. The taxiway centerline markings may be shifted left or right to avoid interference with the taxiway centerline lights.

- 3.4.4.2** *Runway Holding Position Markings* are located across each taxiway that leads directly onto a runway. These markings are made up of **two solid lines and two broken yellow lines** and denote runway holding position markings. These markings are always co-located with a Runway Holding Position Sign. A vehicle operator must not cross from the solid-line side of the marking without first obtaining clearance.



Runway Holding Position Marking

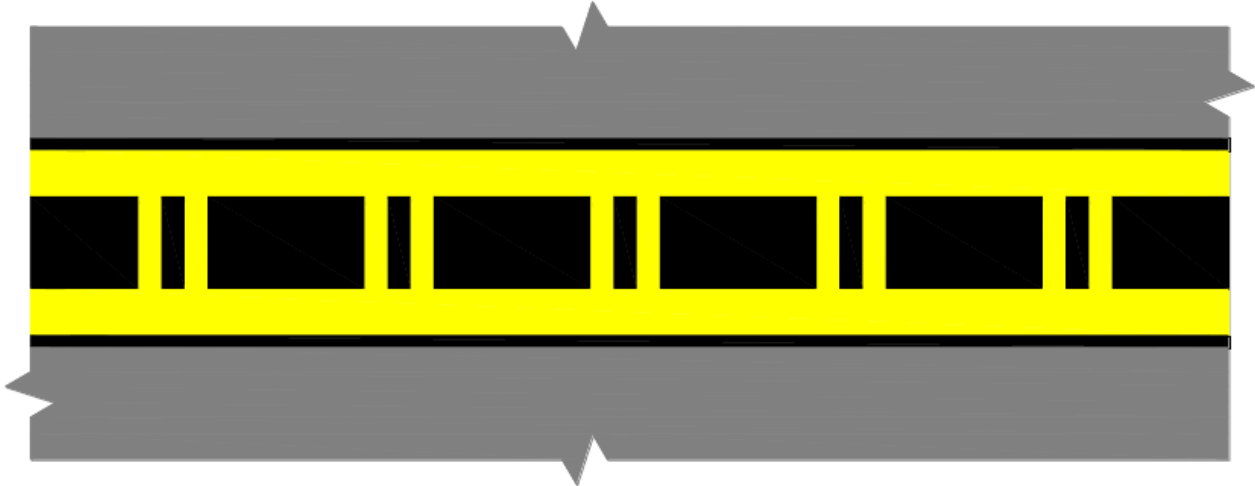
- 3.4.4.3** *Non-Movement Area Boundary Markings* consist of two yellow lines (one solid and one dashed). The solid line is located on the non-movement area side, while the dashed yellow line is located on the movement area side. A vehicle operator is not to cross from the solid-line side without first contacting the ATCT and obtaining a clearance to operate on the movement area



Non-Movement Area Boundary Marking

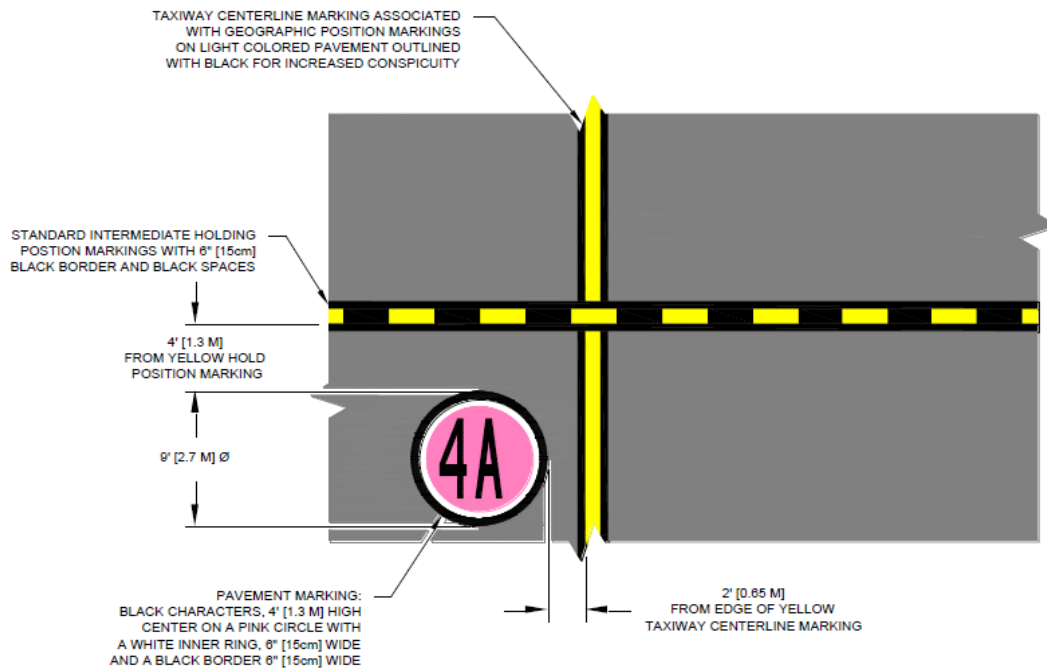
- 3.4.4.4** *Instrument Landing System (ILS) Critical Area Holding Position Markings* are comprised of **two parallel yellow lines** with lines running perpendicular between the two parallel yellow lines. These markings identify the location on a taxiway where an aircraft or vehicle is to stop when it does not have clearance to

enter ILS critical areas. The ILS critical area must remain clear, especially in inclement weather. If a vehicle proceeds past this ILS marking, it might cause a false signal to be transmitted to the landing aircraft.



ILS Hold Position Marking

- 3.4.4.5** *The geographic position marking (GPM)* is used repeatedly along a designated taxi route to serve as an indicator of a location (a spot) so that pilots can confirm holding points or report their location while taxiing during periods of low-visibility operations.



Geographic Position Markings

3.5 Runways (*Use Airport Specific Examples*).

- 3.5.1 Designations.** Runways are areas where aircraft land and take off. Runways are always designated by a number such as 1 or 19. The number indicates the compass heading of the runway. An aircraft taking off on runway 19 is headed 190 degrees. In the event of parallel runways, a letter designation is added to indicate either the right or left runway; e.g., **1L-19R, 1R-19L**.
- 3.5.2 Lighting.** Runways are lighted with a variety of colored lights.
- 3.5.2.1 Runway Edge Lights** are white. If the runway has an **instrument approach**, the last 2,000 feet of the runway will be yellow in color.
- 3.5.2.2 Runway Centerline Lights** are white except for the last 3,000 feet of the runway, where they begin to alternate **red** and **white**. For the last 1,000 feet of runway the centerline lights are all **red**.
- 3.5.2.3 Runway Touchdown Zone Lights** are white.
- 3.5.2.4 Runway End/Threshold Lights** are split lenses that are **red/green**.
- 3.5.3 Signs.**
- 3.5.3.1 Mandatory Holding Position Signs for Runways** have white numbering/lettering with a black outline on a red background with a white border. These are located at each entrance to a runway and at the edge of the runway safety area/obstacle-free zone and are co-located with runway holding position markings.

Do not proceed beyond these signs until clearance is given by the ATCT to enter onto the runway.



Holding Position Sign

- 3.5.3.2** *Instrument Landing System (ILS) Holding Position Signs* have white letters with a black outline on a red background with a white border. These signs tell pilots and vehicle operators where to stop to avoid interrupting a type of navigational signal used by landing aircraft. This is a critical area, and a vehicle/equipment operator must remain clear of it (*use airport-specific policy*). If a vehicle proceeds pass this microwave landing system/ILS marking, it may cause a false signal to be transmitted to the landing aircraft.



ILD Hold Sign

- 3.5.3.3** *Holding Position Signs for Runway Approach Areas.* The inscription on a sign for a runway approach area is the associated runway designation followed by a dash and the abbreviation APCH for approach. This sign has **white numbering with a black outline on a red background with a white border.** The sign is installed on taxiways located in approach areas where an aircraft on a taxiway would either cross through the runway safety area or penetrate the airspace required for the approach or departure runway.



Approach Sign

- 3.5.3.4** *Runway Distance Remaining Signs* provide distance remaining information to pilots during takeoff and landing operations. They have white numbering on a black background. The number on the sign provides the remaining runway length in 1,000-foot increments.



Runway Distance Remaining Sign

- 3.5.3.5** *Runway Exit Sign* is a destination sign located prior to the runway/ taxiway intersection on the side and in the direction of the runway where the aircraft is expected to exit. This sign has **black lettering** and a **directional arrow** on a **yellow background**.



Direction/Runway Exit Sign

3.5.4 **Markings.**

- 3.5.4.1** *Pavement markings on a runway are white.* Runway Threshold Markings and Runway Threshold Bars, Runway Aiming Point Markings, Runway Designation Markings, Runway Touchdown Zone Markings, Runway Centerline Markings, Runway Side Stripes, and Displaced Threshold Markings are white. The only non-white lines on a runway are yellow lead-in/-off lines that

extend from the runway centerline and hold lines for a specific operation known as land and hold short.

Section 4. Communications

- 4.1** Any vehicle driving and anyone taxiing, or towing an aircraft on the movement areas (**runways and taxiways**) must have contact with the ATCT or be capable of monitoring and transmitting on the CTAF. Vehicle operators, anyone taxiing, or towing an aircraft must always monitor the appropriate radio frequency when in the movement areas on controlled airports. Permission must be requested and clearance given prior to driving, taxiing, or towing an aircraft on a movement area. A vehicle that is equipped with a radio and a driver who is movement area qualified may escort vehicles or anyone towing an aircraft without radios; these vehicles must stay under the control of the escort at all times. When a movement area is closed for construction, vehicles may traverse that area without ATCT contact but must be escorted if their travels require them to cross an active movement area or the protected area of the RSA.
- 4.2** The ATCT controller may use separate or common radio frequency to control all ground traffic, vehicle, and aircraft in the movement areas. These frequencies are only to be used to get clearance onto and off the movement areas. When the ATCT is closed, the CTAF can be used to announce a driver's intentions when operating within the movement area.
- 4.3** **Phraseology.** Vehicle operators and anyone taxiing or towing an aircraft must contact the ATCT ground controller each and every time they proceed onto or leave the movement area. When proceeding onto a movement area, vehicle operators and anyone taxiing or towing an aircraft must tell the controller three things: **WHO you are, WHERE you are, and WHAT your intentions are.** Vehicle operators must always acknowledge all communications with ATC phraseology i.e. read back the clearance with their vehicle, tug or aircraft identification so ground control and other persons know that the message was received. **Vehicle operators must always give aircraft and ground control transmissions priority unless an emergency exists.** Very high frequency frequencies are for the primary use of aircraft and ATCT personnel. Some typical transmissions are as follows:
- Vehicle: (AIRPORT NAME) ground control; this is Airport 21 vehicle at Charlie 6. Request permission on all taxiways for a pavement inspection.”
 - Vehicle: (AIRPORT NAME) ground control; this is Airport 21 vehicle at Taxiway Alpha. Request clearance south on runway 19 right for a light inspection.”
 - Anyone taxiing or towing an aircraft: (AIRPORT NAME) ground control; this is (Airline personnel or maintenance) taxi, and Aircraft identification number, at, blast fence, gate#, apron name, request taxi (or tow) to gate#, or terminal name.

Reply transmissions may be brief, such as—

- ATCT: “Airport 21 vehicle, hold short of runway 19 right.”
- Driver: “Airport 21 vehicle holding short of runway 19 right.”
- ATCT: “Airport 21 vehicle cleared off south on runway 19 right.”
- “Please expedite, landing aircraft on a 10 mile final for runway 19 right.”
- Driver: “Airport 21 vehicle proceeding off south on runway 19 right will expedite.”

- Driver: "Ground control, Airport 21 vehicle is off of runway 19 right.

ATCT Communication with anyone taxiing or towing an Aircraft.

- ATCT: "Sunrise 21, N1234, or tug XXX, taxi/tow to terminal 5, via taxiway A, C, Z. (If the clearance includes to hold short of a runway, hold short of that specific runway)
- Anyone: "Sunrise 21, N1234, or tug XXX, taxi/tow to terminal 5, via A, C, Z Terminal hold short of runway 19 right." (If the clearance includes to hold short of a runway, repeat the runway to hold short of.)

NOTE: If you are unsure what the controller has said, or if you don't understand an instruction, you can ask the controller to repeat it. Good communications only occur when each party knows and understands what the other is saying.

4.4 Common Use Phrases. (Reference Pilot Controller Glossary Aeronautical Information Manual)

What Is Said:	What It Means:
Acknowledge	Let me know you have received and understand this message.
Advise Intentions	Let me know what you plan to do and do not do it until ATCT provides authorization.
Affirmative	Yes.
Correction	An error has been made in the transmission, and the correct version follows.
Go Ahead	Proceed with your message only.
Hold/Hold Short	Phrase used during ground operations to keep a vehicle or aircraft within a specified area or at a specified point while awaiting further clearance from air traffic control.
How do you hear me?	Question relating to the quality of the transmission or to determine how well the transmission is being received.
Immediately or without delay	Phrase used by ATC when such action compliance is required to avoid an imminent situation.
Negative	"No" or "permission not granted" or "that is not correct."
Out	The radio conversation is ended, and no response is expected.
Over	My radio transmission is ended, and I expect a response

What Is Said:	What It Means:
Read Back	Repeat my message to me.
Roger	I have received all of your last transmission.
Stand By	Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in "stand by for clearance." The caller can reestablish contact if a delay is lengthy.
Unable	Indicates inability to comply with a specific instruction, request, or clearance.
Verify	Request confirmation of information.
Wilco	I have received your message, understand it, and will comply with it.

4.5 Phonetic Aviation Alphabet. Because some letters have similar sounds, like B and P, the international aviation industry uses the following words to reduce confusion. For example; Taxiway B would be referred to as Taxiway Bravo on the radio.

A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Fox-Trot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-Ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

4.6 ATCT Light Gun Signals. Air traffic controllers have a backup system for communicating with aircraft or ground vehicles if their radios stop working. The controller has a light gun in the tower that can send out different colored lights to tell the pilot or driver what to do.

If a vehicle operator or anyone taxiing or towing an aircraft experiences a radio failure on a runway or taxiway, the operator can vacate the runway as quickly and safely as possible and contact the ATCT by other means, such as a cellular telephone, and advise the ATCT of the situation. If this is not practical, then the driver, or anyone taxiing or towing an aircraft after vacating the runway, can turn the vehicle, tug or aircraft toward the tower and start flashing the vehicle, tug, or aircraft (landing lights) headlights and wait for the controller to signal with the light gun.

ATC Light Signals, and their meaning, are as follows:

Light Signal Meanings

Color and type of signal	Aircraft on the ground	Aircraft in flight	Movement of vehicles, equipment and personnel
Steady green	Cleared for takeoff	Cleared to land	Cleared to cross; proceed; go
Flashing green	Cleared to taxi	Return for landing (to be followed by steady green at the proper time)	Not applicable
Steady red	Stop	Give way to other aircraft and continue circling	Stop
Flashing red	Taxi clear of landing area or runway in use	Airport unsafe- Do not land	Clear the taxiway/runway
Flashing white	Return to starting point on airport	Not applicable	Return to starting point on airport
Alternating red and green	General Warning Signal- Exercise Extreme Caution	General Warning Signal- Exercise Extreme Caution	General Warning Signal- Exercise Extreme Caution

4.7 Safety. The FAA defines runway incursion as any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

4.7.1 Runway Incursions. Runway incursions are primarily caused by error in one or more of the following areas:

- Pilot/Anyone taxiing or towing an aircraft/ground and vehicle/controller communication failure
- Airport unfamiliarity
- Loss of situational awareness and not using a current airport diagram

An example of an incursion is a vehicle at an airport with an operating ATCT straying onto a runway in front of an aircraft causing the pilot to take an action to avoid a collision.

4.7.2 Right-of-Way. When driving on the airfield, vehicle operators and anyone taxiing or towing an aircraft need to always be aware of their location and the meaning of all pavement markings, lights, and signs. When on the aprons and

taxiways, stay away and steer clear of aircraft. **Aircraft always have the right-of-way.**

NOTE: Any individual involved in a runway incursion can receive remedial airfield drivers, taxiing or towing an aircraft training given by the (AIRPORT OPERATOR or their designated representative). Remedial drivers training is not in lieu of the airport operators established consequences of non-compliance with the airport operator's drivers training program, remedial drivers training is in addition to the airport operator's implementation of a progressive penalty program. Remedial drivers training is not considered acceptable consequences of noncompliance

This is an appropriate place to describe an individual airport's runway and taxiway identification system. In addition to the system description, the FAA recommends that the airport operator provide a runway (RY) and taxiway (TWY) diagram, especially if the airport's identification system varies from the norm or is otherwise complicated.

SAMPLE
GROUND VEHICLE OPERATIONS & TAXIING OR
TOWING AN AIRCRAFT FAMILIARIZATION PROGRAM
TRAINING RECORD

Employee's Name: _____

Employee's Position: _____

Company Name: _____

Driver's License State and Number: _____

Driver's License Expiration Date: _____

I agree to abide by all rules and regulations prescribed for the operations of a vehicle within the airport operations area.

Vehicle Operator: As of this time, I certify that I hold a current and valid driver's license. If for any reason my license becomes invalid, I will notify the (AIRPORT OPERATOR) immediately.

Anyone Taxiing or Towing an Aircraft: I certify that I hold a current and valid FAA A&P certificate, are authorized by my maintenance facility or operator to taxi or tow their aircraft and trained by my company to start, run, and taxi or tow that particular type of aircraft. Further, the operator will ensure that during an aircraft towing operation, a trained person or pilot will attend the aircraft controls during the operation. Operations with a "Towbarless tractor", with maximum gross weight of 12,500 pounds or greater, there will be a trained person in the cockpit that can stop the aircraft if the tow bar breaks. If for any reason my company authorization becomes invalid, I will notify the (AIRPORT OPERATOR) immediately.

Sign your name and indicate today's date below:

(Name)

(Date)

PERMITTED VEHICLE OPERATING AREAS

Location

- General Aviation Apron
- Air Carrier/Terminal Apron
- Firehouse
- Air Cargo
- Tie-downs
- General Aviation Hangars
- All Areas

I certify that the above named individual has satisfactorily completed the Driver and Anyone Taxiing or Towing an Aircraft Training Program.

Instructor's Signature:

APPENDIX C. SAMPLE LETTER OF AGREEMENT GUIDANCE AND DETAILS

(Insert Airport Operator/ Authority) Federal Aviation Administration (FAA) (Insert Air Traffic Control Tower (ATCT) associated with Airport), (Insert Technical Operations Maintenance (Tech Ops)), and (Insert Tenants, Fix Base Operations (FBO), or Department of Defense (DoD) as required).

LETTER OF AGREEMENT (LOA)**Effective: Date Here****SUBJECT: Requirements for Operating in the Runway Safety Areas (RSAs)****1. Purpose.**

1.1 This Letter of Agreement (LOA) defines the responsibilities and procedures parties entering into this agreement must consider for accessing, operating, and exiting the airport's RSA during air carrier or aircraft operations. The LOA will typically be between the Airport Operator/Authority, Air Traffic Control Tower, and Technical Operations. However, it may include others agencies such as airport tenants, Fix Base Operators or Department of Defense.

2. Cancellation. Previous letter (date) is cancelled.**3. Responsibilities.**

3.1 Each line of business identified in Para 1.1 has some responsibility for ensuring the RSA is protected during air carrier or aircraft operations. In order to ensure that responsibility is covered for any given airport, a list of responsibilities by line of business is identified in the ensuing paragraph. The list of responsibilities are not all inclusive, but should be used as a framework to build specific airport requirements for accessing, operating, or exiting their RSA.

3.1.1 Airport Operator responsibilities will be to:

3.1.1.1 Identify the movement area which consists of the runways, taxiways, and other areas of the airport that aircraft use for taxiing, takeoff, and landing, exclusive of loading aprons and aircraft parking areas.

3.1.1.2 Include an Attachment 1 depicting the established movement area with the identified RSA.

3.1.1.3 Establish the premise that the RSA shall normally be clear at all times during air carrier/aircraft operations.

3.1.1.4 Develop a procedure that permits vehicles or equipment to be in the RSA for a limited amount of time. (Examples may include scheduled or unscheduled NAVAID maintenance or repair,

mowing operations, or other airport safety related circumstances where personnel and equipment will be in the RSA during air carrier/aircraft operations). When circumstances allow, drivers may drop off needed equipment within the RSA and park the vehicle outside the RSA if practicable.

- 3.1.1.5** Establish procedures for entry/exit from RSA based on conditions at the airport, e.g. inclement weather, night operations, construction, etc.
- 3.1.1.6** 3.1.1.6. Collaborate with ATCT on establishing required radio frequency for RSA entry/exit.
- 3.1.1.7** 3.1.1.7. Identify specific/general RSA entry/exit location(s).
- 3.1.1.8** 3.1.1.8. Ensure/establish positive control procedures for entry/exit of RSA.
- 3.1.1.9** 3.1.1.9. Establish/monitor communication procedures for the entry/exit of the RSA.
- 3.1.1.10** 3.1.1.10. Address both vehicle/pedestrian operations in the RSA. (List not all inclusive.)
- During air carrier operations.
 - Emergency responses to the RSA.
 - Maintenance of NAVAIDs, signs, and lighting outside of the movement area.
 - Vehicle operation (i.e. Wildlife Biologist, Tech Ops, etc.).
- 3.1.1.11** Establish non-towered procedures for entry/exit of the RSA, e.g. CTAF, PCL utilization.
- 3.1.1.12** Accomplish coordination for activities that can occur in the RSA during air carrier operations.
- 3.1.1.13** Provide/supplement training for operators with permission to enter/exit the RSA.
- 3.1.1.14** Collaborate with all airport agencies in describing any enforcement action for violating RSA entry/exit procedures.
- 3.1.1.15** Establish monitoring/assurance tracking matrix to gauge compliance with RSA procedures.
- 3.1.2** Air Traffic Control Tower responsibilities will be to:
- 3.1.2.1** Collaborate with the airport operator on RSA entry/exit requirements.

4. Attachments.

4.1 Attachment 1 - Airport diagram denoting Movement Areas with RSA delineated.

5. Deviations.

5.1 Deviations from procedures identified herein must be approved only after coordination between the Airport Operator/Authority, Air Traffic Control Tower, Tech Ops, or any other agency that are signatory on the LOA. At Non-towered locations, the Airport Operator/Authority, Tech Ops, and any other agency that are signatory on the LOA are the approval authority.

Name
Air Traffic Manager
Airport Traffic Control Tower

Name
Technical Operation Manager
Tech Operation

Name
Director of Operations
Metropolitan Airports Commission

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