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Letting September 20, 2019

Notice to Bidders, Specifications and Proposal



**Illinois Department
of Transportation**

Springfield, Illinois 62764

**Contract No. TR010
Tri-Township Airport
Savanna, Illinois
Carroll County
Illinois Project No. SFY-4668
SBG Project No. 3-17-SBGP-133/139**



1. **TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 10:00 a.m. on September 20, 2019, at which time the bids will be publicly opened from the iCX SecureVault.
2. **DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. TR010
Tri-Township Airport
Savanna, Illinois
Carroll County
Illinois Project No. SFY-4668
SBG Project No. 3-17-SBGP-133/139**

Install Precision Approach Path Indicator (PAPI) Units at Both Runway Ends

For engineering information, please contact Ronald M. Hudson, AICP of Hanson Professional Services, Inc. at 630.368.2059.

3. INSTRUCTIONS TO BIDDERS.

- (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 10-18 of the Illinois Standard Specifications for Construction of Airports, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.
- (b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.

4. **AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded within 90 calendar days to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

5. **PRE-BID CONFERENCE.** N/A

6. **DISADVANTAGED BUSINESS POLICY.** The DBE goal for this contract is 2.0%.

7. **SPECIFICATIONS AND DRAWINGS.** The work shall be done in accordance with the Illinois Standard Specifications for Construction of Airports, the Special Provisions dated July 26, 2019, and the Construction Plans dated July 26, 2019 as approved by the Illinois Department of Transportation, Division of Aeronautics.

- 8. BIDDING REQUIREMENTS AND BASIS OF AWARD.** When alternates are included in the proposal, the following shall apply:
- a. Additive Alternates
 - (1) Bidders must submit a bid for the Base Bid and for all Additive Alternates.
 - (2) Award of this contract will be made to the lowest responsible qualified bidder computed as follows:

The lowest aggregate amount of (i) the Base Bid plus (ii) any Additive Alternate(s) which the Department elects to award.

The Department may elect not to award any Additive Alternates. In that case, award will be to the lowest responsible qualified bidder of the Base Bid.
 - b. Optional Alternates
 - (1) Bidders must submit a bid for the Base Bid and for either Alternate A or Alternate B or for both Alternate A and Alternate B.
 - (2) Award of this contract will be made to the lowest responsible qualified bidder computed as follows:

The lower of the aggregate of either (i) the Base Bid plus Alternate A or (ii) the Base Bid plus Alternate B.
- 9. CONTRACT TIME.** The Contractor shall complete all work within the specified contract time. Any calendar day extension beyond the specified contract time must be fully justified, requested by the Contractor in writing, and approved by the Engineer, or be subject to liquidated damages.
- The contract time for this contract is 31 calendar days.
- 10. INDEPENDENT WEIGHT CHECKS.** The Department reserves the right to conduct random unannounced independent weight checks on any delivery for bituminous, aggregate or other pay item for which the method of measurement for payment is based on weight. The weight checks will be accomplished by selecting, at random, a loaded truck and obtaining a loaded and empty weight on an independent scale. In addition, the department may perform random weight checks by obtaining loaded and empty truck weights on portable scales operated by department personnel.
- 11. MATERIAL COST ADJUSTMENTS.** Federal Aviation Administration rules prohibit the use of escalation clauses for materials. Therefore, the Illinois Department of Transportation, Division of Aeronautics cannot offer any material cost adjustment provisions for projects that utilize Federal Funds.
- 12. GOOD FAITH COMPLIANCE.** The Illinois Department of Transportation has made a good faith effort to include all statements, requirements, and other language required by federal and state law and by various offices within federal and state governments whether that language is required by law or not. If anything of this nature has been left out or if additional language etc. is later required, the bidder/contractor shall cooperate fully with the Department to modify the contract or bid documents to correct the deficiency. If the change results in increased operational costs, the Department shall reimburse the contractor for such costs as it may find to be reasonable.

By Order of the
Illinois Department of Transportation

Omer Osman,
Acting Secretary



Sponsor _____ Item No. _____

IL Proj. No. _____ AIP Proj. No. _____ Letting Date _____

KNOW ALL MEN BY THESE PRESENTS, That We _____

_____ as PRINCIPAL, and _____

_____ as SURETY, are held jointly, severally and firmly bound unto the SPONSOR identified above, in the penal sum of 5 percent of the total bid price, well and truly to be paid unto said SPONSOR, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH, that whereas, the PRINCIPAL has submitted a bid proposal to the SPONSOR through its AGENT, the State of Illinois, Department of Transportation, Division of Aeronautics, for the improvement designated by the Transportation Bulletin Item Number and Letting Date indicated above.

NOW, THEREFORE, if the SPONSOR through its AGENT shall accept the bid proposal of the PRINCIPAL; and if, after award by AGENT on behalf of SPONSOR, the PRINCIPAL shall enter into a contract in accordance with the terms of the bidding and contract documents, including evidence of the required insurance coverages, and providing such bond as specified with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof; or if, in the event of the failure of the PRINCIPAL to make the required DBE submission or to enter into such contract and to give the specified bond, the PRINCIPAL pays to the SPONSOR the difference not to exceed the penalty hereof between the amount specified in the bid proposal and such larger amount for which the SPONSOR may contract with another party to perform the work covered by said bid proposal, then this obligation shall be null and void, otherwise, it shall remain in full force and effect.

IN THE EVENT the SPONSOR acting through its AGENT determines the PRINCIPAL has failed to comply with any requirement as set forth in the preceding paragraph, then SURETY shall pay the penal sum to the SPONSOR within fifteen (15) days of written demand therefor. If SURETY does not make full payment within such period of time, the AGENT may bring an action to collect the amount owed. SURETY is liable to the SPONSOR and to the AGENT for all its expenses, including attorney's fees, incurred in any litigation in which SPONSOR or AGENT prevail either in whole or in part.

In TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by their respective officers _____ day of _____ A.D., _____.

PRINCIPAL	SURETY
_____	_____
(Company Name)	(Company Name)
By _____	By: _____
(Signature & Title)	(Signature of Attorney-in-Fact)

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
County of _____

I, _____, a Notary Public in and for said County, do hereby certify that _____ and _____
(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of PRINCIPAL and SURETY, appeared before me this day in person and acknowledged respectively, that they signed and delivered said instrument as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____ A.D. _____
My commission expires _____

Notary Public

In lieu of completing the above section of the Proposal Bid Form, the Principal may file an Electronic Bid Bond. By signing the proposal and marking the check box next to the Signature and Title line below, the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the SPONSOR through its AGENT under the conditions of the bid bond as shown above.

_____	<input type="checkbox"/>	_____
Electronic Bid Bond ID#	Company / Bidder Name	Signature and Title

ILLINOIS DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS

REQUIRED CONTRACT PROVISIONS FOR STATE FUNDED AIRPORT CONSTRUCTION PROJECTS

The following provisions are State of Illinois requirements and are in addition to the REQUIRED CONTRACT PROVISIONS FOR AIRPORT IMPROVEMENT PROGRAM AND FOR OBLIGATED SPONSORS

DISADVANTAGED BUSINESS POLICY

NOTICE: This proposal contains the special provision entitled "Disadvantaged Business Participation." Inclusion of this Special Provision in this contract satisfies the obligations of the Department of Transportation under federal law as implemented by 49 CFR 23 and under the Illinois "Minority and Female Business Enterprise Act."

POLICY: It is public policy that the businesses defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with State or Federal funds. Consequently, the requirements of 49 CFR Part 23 apply to this contract.

OBLIGATION: The Contractor agrees to ensure that the businesses defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of this contract. In this regard, the Contractor shall take all necessary and reasonable steps, in accordance with 49 CFR Part 23, to ensure that the said businesses have the maximum opportunity to compete for and perform portions of this contract. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

The Contractor shall include the above Policy and Obligation statements of this Special Provision in every subcontract, including procurement of materials and leases of equipment.

DBE/WBE CONTRACTOR FINANCE PROGRAM: On contracts where a loan has been obtained through the DBE/WBE Contractor Finance Program, the Contractor shall cooperate with the Department by making all payments due to the DBE/WBE Contractor by means of a two-payee check payable to the Lender (Bank) and the Borrower (DBE/WBE Contractor).

BREACH OF CONTRACT: Failure to carry out the requirements set forth above and in the Special Provision shall constitute a breach of contract and may result in termination of the contract or liquidated damages as provided in the special provision.

SPECIAL PROVISION FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000

Revised: March 2, 2019

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract the Contractor signs with a subcontractor.

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 contracts funded in whole or in part with federal or state funds. 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 progress payments;
- (b) Assessing sanctions;
- (c) Liquidated damages; and/or
- (d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform 2.0% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

- (a) The bidder documents enough DBE participation has been obtained to meet the goal or,
- (b) The bidder documents a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at:
<http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index>.

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement and failure of the bidder to comply will render the bid not responsive.

The bidder shall submit a DBE Utilization Plan (form SBE 2026), and a DBE Participation Statement (form SBE 2025) for each DBE company proposed for the performance of work to achieve the contract goal, with the bid. If the Utilization Plan indicates the contract goal will not be met, documentation of good faith efforts shall also be submitted. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract. The required forms and documentation must be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a Utilization Plan if it does not meet the bidding procedures set forth herein and the bid will be declared not responsive. In the event the bid is declared not responsive, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty and may deny authorization to bid the project if re-advertised for bids.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan is approved. All information submitted by the bidder must be complete, accurate and adequately document enough DBE participation has been obtained or document the good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. This means the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts the bidder has made. Mere *pro forma* efforts, in other words efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases and will be considered by the Department.

- (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable. In accordance with the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines the bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided it is otherwise eligible for award. If the Department determines the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification will also include a statement of reasons for the adverse determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period to cure the deficiency.

(c) The bidder may request administrative reconsideration of an adverse determination by emailing the Department at "DOT.DBE.UP@illinois.gov" within the five calendar days after the receipt of the notification of the determination. The determination shall become final if a request is not made on or before the fifth calendar day. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be reviewed by the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:

(1) 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.

(2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement.

(e) DBE as a material supplier:

(1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100 percent goal credit for the cost of materials or supplies obtained from a DBE manufacturer.

(3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

(a) **NO AMENDMENT.** No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be emailed to the Department at DOT.DBEP@illinois.gov.

(b) **CHANGES TO WORK.** Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, a new Request for Approval of Subcontractor will not be required. However, the Contractor must document efforts to assure the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(c) **SUBCONTRACT.** The Contractor must provide copies of DBE subcontracts to the Department upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.

(d) **ALTERNATIVE WORK METHODS.** In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

(1) The replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or

(2) The DBE is aware its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or

(3) The DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The 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 Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the 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. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

- (1) The listed DBE subcontractor fails or refuses to execute a written contract;
- (2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements;
- (4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.
- (6) The Contractor has determined the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides written notice to the Contractor of its withdrawal;
- (8) The listed DBE is ineligible to receive DBE credit for the type of work required;
- (9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;
- (10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the Contractor can self-perform the work for which the DBE contractor was engaged or so that the Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated or fails to complete its work on the Contract for any reason, the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

(f) FINAL PAYMENT. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes the work has not been satisfactorily

completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

(g) **ENFORCEMENT.** The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

(h) **RECONSIDERATION.** Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

SPECIAL PROVISION FOR WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012

Revised: April 2, 2015

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Resident Engineer on Division of Aeronautics Form "AER 723" within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

SPECIAL PROVISION FOR SUBCONTRACTOR MOBILIZATION PAYMENTS

Effective: November 2, 2017

Revised: April 1, 2019

To account for the preparatory work and the operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting according to Section 80-01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least seven days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form AER 260A submitted for the approval of the subcontractor's work.

Value of Subcontract Reported on Form AER 260A	Mobilization Percentage
Less than \$10,000	25%
\$10,000 to less than \$20,000	20%
\$20,000 to less than \$40,000	18%
\$40,000 to less than \$60,000	16%
\$60,000 to less than \$80,000	14%
\$80,000 to less than \$100,000	12%
\$100,000 to less than \$250,000	10%
\$250,000 to less than \$500,000	9%
\$500,000 to \$750,000	8%
Over \$750,000	7%

The mobilization payment to the subcontractor is an advance payment of the reported amount of the subcontract and is not a payment in addition to the amount of the subcontract; therefore, the amount of the advance payment will be deducted from future progress payments.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

SPECIAL PROVISION FOR PAYMENTS TO SUBCONTRACTORS

Effective: November 2, 2017

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 90-07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause. If reasonable cause is asserted, written notice shall be provided to the applicable subcontractor and/or material supplier and the Engineer within five days of the Contractor receiving payment. The written notice shall identify the contract number, the subcontract or material purchase agreement, a detailed reason for refusal, the value of payment being withheld, and the specific remedial actions required of the subcontractor and/or material supplier so that payment can be made.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section 7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

SPECIAL PROVISION FOR SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Subcontractor and Disadvantaged Business Enterprise Payment Reporting

The Contractor shall report all payments made to the following parties:

- (a) first tier subcontractors;
- (b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;
- (c) material suppliers or trucking firms that are part of the Contractor's submitted DBE utilization plan.

The report shall be made through the Department's on-line subcontractor payment reporting system within 21 days of making the payment.

SPECIAL PROVISION FOR ADDITIONAL STATE REQUIREMENTS FOR FEDERAL-AID CONSTRUCTION CONTRACTS

Effective: February 1, 1969

Revised: January 1, 2017

EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Contractor's noncompliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act, or the Illinois Department of Human Rights Rules and Regulations, the Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political sub-divisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

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

- (1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability

unrelated to ability, military status, or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.

(2) That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability (in accordance with the Illinois Department of Human Rights Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

(3) That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service.

(4) That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Department of Human Rights and IDOT and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

(5) That it will submit reports as required by the Illinois Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Illinois Department of Human Rights or IDOT, and in all respects comply with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.

(6) That it will permit access to all relevant books, records, accounts, and work sites by personnel of IDOT and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.

(7) That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by subcontractors; and further it will promptly notify IDOT and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply with these provisions. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

SPECIAL PROVISION FOR NPDES CERTIFICATION

In accordance with the provisions of the Illinois Environmental Protection Act, the Illinois Pollution Control Board Rules and Regulations (35 Ill. Adm. Code, Subtitle C, Chapter I), and the Clean Water Act, and the regulations thereunder, this certification is required for all construction contracts that will result in the disturbance of one or more acres total land area.

The bidder certifies under penalty of law that he/she understands the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR100000) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

The Airport Owner or its Agent will:

- 1) prepare, sign and submit the Notice of Intent (NOI)
- 2) conduct site inspections and complete and file the inspection reports
- 3) submit Incidence of Non-Compliance (ION) forms
- 4) submit Notice of Termination (NOT) form

Prior to the issuance of the Notice-to-Proceed, for each erosion control measure identified in the Storm Water Pollution Prevention Plan, the contractor or subcontractor responsible for the control measure(s) must sign the above certification (forms to be provided by the Department).

SPECIAL PROVISION FOR COMPLETION TIME VIA CALENDAR DAYS

It being understood and agreed that the completion within the time limit is an essential part of the contract, the bidder agrees to complete the work within 31 calendar days, unless additional time is granted by the Engineer in accordance with the provisions of the specifications. In case of failure to complete the work on or before the time named herein, or within such extra time as may have been

allowed by extensions, the bidder agrees that the Department of Transportation shall withhold from such sum as may be due him/her under the terms of this contract, the costs, as set forth in Section 80-09 Failure to Complete on Time of the Standard Specifications, which costs shall be considered and treated not as a penalty but as damages due to the State from the bidder by reason of the failure of the bidder to complete the work within the time specified in the contract.

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SECTION 80 PROSECUTION AND PROGRESS

This Special Provision amends the provisions of the Standard Specifications for Construction of Airports, adopted April 1, 2012 and shall be construed to be a part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

80-09 FAILURE TO COMPLETE ON TIME.

DELETE: "See contract documents for current schedule of deductions."

ADD:

Schedule of Deductions for Each Day of Overrun in Contract Time			
Original Contract Amount		Daily Charges	
From More Than	To and Including	Calendar Day	Work Day
\$ 0	\$ 100,000	\$ 475	\$ 675
100,000	500,000	750	1,050
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,275	1,725
3,000,000	6,000,000	1,425	2,000
6,000,000	12,000,000	2,300	3,450
12,000,000	And over	6,775	9,525

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SECTION 90 MEASUREMENT AND PAYMENT

This Special Provision amends the provisions of the Standard Specifications for Construction of Airports, adopted April 1, 2012 and shall be construed to be a part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

90-07 PARTIAL PAYMENTS.

DELETE: The entire section.

ADD: Partial payments will be made to the Contractor at least once each month as the work progresses. The payments will be based upon estimates, prepared by the Resident Engineer, of the value of the work performed and materials complete and in place in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the Section 90-08 PAYMENT FOR MATERIALS ON HAND. From the amount of partial payment so determined on Federal-Aid projects, there shall be deducted an amount up to ten percent of the cost of the completed work which shall be retained until all conditions necessary for financial closeout of the project are satisfied. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than \$1,000.00 will be approved for payment other than the final payment. A final voucher for under \$5.00 shall not be paid except through electronic funds transfer. (15 ILCS 405/9(b-1))

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, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Department 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 Section 90-09 ACCEPTANCE AND FINAL PAYMENT.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610) progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

In accordance with 49 USC § 47111, the Department will not make payments totaling more than 90 percent of the contract until all conditions necessary for financial closeout of the project are satisfied.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved.

90-10 TRUST AGREEMENT OPTION.

DELETE: The entire section.

APPENDIX A – FEDERAL AVIATION ADMINISTRATION (FAA) REQUIRED CONTRACT PROVISIONS

A1 ACCESS TO RECORDS AND REPORTS

A1.1 CONTRACT CLAUSE

ACCESS TO RECORDS AND REPORTS

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, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A2 AFFIRMATIVE ACTION REQUIREMENTS

A2.1 SOLICITATION CLAUSE

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

The following goal for female utilization in each construction craft and trade shall apply to all Contractors holding Federal and federally-assisted construction contracts and subcontracts in excess of \$10,000. The goal is applicable to the Contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or nonfederally related construction contract or subcontract.

AREA COVERED (STATEWIDE)

Goals for Women apply nationwide.

GOAL

Goal (percent)

Female Utilization..... 6.9

Until further notice, the following goals for minority utilization in each construction craft and trade shall apply to all Contractors holding Federal and federally-assisted construction contracts and subcontracts in excess of \$10,000 to be performed in the respective geographical areas. The goals are applicable to the Contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally-assisted or nonfederally related construction contract or subcontract.

<u>Economic Area (percent)</u>	Goal
056 Paducah, KY: Non-SMSA Counties - IL - Hardin, Massac, Pope KY - Ballard, Caldwell, Calloway, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, McCracken, Marshall	5.2
080 Evansville, IN: Non-SMSA Counties - IL - Edwards, Gallatin, Hamilton, Lawrence, Saline, Wabash, White IN - Dubois, Knox, Perry, Pike, Spencer KY - Hancock, Hopkins, McLean, Mublenberg, Ohio, Union, Webster	3.5
081 Terre Haute, IN: Non-SMSA Counties - IL - Clark, Crawford IN - Parke	2.5
083 Chicago, IL: SMSA Counties: 1600 Chicago, IL - IL - Cook, DuPage, Kane, Lake, McHenry, Will	19.6

3740 Kankakee, IL - IL - Kankakee	9.1
Non-SMSA Counties IL - Bureau, DeKalb, Grundy, Iroquois, Kendall, LaSalle, Livingston, Putnam IN - Jasper, Laporte, Newton, Pulaski, Starke	18.4
084 Champaign - Urbana, IL: SMSA Counties: 1400 Champaign - Urbana - Rantoul, IL - IL - Champaign	7.8
Non-SMSA Counties - IL - Coles, Cumberland, Douglas, Edgar, Ford, Piatt, Vermilion	4.8
085 Springfield - Decatur, IL: SMSA Counties: 2040 Decatur, IL - IL - Macon	7.6
7880 Springfield, IL - IL - Menard, Sangamon	4.5
Non-SMSA Counties IL - Cass, Christian, Dewitt, Logan, Morgan, Moultrie, Scott, Shelby	4.0
086 Quincy, IL: Non-SMSA Counties	3.1
IL - Adams, Brown, Pike MO - Lewis, Marion, Pike, Ralls	
087 Peoria, IL: SMSA Counties: 1040 Bloomington - Normal, IL - IL - McLean	2.5
6120 Peoria, IL - IL - Peoria, Tazewell, Woodford	4.4
Non-SMSA Counties - IL - Fulton, Knox, McDonough, Marshall, Mason, Schuyler, Stark, Warren	3.3
088 Rockford, IL: SMSA Counties: 6880 Rockford, IL - IL - Boone, Winnebago	6.3
Non-SMSA Counties - IL - Lee, Ogle, Stephenson	4.6
098 Dubuque, IA: Non-SMSA Counties - IL - JoDaviess IA - Atlamakee, Clayton, Delaware, Jackson, Winnesheik WI - Crawford, Grant, Lafayette	0.5
099 Davenport, Rock Island, Moline, IA - IL: SMSA Counties: 1960 Davenport, Rock Island, Moline, IA - IL - IL - Henry, Rock Island IA - Scott	4.6
Non-SMSA Counties - IL - Carroll, Hancock, Henderson, Mercer, Whiteside IA - Clinton, DesMoines, Henry, Lee, Louisa, Muscatine MO - Clark	3.4
107 St. Louis, MO: SMSA Counties: 7040 St. Louis, MO - IL - IL - Clinton, Madison, Monroe, St. Clair MO - Franklin, Jefferson, St. Charles, St. Louis, St. Louis City	14.7
Non-SMSA Counties - IL - Alexander, Bond, Calhoun, Clay, Effingham, Fayette, Franklin, Greene,	11.4

Jackson, Jasper, Jefferson, Jersey, Johnson, Macoupin, Marion,
Montgomery, Perry, Pulaski, Randolph, Richland, Union, Washington,
Wayne, Williamson
MO - Bollinger, Butler, Cape Girardeau, Carter, Crawford, Dent, Gasconade,
Iron, Lincoln, Madison, Maries, Mississippi, Montgomery, Perry, Phelps,
Reynolds, Ripley, St. Francois, St. Genevieve, Scott, Stoddard, Warren,
Washington, Wayne

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

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

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

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is Savanna, Illinois; Carroll County.

A3 BREACH OF CONTRACT TERMS

A3.1 CONTRACT CLAUSE

This provision is required for all contracts that exceed the simplified acquisition threshold as stated in 2 CFR Part 200, Appendix II (A). This threshold is occasionally adjusted for inflation and is now equal to \$150,000.

BREACH OF CONTRACT TERMS

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

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

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

A4 BUY AMERICAN PREFERENCE

A4.1 CONTRACT CLAUSE

- (a) The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program (AIP).
- (b) Any and all steel products used in the performance of this contract by the Contractor, subcontractors, producers, and suppliers are required to adhere to the Illinois Steel Products Procurement Act, which requires that all steel items be of 100 percent domestic origin and manufacture. Any products listed under the Federal Aviation Administration's (FAA) nationwide approved list of "Equipment Meeting Buy American Requirements" shall be deemed as meeting the requirements of the Illinois Steel Products Procurement Act.
- (c) The successful bidder will be required to assure that only domestic steel and domestically manufactured products will be used by the Contractor, subcontractors, producers, and suppliers in the performance of this contract. The North American Free Trade Agreement (NAFTA) specifically excluded federal grant programs such as the AIP. Therefore, NAFTA does not change the requirement to comply with the Buy American requirement in the Act. Exceptions to this are for products, other than steel, that:
 - (1) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990, are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality;
 - (2) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest;

- (3) the FAA has determined that inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent; or
- (4) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990,
 - (i) the cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components of the facility or equipment, and
 - (ii) final assembly of the facility or equipment has occurred in the United States.

The FAA must grant waivers for any items that are included in these above exceptions. Bidders can review items already approved under the FAA nationwide approved list of "Equipment Meeting Buy American Requirements" on the FAA website, which do not require a specific FAA waiver.

All waivers are the responsibility of the Contractor, must be obtained prior to the Notice to Proceed, and must be submitted to the Illinois Division of Aeronautics for review and approval before being forwarded to the FAA. Any products used on the project that cannot meet the domestic requirement, and for which a waiver prior to the Notice to Proceed was not obtained, will be rejected for use and subject to removal and replacement with no additional compensation, and the contractor deemed non-responsive.

A5 CIVIL RIGHTS - GENERAL

A5.1 CONTRACT CLAUSE

GENERAL CIVIL RIGHTS PROVISIONS

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

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

A6 CIVIL RIGHTS – TITLE VI ASSURANCE

A6.1 CONTRACT CLAUSE

A6.1.1 Title VI Solicitation Notice

Title VI Solicitation Notice:

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

A6.1.2 Title VI Clauses for Compliance with Nondiscrimination Requirements

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:

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.

Non-discrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

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.

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.

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.

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.

A6.1.3 Title VI List of Pertinent Nondiscrimination Acts and Authorities

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 U.S.C. § 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 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);
- 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 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination 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 non-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.*).

A7 CLEAN AIR AND WATER POLLUTION CONTROL

A7.1 CONTRACT CLAUSE

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

CLEAN AIR AND WATER POLLUTION CONTROL

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

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

A8 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

A8.1 CONTRACT CLAUSE

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

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements.

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

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

In the event of any violation of the clause set forth in paragraph (1) of this clause, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

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

4. Subcontractors.

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

A9 COPELAND "ANTI-KICKBACK" ACT

A9.1 CONTRACT CLAUSE

COPELAND "ANTI-KICKBACK" ACT

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

A10 DAVIS-BACON REQUIREMENTS

A10.1 CONTRACT CLAUSE

DAVIS-BACON REQUIREMENTS

1. Minimum Wages

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

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

section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

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

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

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

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

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

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

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

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

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

2 Withholding.

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

3. Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Federal Aviation

Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

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

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

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

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

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

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

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

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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

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

5. Compliance with Copeland Act Requirements.

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

6. Subcontracts.

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

7. Contract Termination: Debarment.

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

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

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

9. Disputes Concerning Labor Standards.

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

10. Certification of Eligibility.

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

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

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

A11 DEBARMENT AND SUSPENSION

A11.1 CONTRACT CLAUSE

A11.1.1 Bidder or Offeror Certification

CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT

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

A11.1.2 Lower Tier Contract Certification

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

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

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

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

A12 DISADVANTAGED BUSINESS ENTERPRISE

A12.1 REQUIRED PROVISIONS

A12.1.1 Solicitation Language (Solicitations that include a Project Goal)

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

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

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

A12.1.2 Solicitation Language (Race/Gender Neutral Means)

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the Tri-Township Airport Authority to practice nondiscrimination based on race, color, sex or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

A12.1.3 Prime Contracts (Projects covered by DBE Program)

DISADVANTAGED BUSINESS ENTERPRISES

Contract Assurance (§ 26.13) - The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of Department of Transportation-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Owner deems appropriate, which may include, but is not limited to:

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

A13 DISTRACTED DRIVING

A13.1 CONTRACT CLAUSE

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 FAA 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 sub-grant.

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

A14 ENERGY CONSERVATION REQUIREMENTS

A14.1 CONTRACT CLAUSE

ENERGY CONSERVATION REQUIREMENTS

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

A15 EQUAL EMPLOYMENT OPPORTUNITY (E.E.O.)

A15.1 MANDATORY CONTRACT CLAUSE

A15.1.1 E.E.O. Contract Clause

EQUAL OPPORTUNITY CLAUSE

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

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identify or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

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

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

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

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

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

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however,* That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

A15.1.2 EEO Specification

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
- d. "Minority" includes:
 - (1) Black (all) persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);
 - (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

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

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

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

Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

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

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

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

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
- c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.
- d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.
- f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

- n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

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

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

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

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

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

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

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

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

A16 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

A16.1 CONTRACT CLAUSE

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.

A17 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

A17.1 CONTRACT CLAUSE

This provision is required for all contracts that exceed \$100,000.

CERTIFICATION REGARDING LOBBYING

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

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

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

A18 PROHIBITION of SEGREGATED FACILITIES

A18.1 CONTRACT CLAUSE

PROHIBITION of SEGREGATED FACILITIES

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

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

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

A19 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

A19.1 CONTRACT CLAUSE

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. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The Contractor retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). Contractor 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.

A20 PROCUREMENT OF RECOVERED MATERIALS

A20.1 CONTRACT CLAUSE

Procurement of Recovered Materials

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use 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,

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/epawaste/conserve/tools/cpg/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.

A21 RIGHT TO INVENTIONS

A21.1 CONTRACT CLAUSE

RIGHTS TO INVENTIONS

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within in the 37 CFR §401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental or research work.

A22 SEISMIC SAFETY

A22.1 CONTRACT CLAUSE

A22.1.1 Construction Contracts

Seismic Safety

The contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

A23 TAX DELINQUENCY AND FELONY CONVICTIONS

A23.1 CONTRACT CLAUSE

CERTIFICATION OF OFFERER/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

Certifications

- 1) The applicant represents that it is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
- 2) The applicant represents that it is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

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

The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

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.

A24 TERMINATION OF CONTRACT

A24.1 CONTRACT CLAUSE

A24.1.1 Termination for Convenience

Termination for Convenience (Construction & Equipment Contracts)

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

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

Owner agrees to pay Contractor for:

- a) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;

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;

reasonable and substantiated claims, costs and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and reasonable and substantiated expenses to the contractor directly attributable to Owner's termination action

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

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

A24.1.2 Termination for Default

Termination for Default (Construction)

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

A25 TRADE RESTRICTION CERTIFICATION

A25.1 CONTRACT CLAUSE

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

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

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

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

- (1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R. or
- (2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such U.S.T.R. list or

(3) who incorporates in the public works project any product of a foreign country on such U.S.T.R. 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 U.S.T.R., unless the Offeror has knowledge that the certification is erroneous.

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

A26 VETERAN'S PREFERENCE

A26.1 CONTRACT CLAUSE

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. 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.

SECTION III

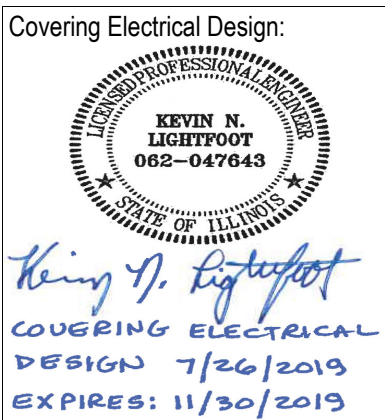
SPECIAL PROVISIONS

TRI-TOWNSHIP AIRPORT (SFY)
TRI-TOWNSHIP AIRPORT AUTHORITY
SAVANNA, CARROLL COUNTY, ILLINOIS

INSTALL PRECISION APPROACH PATH INDICATOR (PAPI) UNITS
AT BOTH RUNWAY ENDS

ILLINOIS PROJECT NO. SFY-4668
SBGP PROJECT NO. 3-17-SBGP-133/139
BCM CONTRACT NO. TR010

July 26, 2019



Hanson Professional Services Inc.
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FOREWORD

These Special Provisions, together with applicable Standard Specifications, Rules and Regulations, Contract Requirements for Airport Improvement Projects, Payroll Requirements and Minimum Wage Rates, which are hereto attached or which by reference are herein incorporated, cover the requirements of the State of Illinois, Department of Transportation (IDOT), Division of Aeronautics (IDA) for the following improvement project at the Tri-Township Airport, Savanna, Illinois including the following:

The project will consist of the installation of Precision Approach Path Indicator (PAPI) Units at both ends of Runway 13-31, including airfield cabling and counterpoise, directional boring, installation of two (2) 2-Box PAPI units, installation of electrical equipment in the existing airfield electrical vault, including a Constant Current Regulator, installation of a crushed aggregate pad, and landscaping, including topsoiling, seeding, and mulching.

In anticipation of the time necessary for final Contract Award/Administration/Certification, the Bidder/Contractor should consider a Construction Start Date of on/around 01 May 2020 when preparing his bid and scheduling the work.

GOVERNING SPECIFICATIONS AND RULES AND REGULATIONS

The Standard Specifications for Construction of Airports, Illinois Department of Transportation, Division of Aeronautics, adopted April 1, 2012, shall govern the project, except as otherwise revised or noted in these Special Provisions. All references to IDOT Specifications refer to Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, adopted April 1, 2016, as revised. In the event of inconsistencies between the Standard Specifications and the Special Provisions, the Special Provisions shall govern.

REFERENCES

The following Federal Aviation Administration Advisory Circulars are referenced on the Plans and/or Special Provision Specifications in regard to safety on airports. These Advisory Circulars are available on the FAA web site at http://www.faa.gov/regulations_policies/advisory_circulars

Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

- A. FAA AC No. 70/7460-1 (current issue in effect) Obstruction Marking and Lighting.
- B. FAA AC No. 150/5210-5 (current issue in effect) Painting, Marking, and Lighting of Vehicles Used on an Airport.
- C. FAA AC No. 150/5300-13 (current issue in effect) AIRPORT DESIGN.
- D. FAA AC No. 150/5370-2 (current issue in effect) Operational Safety on Airports during Construction.

DIVISION I – GENERAL PROVISIONS

SECTION 40. SCOPE OF WORK

Revise Section 40 of the Standard Specifications as follows:

40-05 MAINTENANCE OF TRAFFIC. Add the following Paragraphs:

“Construction of the project shall be performed by the Contractor in accordance with the guidelines specified in FAA Advisory Circular 150/5320-2 (current issue), and the Airport Rules and Regulations as promulgated by the Tri-Township Airport Authority. The Contractor shall submit a Safety Plan Compliance Document (SPCD) prepared by the Contractor for the approval of the Airport Sponsor prior to the issuance of a Notice to Proceed (NTP). **The Contractor shall maintain a copy of the approved SPCD, including the approved Airspace Determination issued by the Illinois Division of Aeronautics, FAA Advisory Circular 150/5370-2 (current issue), and the Airport Rules and Regulations at the Project site at all times.** Any Contractor activities required for Project safety shall be provided by the Contractor and incidental to the Contract.

“To minimize disruptions to Airport operations, construction operations must be controlled throughout the Project’s duration, and work must be completed expeditiously. A Construction Phasing Plan detailing the sequencing of the Contractor’s Work throughout the Project is included in the Plans. The Contractor shall provide his written acceptance of the Project Construction Phasing Plan at the Pre-construction Conference. Any and all changes to the Construction Phasing Plan that may be requested by the Contractor must be approved by the Project Engineer and the Airport Owner. It shall be the Contractor’s responsibility to provide sufficient advance notice of any proposed phasing change to permit consideration and approval by the Project Engineer and the Airport Owner. The Contractor shall not be entitled to any extra compensation nor extension to the Contract time because of a phasing change request nor for any time necessary in receiving the required approvals. The Contractor shall expedite work at those stages where active runways, taxiways, hangar access, aprons, roadways or parking lots must be closed, to minimize the length of time that Airport operations are restricted.

“At the Pre-construction Conference, the Contractor shall provide a “Contractor Coordination Plan” that coordinates his work with the work of his subcontractors and the work of other contractors of other on-going Airport projects.

“The Contractor shall erect and maintain, at no additional cost to the Contract, directional and informational signs for the Contractor’s access routes at the existing construction entrances and for the Contractor’s route within the Airport operations area, as noted on the plans or as directed by the Resident Engineer. Where contractor equipment is operating within active aircraft operations areas, the Contractor shall be equipped with aviation radios to monitor air traffic; the Contractor shall also be in immediate radio/telephone contact with the Airport Manager and the Resident Engineer. Continuous pavement sweeping shall be furnished to remove debris from active aircraft movement paths. The cost of traffic control, radio contact/monitoring, and pavement sweeping shall be paid under Item AR150530, Traffic Maintenance.

“The Contractor shall not have access to any part of the active airfield (runways, taxiways or aprons) for any equipment or personnel without the approval of the Resident Engineer and the Airport Owner. Activities within the Airport Operations Area (AOA) are subject to federal access control. Because of the high requirements for airport security and safety, the following requirements must be adhered to:

The Contractor shall coordinate gate security, through the Resident Engineer, with the Airport Owner. Airport security shall be maintained at all times.

All employees of the Contractor shall park their personal vehicles in the designated equipment parking and storage area. Each person or vehicle entering the Contractor area shall do so in accordance with the policies and procedures of the Airport Owner. The Contractor will transport the workers from the parking areas to the work area. Only Contractor vehicles will be allowed outside of the proposed equipment storage and parking areas.

Should any Contractor personnel be identified as noncompliant with any vehicle driving safety requirements in this Project Safety Plan or in the Airport Vehicle Operations Regulations, such drivers shall be penalized by rescission of their on-airport driving privileges, and their access to the Construction Limit Area when operating vehicles shall be revoked.

The Contractor will be required to establish contact with Airport Operations via monitored two-way radio or cell phone. This will keep the Contractor in contact with Airport personnel and enable the Airport personnel to immediately contact the Contractor in case of an aeronautical emergency that would require action by the Contractor and/or his personnel.

"The Contractor shall furnish, place, maintain, relocate, and remove temporary "closed pavement" markers and barricades on airfield runways, taxiways and other pavement surfaces as shown and detailed in the Construction Plans, or as directed by the Resident Engineer. The cost of this work shall be paid under Item AR150530.

"The project will require the closing of Runway 13-31 during a portion of the work. These closings shall be DAYTIME ONLY, and the runway shall be restored to operation by the Contractor at the end of each work day. The Contractor shall furnish, place, operate, maintain and periodically remove vinyl "Closed Runway Markers", as detailed in the Plans. The cost of this work shall be paid under Item AR150530. To minimize disruption to aircraft operations associated with the runway closure, construction work must be completed expeditiously. Runway closings shall only be permitted by prior authorization of the Resident Engineer and the Airport Owner, and in accordance with the Phasing Plan. When the runway is to be closed, the Airport Owner will de-energize airport/runway NAVAIDs, and airfield lighting power and control circuits when required by the Contractor's activities. The Contractor shall not proceed with further work until after the required changes to the airport power and control circuits have been made by the Airport Owner.

"In addition to the Runway 13-31 closures, the Contractor shall furnish, place, maintain, relocate, and remove temporary "closed pavement" barricades on airfield taxiways, aprons and other pavement surfaces as shown and detailed in the Construction Plans, or as directed by the Resident Engineer. The cost of this work shall be paid under Item AR150530. See Item 150530, Traffic Maintenance, of these Special Provisions.

"For work within runway areas, the Contractor shall remain within the Construction Limits Line shown in the Plans. When outside these limits, all Contractor activities shall remain outside of the Runway Obstacle Free Zone (ROFZ) and more than 250 feet from the centerline and 300 feet from the end of active Runway 13-31, and outside of any active Runway Protection Zone (Airplane Design Group (ADG) B-II (Small Aircraft), and Aircraft Approach Category (AAC) Visibility Not Lower Than 1 Mile.

"For work near taxiways and aprons, the Contractor's personnel and equipment must remain at least 44.5 feet from active Category I taxiway centerlines, 65.5 feet from active Category II taxiway centerlines, 44.5 feet from active T-hangar taxiway centerlines, and ten (10) feet from active apron edges. (All taxiways in the Project work area are either Category I (44.5 feet), or Category II (65.5 feet)) When construction operations must be conducted within these separations, the pavement must be closed to aircraft activity by the Contractor by providing temporary barricades as shown in the Plans, and in the case of runway pavements, closed runway markers. No closure of any runway, taxiway or apron will be permitted for this Project, except as shown in the Phasing Plan.

"The Contractor shall keep all of his equipment and personnel at least 15 feet from the edge of any active roadway or auto parking pavement. When his activities require working within 15 feet of the road/pavement edge, the Contractor shall provide for traffic control in accordance with IDOT Specifications (highway standards).

"Open trenches, excavations and stockpiled material at the construction site shall be delineated with the use of barricades during hours of restricted visibility and/or darkness. No open trenches shall be allowed within the Runway Safety Area (RSA) or the Taxiway Safety Area (TSA) when the runway or taxiway is open to air traffic (including overnight). The RSA is defined as 75 feet from the centerline and 300 feet from the end of Runway 13-31. The TSA is measured at 24.5 feet from the Category I taxiway centerline, 39.5 feet from the Category II taxiway centerline, and 24.5 feet from the T-hangar taxiway centerline. No vertical drop of greater than 3-inches in height from pavement edge to earth grade or earth grade to earth grade within the RSA or TSA will be permitted when the runway or taxiway is open to air traffic. The Contractor will have steel plates on-site to allow for the rapid covering of trenches or earth drops in the event of unexpected work stoppages for weather or airport emergencies.

"When not in use and during non-working hours, Contractor's equipment shall be parked within the Contractor's equipment storage and parking areas. The equipment storage and parking areas are to be located as shown on the Phasing Plan. Equipment shall not be parked within active runway design areas, FAR Part 77 airport imaginary surfaces, or runway protection zones. The Contractor will be responsible for maintaining the construction entrances and Contractor areas in good condition. The cost of maintaining the construction entrance and Contractor areas is to be incidental to the contract. The Contractor shall protect all existing pavement edges from damage from construction equipment and haul vehicles.

"Contractor's access to the project when on Airport property is shown in the Plans. Contractor's access to the Airport itself is to be provided by public rights-of-way. The Contractor is to secure all necessary permits for the use of any public rights-of-way and is to maintain traffic on these public roads at all times, with the costs of permitting, cleaning and repairing of pavement damaged by contractor's activities incidental to the Contract. Use of and repairs to any public facilities are to be completed to the satisfaction of the facility's owner.

"In addition to the temporary haul road/crossing locations, shown in the Construction Plans, the Contractor is to provide any temporary construction roads within the Construction Limit Lines as may be required by his activities. The Contractor may make use of any existing haul routes within the Project limits, but shall repair/maintain same during construction, and shall remove the existing haul routes at project end, if directed by the Resident Engineer. Heavy vehicles shall not cross existing pavement surfaces except as shown in the Construction Plans and as approved by the Airport Owner and the Resident Engineer. Any damage to pavements that may occur by the Contractor's activities shall be repaired at the Contractor's expense and to the satisfaction of the Airport Owner and the Resident Engineer. For all haul routes constructed at the locations shown in the Construction Plans, and any temporary routes made by the Contractor through grassed areas or existing hauls used by the Contractor, the Contractor shall remove, grade, level, topsoil, seed and mulch at the end of the Project; cost incidental to the Contract.

"The Contractor is to provide an equipment storage and parking area at the locations shown in the Plans. It is the Contractor's responsibility to maintain the access roads and the storage area during construction and to restore the areas at project completion to conditions suitable to the Airport Owner and the Resident Engineer. At the Airport Owner's discretion, the temporary facilities may remain, but they must be left in conditions suitable to the Airport Owner. The cost of providing, maintaining and restoring the temporary facilities is incidental to the Contract.

"At no time shall the contractor conduct any activities or operate or park equipment so as to obstruct active Part 77 Airport Imaginary Surfaces or the Runway Protection Zones (RPZ) as delineated in the Plans. Contractor's equipment shall extend no higher than 25 feet. Cranes shall not be used during instrument weather conditions or at night. Cranes shall be lowered when not in use.

"The Contractor must notify the Resident Engineer and the Airport Owner three (3) days in advance of any required partial or complete closing of any runway, taxiway or apron. The date, time and scheduled duration of the closing must be approved by the Resident Engineer and the Airport Owner. The Contractor shall notify the Resident Engineer and Airport Owner three (3) days in advance of the Contractor's closing of other active roadways, airfield or roadway lighting circuits, or other Airport facilities.

"All notes and details shown on the Phasing Plan are applicable to this Project.

"All work shall be completed in accordance with the approved Project Safety Plan, issued by the Illinois Division of Aeronautics. Failure to use these prescribed procedures or adhere to the safety requirements will result in the suspension of work."

SECTION 50. CONTROL OF WORK

Section 50 Control of Work is modified as outlined below.

50-06 CONSTRUCTION LAYOUT STAKES. Revise the first paragraph to read:

The Contractor shall be responsible for all construction layout and any extension of the control network provided in the plans necessary to properly complete the work.

Also from RESPONSIBILITY OF THE RESIDENT ENGINEER, delete paragraphs A, B, and C.

50-12 LOAD RESTRICTIONS. Add the following:

“By submitting his bid, the Contractor acknowledges that the existing Airport pavements are of the "light-duty" type, requiring his consideration of construction vehicle weights. Any damage to existing Airport pavements shall be repaired by the Contractor at his own expense and to the satisfaction of the Airport Owner and the Resident Engineer.

“The Contractor shall acquaint himself with the load restrictions of all local streets, roadways and highways intended for use as access/haul roads, and shall secure all necessary permits required by the facility's owner.

“The Contractor shall erect and maintain directional and informational signs for the Contractor's access routes at the existing construction entrance and for the Contractor's route within the Airport and Airport Operations Area, as noted in the Plans or as directed by the Resident Engineer, whose cost shall be paid under Item AR150530, Traffic Maintenance.”

50-16 FINAL INSPECTION. Revise the first sentence of the first paragraph to say the following:

Upon due notice to the Resident Engineer by the Contractor of presumptive completion of the entire project, the charging of Contract Time shall be suspended and the Engineer will make an inspection.

Add after the first sentence of the second paragraph:

The charging of Contract Time shall resume upon receipt of the Punch list from the Engineer and continue until the remaining work, including work as required in Section 40-08 Final Clean Up, is completed to the satisfaction of the Engineer.

SECTION 60. CONTROL OF MATERIALS

Revise Section 60 of the Standard Specifications as follows:

60-05 RESIDENT ENGINEER'S FIELD OFFICE. Add the following:

"The Contractor will be required to furnish and maintain a Resident Engineer's Field Office throughout the Project, in accordance with Item 150510 ENGINEER'S FIELD OFFICE."

SECTION 70. LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

Revise Section 70 of the Standard Specifications as follows:

70-10 BARRICADES, WARNING SIGNS AND HAZARD MARKINGS. Add the following:

“The Contractor shall also meet the requirements of the Standard Specifications and Special Provisions, dated July 26, 2019, contained in Paragraph 40-5, Maintenance of Traffic, and Item 150530, Traffic Maintenance.”

SECTION 80. PROSECUTION AND PROGRESS

Section 80 of the Standard Specifications is modified as outlined below.

80-05 LIMITATIONS OF OPERATIONS. Add the following:

“The Contractor shall also meet the requirements of the Standard Specifications and Special Provisions, dated July 26, 2019, contained in Paragraph 40-5, Maintenance of Traffic, and Item 150530, Traffic Maintenance.”

80-13 CONTRACTOR'S ACCESS TO AIRFIELD. Add the following to this section:

The Contractor's personnel and equipment shall not traverse outside the designated work areas to other locations on the Airport. The designated haul route will be the only vehicular access to the construction site. It will be the responsibility of the Contractor to maintain the proposed haul route and equipment parking area for the duration of the project.

The Contractor will be responsible for obtaining any permits necessary to use the State/County/Township/City roads. All work required in complying with the above requirement will be considered incidental to the Contract, and no additional compensation will be allowed.

Failure to use the prescribed haul routes and equipment parking area or adhere to the safety requirements will result in the suspension of work.

Add the following:

80-14 EMPLOYEE PARKING. The Contractor's employees shall park their personal vehicles in the designated Equipment Parking and Material Storage area as shown on the Safety Plan. The Contractor will transport the workers from the parking area to the work area. Only Contractor vehicles will be allowed outside of the proposed equipment storage and parking areas. No employee vehicle will be allowed onto the proposed construction site.

Add the following:

80-15 EQUIPMENT PARKING AND MATERIAL STORAGE. The Contractor will be allowed to park equipment and store material in the proposed material storage and equipment parking area shown on the safety plan. The Contractor will maintain this area throughout the duration of the project and restore it to its' original condition upon completion of the project. This work will be considered incidental to the Contract and no additional compensation will be allowed.

DIVISION II – PAVING CONSTRUCTION DETAILS

ITEM 150510 ENGINEER'S FIELD OFFICE

Revise Item 150510 of the Standard Specifications as follows:

CONSTRUCTION METHODS

150-2.1 Revise this section as follows:

B. Delete this item

C. One four-drawer legal letter size filing cabinet with lock and an Underwriter's Laboratories insulated file device 350 degrees one hour rating.

G. One electric water cooler dispenser with water supply as needed, or bottled water.

H. One land-line telephone with answering machine, or a cellular telephone with voicemail and a functional internet Wi-Fi device such as a mobile hot spot providing hi-speed broadband internet access to the field office.

I. A multi-function printer/scanner/copy machine (including maintenance and supplies) that has a USB port for connection to the Resident Engineer/Resident Technician's computer.

J. Delete this item

K. Delete this item

L. One mini-refrigerator with a minimum size of 4 cubic feet with a freezer unit.

BASIS OF PAYMENT

150-3.1 Add the following to this section:

Payment will be made under:

Item AR150510 Engineer's Field Office - per lump sum.

ITEM 150520. MOBILIZATION

This Item shall be provided in accordance with Section 150520 of the Standard Specifications.

Payment will be made under:

Item AR150520 Mobilization - per lump sum.

ITEM 150530. TRAFFIC MAINTENANCE

DESCRIPTION

150530-1.1 DESCRIPTION. This work shall consist of the furnishing, installation, maintenance, relocation, and removal of work zone traffic control and protection, and will be in accordance with the Plans, Plan details, and the guidelines specified in FAA Advisory Circular 150/5320-2 (current issue). The item shall also include the provision of: sweepers for pavement cleaning, personnel and radio/telephone equipment for traffic control, and set-up, operation, maintenance, and removal of runway closure markers, as shown in the Phasing Plan and as specified in the Special Provisions.

The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices as shown in the Plans.

All traffic control devices used for the maintenance of traffic, as detailed on the Plans, shall be reflectorized prior to installation and cleaned as specified by the Engineer. When directed by the Engineer, the Contractor shall remove all traffic control devices which were furnished, installed, or maintained by Contractor under this contract. All traffic control devices shall remain in place until specific authorization for relocation or removal is received from the Engineer. The Contractor shall be responsible for, and replace, any devices that are supplied by others and damaged by the Contractor's and/or Subcontractor's workforce during relocation or construction operation.

The Contractor will notify the Engineer in writing three (3) calendar days prior to any activities that will disrupt runway, taxiway and/or apron traffic; a three day notice will be required for road closures and lane closures.

MATERIALS

150530-2.1 MATERIALS. Materials shall be according to the following:

- FAA Advisory Circular 150/5320-2 (current issue), Operational Safety on Airports During Construction.
- Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, adopted April 1, 2016.
- Illinois Department of Transportation Supplemental Specifications and Recurring Special Provisions, adopted January 1, 2019.

150530-2.2 TEMPORARY VINYL RUNWAY CLOSURE MARKERS. The vinyl markers shall be constructed of a durable, 10-foot by 60-foot (each portion of the "X"), yellow vinyl-coated windscreen material, with #2 brass rolled-rim spur grommets (56) installed through the hem at 2.5 foot spacing intervals along the marker perimeter, meeting FAA requirements. The marker shall be held in place on the pavement using sandbags, meeting the requirements of the marker manufacturer. The Contractor shall furnish a sufficient number of closure markers to mark both ends of Runway 13-31 simultaneously.

The fabric material shall meet the following properties:

Material Properties	Value
Fabric Base	Polyester
Weave Count	11 x 11, 1000 Denier
Total Weight	3.5 ounce/square yard
Finished Coated Weight	10.0 ounce/square yard
Tongue Tear, Method 5134	120/110 pounds
Grab Tensile, Method 5100	200/180 pounds
Burst Strength	250 pounds per square inch
Cold Crack MIL-C-20696C	Pass -40 degrees F
Flame Resistance, Method 5903	Pass 2-second timeout

CONSTRUCTION METHODS

150530-3.1 GENERAL. All work zone traffic control and protection shall be according to the Construction Phasing Plan, and the Plan details, and FAA Advisory Circular 150/5320-2 (current issue), Operational Safety on Airports During Construction.

The traffic control shown on the Plans represents the minimum required combination of traffic control devices needed for a particular construction operation. Conditions created by the Contractor's operation which are not covered by the Plans shall be delineated by devices as directed by the Engineer at no additional cost to the Project.

The Construction Phasing Plan represents one suggested alternative for the construction sequencing and method of handling traffic. Revisions or modifications of the traffic control shall have the Engineer's written approval. Any deviation from the proposed plan shall be approved in writing by the Engineer before implementation.

The traffic control should remain in place only as long as needed and shall be removed when directed by the Airport Manager and Resident Engineer.

At the pre-construction conference, the Contractor shall furnish the name and telephone number of the individual in the Contractor's employ who is to be responsible, 24 hours a day, for the installation and maintenance of traffic control for the Project. When the actual installation and maintenance are to be accomplished by a subcontractor, consent shall be requested of the Engineer at the time of the preconstruction conference. This shall not relieve the Contractor of furnishing a responsible individual in the Contractor's direct employ. The Engineer will provide the Contractor with the name of its representative who will be responsible for administration of the traffic control.

Furnishing, installation, relocation, maintenance and inspection of traffic control devices, as required by the Contractor's activities, shall be included in the item and not measured separately for payment.

150530-3.2 TEMPORARY VINYL RUNWAY CLOSURE MARKERS. Runway closing(s) shall only be permitted by prior authorization of the Resident Engineer and the Airport Owner, and in accordance with the Phasing Plan. The Contractor shall furnish a sufficient number of closure markers to mark the number of closed runways for any construction phase. The marker shall be held in place on the pavement using sandbags. At the start of each work day, the Contractor shall install the markers as noted in the Plans, and furnish periodic inspection of the markers when the runway is closed, making any adjustments, repairs and replacements necessary to maintain the markers in-place and to the satisfaction of the Resident Engineer. At the end of each work day, the Contractor shall remove the markers for storage, sweep/clean the area, and assist the Airport Manager in re-opening the runway.

METHOD OF MEASUREMENT

150530-4.1 Traffic control and protection required under Traffic Maintenance will be measured for payment on a lump sum basis. Where the Contractor's operations result in daily changing, or two or more work areas each of which requires traffic control according to one of the above standards, each work area installation will not be paid for separately, but shall be included in the lump sum price for Traffic Maintenance.

BASIS OF PAYMENT

150530-5.1 Traffic control and protection will be paid for at the Contract lump sum price for Traffic Maintenance. This unit price shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals, including that for relocation, removal and maintenance of the materials, as necessary to complete the item as specified.

Payment will be made under:

Item AR150530 Traffic Maintenance - per lump sum.

ITEM 152. EXCAVATION AND EMBANKMENT

Revise Item 152 of the Standard Specifications as follows:

152-1.1 DESCRIPTION. Add the following:

“Instead of acceptance under Item 611 Compaction Control Testing, the final subgrade shall be compacted to the satisfaction of the Resident Engineer.”

152-1.2 CLASSIFICATION.

Delete the second, third and fourth Paragraphs.

CONSTRUCTION METHODS

152-2.2 EXCAVATION. Add the following to the fifth Paragraph:

“Unsuitable/unstable material, as determined by the Resident Engineer”, and any excess suitable material not used in the Work shall be loaded, hauled, tested/documented as may be required by state law, and disposed of at an off-site disposal site authorized to accept the debris. Only material identified by the Resident Engineer for haul and disposal shall be hauled from the Work and disposed of at the off-site location. Contractor shall provide for all materials testing and suitability documentation as required by State law for the disposal of suitable material or unsuitable construction debris. Loading, haul, testing and disposal of the excess material to the off-site disposal site shall not be paid for separately, but shall be included in the Contract unit price for “Unclassified Excavation”.

Delete the eighth, ninth and tenth paragraphs (regarding compaction), and Table 1.

Add the following:

“Instead of acceptance under Item 611 Compaction Control Testing, the final subgrade shall be compacted to the satisfaction of the Resident Engineer.”

Add the following:

“Excess but suitable material shall be used elsewhere in the Work to the extent possible; any excess material that cannot be incorporated into the Work shall be lawfully disposed of off-site. The loading, hauling and disposal off-site, including any regulatory testing/documentation, shall not be paid for separately, but shall be included in the Contract unit price for “Unclassified Excavation”.

Add the following:

“Topsoil to be used elsewhere under this project shall be stockpiled within the construction limits, but located so as not to violate any runway or any taxiway safety or object area criteria, or obstruct any FAR Part 77 imaginary surfaces, or be located within 15 feet of the pavement edge, or the roadway clear area, whichever is greater, until separately placed under Item 905. The location shall be approved by the Resident Engineer. Placement and storage of the topsoil shall not be paid for separately, but shall be included in the Contract unit price for “Unclassified Excavation”.

Add the following:

“The Contractor will not be allowed to haul any materials across existing pavements, except for pavement areas shown for removal in the Plans or as shown in the Site Plan and prescribed in the Phasing Plan and the Construction Safety Plan, or to cross any unpaved areas that have been designated by the Airport Owner as used for agriculture, or which have already been seeded under this Contract.”

152-2.3 BORROW EXCAVATION. Delete this Section.

152-2.15 DUST CONTROL WATERING. This Work shall consist exclusively of the control of dust from construction operations and not for use in the compaction of earth embankment.

Dust shall be controlled by the regular, uniform application of sprinkled water to earth surfaces and shall be applied as directed by the Resident Engineer, in a manner meeting his approval. Dust control watering shall not be paid for separately but shall be considered incidental to this item."

Add:

152-2.16 RESTORATION OF HAUL ROUTES. At the completion of haul activities, all haul routes used by the Contractor for haul shall have all of the aggregate surface removed, if present, and the routes leveled, graded and re-vegetated (seed and mulch) to the satisfaction of the Resident Engineer and the Airport Manager. The top section of any re-graded route shall be topsoil. The cost of this regrading/restoration of haul routes shall be incidental to Item 152.

METHOD OF MEASUREMENT

152-3.2 Delete this Section.

152-3.3 Delete this Section.

Add:

152-3.4 DUST CONTROL WATERING. Dust control watering will not be measured for payment, but shall be considered incidental to the Contract items for earthwork.

Add:

152-3.5 RESTORATION OF HAUL ROUTES. Restoration of Haul Routes will not be measured for payment, but shall be considered incidental to the Contract items for earthwork.

BASIS OF PAYMENT

152-4.1 Replace the second Paragraph with the following:

"Payment for "Unclassified Excavation" shall also include the removal to an off-site disposal site of excess suitable material and unsuitable materials, if any, at the discretion of the Resident Engineer."

152-4.2 Delete this Section.

152-4.3 Delete this Section.

152-4.4 Delete this Section.

Add the following:

"Payment will be made under:

"Item AR152410 Unclassified Excavation - per cubic yard."

ITEM 610. STRUCTURAL PORTLAND CEMENT CONCRETE

Revise Item 610 of the Standard Specifications as follows:

DESCRIPTION

610-1.1 Add the following:

"This item shall also include the requirements prescribed in Illinois Division of Aeronautics Policy Memorandums 18-08.1, Acceptance Procedure for Finely Divided Minerals Used in Portland Cement Concrete and Other Applications; 96-1, Item 610, Structural Portland Cement Concrete: Job Mix Formula Approval and Production Testing, and; 2001-1, Requirements for Cold Weather Concreting, current issues."

CONSTRUCTION METHODS

610-3.16 CURING AND PROTECTION. Add the following:

"All Structural Portland Cement Concrete placed under Item 610 which is exposed to weather, **shall be cured and protected by the Liquid Membrane Curing Method** using an IDOT-approved curing compound, as specified herein, and whose cost shall be incidental to Item 610. The compound shall meet all Contract requirements for materials, including the Buy American Preferences Act (49 U.S.C. § 50101)."

BASIS OF PAYMENT

No direct payment will be made for structural Portland cement concrete. The cost of furnishing and installing structural concrete shall be considered incidental to the Contract unit prices for the respective pay items utilizing the concrete. These prices shall be full compensation for furnishing all materials and for all preparation, delivering and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete the item.

DIVISION V

TURFING

ITEM 901. SEEDING

Revise Item 901 of the Standard Specifications as follows:

MATERIALS

901-2.1 SEED. Revise the seed mixture application table as follows:

<u>Seeds</u>	Pounds/Acre
Inferno Tall Fescue or Tarheel II Fescue	90 Pounds
Annual Ryegrass	30 Pounds
Audubon Red Fescue	45 Pounds
Rescue 911 Hard Fescue	45 Pounds
Endophytic Fescue Cultivar	<u>90 Pounds</u>
Total	300 Pounds per Acre

Delete the third and fourth Paragraphs.

Add the following:

"Planting times shall be between August 20 and October 20. If fall planting is not possible, the mixture may be planted between April 1 and May 31. Seeding between June 1 and August 15 will not be permitted. If planted in the spring, the Contractor shall furnish additional measures beyond that otherwise required in these Special Provisions to prevent weed growth as recommended by a registered nurseryman at no additional cost to the Contract.

"A sample of selected seed species shall be made available on request to the Resident Engineer for viability testing by the tetrazolium trichloride method, not less than 21 calendar days prior to planting.

"Seed mixtures shall contain the proportion of seed of individual species indicated in the planting design. Changes in seed mixtures must be approved by the Project Engineer.

"All seeds shall be guaranteed by the Contractor to be true to name. All seeds shall have the proper pre-planting treatments, including stratification, scarification and/or inoculation to promote good germination and growth, prior to any seeding.

"All seedings shall be planted at the specified rates, utilizing the specified species unless otherwise authorized by the Project Engineer."

CONSTRUCTION METHODS

901-3.1 ADVANCE PREPARATION AND CLEANUP. Add the following as the first Paragraph:

"**ALL** perennial weeds and spontaneous vegetation shall be eliminated within the seedbed prior to seeding, using mowing/raking and herbicide. Herbicides used for weed removal shall be as recommended by the seed producer. Based upon actual conditions, it may be necessary for this weed removal to begin up to eight weeks before planting. When all vegetation is dead, the soil shall be tilled and otherwise prepared for planting as specified herein. Weed removal prior to acceptance of the lawn shall be incidental to the Contract."

Add the following sentence to the second Paragraph:

"Soil shall be prepared to have clods no more than 1½ inches on any side to ensure adequate seed-soil contact."

Add the following paragraphs:

"Seed shall not be placed on ground that is frozen or in any way in a condition that is detrimental to the seed.

"Areas shall be de-watered if necessary to accomplish any specified plantings. The method of de-watering shall be approved by the Resident Engineer.

"Final grading and site preparation must be inspected and approved by the Resident Engineer prior to any planting.

"Seedbed preparation shall commence as soon as practicable prior to planting. After preparation, these areas shall be protected from erosion.

"The proposed seeding method shall be stated by the Contractor. The seeding method shall result in a uniform distribution and complete coverage of the entire area to be seeded. If seed drilling is proposed, the seeder shall have an adjustable gate opening provided uniform flow and shall drop the seed directly into place on the prepared seed bed. If the broadcast method is used, within eight hours of seeding, all seeded areas should be rolled at right angles to the slope with a roller, cultipacker or hand tamped to compact the seedbed. Any areas broadcasted shall be sufficiently rolled or tamped to assist proper germination. All seeding equipment shall be calibrated to ensure the proper flow of seeds to deliver the specified quantities. The Contractor shall use only seeding equipment that is designed to plant grasses.

"All seeding shall be provided within the planting seasons stated in Section 901-2.1, unless season mixes are prior approved by the Project Engineer and conditions are acceptable for seeding as noted in Section 901-2.1.

"Measures to protect planted materials from grazing damage by wildlife shall be recommended and provided by the Contractor.

"Installation and maintenance of erosion control measures pertinent to seeding shall be the responsibility of the Contractor. Erosion control measures which may be damaged and/or removed by the Contractor during planting and related work shall be replaced by the Contractor.

"If on-site conditions change or are otherwise altered due to circumstances beyond the control of the Contractor, the Owner, and/or the Project Engineer, such that the Specifications and/or drawings are no longer valid, the Contractor shall notify the Resident Engineer so that remedial measures may be undertaken."

901-3.4 MAINTENANCE OF SEEDED AREAS. Add the following:

"It is essential that the seeds planted herein are watered for one to two months after planting to increase germination rates and seedling survival. The Contractor shall regularly water the seedlings to promote proper germination. It is the Contractor's responsibility to regularly inspect the growth and furnish watering when required. All inspection and watering shall be incidental to seeding."

BASIS OF PAYMENT

901-5.1 Add the following:

"Payment will be made under:

"Item AR901510 Seeding - per acre."

ITEM 905. TOPSOILING

Revise Item 905 of the Standard Specifications as follows:

DESCRIPTION

905-1.1 Add the following:

"Topsoil shall be from an off-site source identified by the Contractor and approved by the Resident Engineer. When off-site, no separate payment for excavation at the off-site location or haul from off-site will be made, as the Contractor shall include these costs in the Contract unit price for Topsoil."

MATERIALS

905-2.1 TOPSOIL. Replace the last sentence of the first Paragraph with the following:

"At least 90 percent of the material shall pass the No. 10 sieve."

Add the following as the last Paragraph:

"Testing shall be performed by the Contractor for the on-site material. Soils testing shall be furnished in accordance with Item 901, as modified by these Special Provisions."

CONSTRUCTION REQUIREMENTS

905-3.4 PLACING TOPSOIL. Delete the first sentence of the first Paragraph and replace with the following:

"The topsoil shall be spread on the prepared areas to receive seeding or sodding. The resulting topsoil layer shall be at least four (4) inches in depth; at the outer limits the 4-inch depth can include the existing topsoil layer not disturbed by the construction."

METHOD OF MEASUREMENT

905-4.1 Delete this Section.

BASIS OF PAYMENT

905-5.1 Replace this Paragraph with the following:

"The quantity, determined as provided in Section 905-4.2, will be paid for at the Contract unit price per cubic yard for the pay item listed below (Off Site), which price and payment shall be full compensation for furnishing and placing all material and for all labor, haul, borrow excavation, equipment, tools, and incidentals necessary to complete the work prescribed in this item, to the satisfaction of the Engineer.

"Payment will be made under:

"Item AR905520 Topsoiling (From Off Site) - per cubic yard."

ITEM 908. MULCHING

Revise Item 908 of the Standard Specifications as follows:

DESCRIPTION

908-1.1 Add the following:

"Material used for mulching shall be **Heavy Duty** hydraulic mulch, applied and secured as otherwise provided in the Standard Specifications, regardless of the grade slopes to be mulched."

MATERIALS

908-2.1 MULCH MATERIAL. Delete the first Paragraph and replace with the following:

"Material used for mulching shall be **Heavy Duty** hydraulic mulch, as specified herein, regardless of the grade slopes to be mulched."

Delete Subparagraphs A, B and C.

Add the following to Paragraph D., Hydraulic Mulch:

"Material used for mulching shall be **Heavy Duty** hydraulic mulch, as specified herein, regardless of the grade slopes to be mulched."

CONSTRUCTION METHODS

908-3.1 MULCHING. Add the following:

"Hydraulic mulch shall be applied as specified herein for **Heavy Duty** applications."

BASIS OF PAYMENT

908-5.1 Add the following:

"Payment will be made under:

"Item AR908510 Mulching - per acre."

DIVISION VI – LIGHTING INSTALLATION

ITEM 108. INSTALLATION OF UNDERGROUND CABLE FOR AIRPORTS

DESCRIPTION

108-1.1. Add the following to this section:

“This Item of work shall consist of the installation (plowing, trenching, directional-boring, or installing in ducts or raceways) of cable for airfield lighting circuits and/or NAVAID circuits on the runways, taxiways, aprons, and the associated homeruns at the locations shown on the Plans and in accordance with these Specifications. This Item shall include cable in unit duct where noted on the Plans and specified herein.

In areas where there is a congestion of buried cable or where the proposed cable crosses an existing cable, the Contractor will be required to trench the proposed cable into place. In all other areas, the Contractor has the option to either trench or plow the proposed cable in unit duct into place.

When crossing existing circuits, the Contractor will be required to hand dig the trenches for the proposed cable.

This item also includes the removal of existing cable, cable in duct, and cable in unit duct as shown in the Plans and as specified herein.”

Add the following:

108-1.2 REFERENCES. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

- A. ASTM Specification B3 – Standard Specification for Soft or Annealed Copper Wire.
- B. ASTM Specification B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
- C. FAA Advisory Circular 150/5340-30 (current issue in effect) DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS
- D. FAA Advisory Circular 150/5345-7 (current issue in effect) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS.
- E. FAA Advisory Circular 150/5345-26 (current issue in effect) "FAA SPECIFICATIONS FOR L-823 PLUG AND RECEPTACLE CABLE CONNECTORS".
- F. FAA AC No. 150/5345-53 "AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM" (current issue in effect) and AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum (current issue in effect).
- G. FAA AC No. 150/5370-2G (current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.
- H. Federal Specification A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation).
- I. NFPA 70 – National Electrical Code (most current issue in force).
- J. NFPA 70E – Standard for Electrical Safety in the Workplace.

- K. NFPA 2638645-1 National Fire Protection Association MBR
- L. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- M. UL Standard 44 – Thermoset-Insulated Wires and Cables.
- N. UL Standard 83 – Thermoplastic-Insulated Wires and Cables.
- O. UL Standard 854 – Service Entrance Cables.

108-1.3 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for each wire, conductor, and/or cable type to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** The preferred shop drawing submittal format shall be electronic (PDF) copies. Shop drawings shall include the following information:

- A. **Certification of compliance with the AIP (Airport Improvement Program) Buy American Preferences for all materials and equipment. Do not submit ARRA (American Recovery and Reinvestment Act) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Do not submit NAFTA (North American Free Trade Agreement) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Shop drawings submitted without certification of compliance with the Airport Improvement Program Buy American Preferences or without certification of manufacture in the United States of America in accordance with the AIP Buy American Requirements will be rejected. See the FAA website at: http://www.faa.gov/airports/aip/buy_american/ for more information on the AIP Buy American Preferences requirements. FAA approved equipment that is on the FAA Buy American Conformance List or the list of Nationwide Buy American Waivers Issued by the FAA complies with the AIP Buy American Preferences and will not require additional waiver paperwork for AIP projects.**
- B. In order to expedite the shop drawing review, inspection and/or testing of materials, the Contractor shall furnish complete statements to the Project Engineer as to the origin, composition, and manufacturer of all material to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.
- C. Illinois Department of Transportation Division of Aeronautics requires the following: ***“Under the FAA Buy American Preference, the contractor is required to submit certification that assures only domestic steel, domestic materials and domestic manufactured products are used. The Buy American statement must come from the producer, not the supplier. Producer verification must state that the items are produced in the United States and are made from 100% domestic materials. Statements that solely refer to the “Buy American Act” or “ARRA” or any federal purchasing act other than Title 49 United States code (USC), Section 50101 will be rejected. Producers may use the Illinois Department of Transportation Domestic Material Compliance Certification Form AER 25 to satisfy this requirement.”***
- D. Indicate the pay item number for each respective cable and/or cable in unit duct.
- E. Shop drawings shall include wire/conductor/cable cut sheets with type, size, specifications, Intertek Testing Services verification/ETL listing or UL listing, manufacturer, and catalog or part number.
- F. Shop drawings for cable in unit duct items shall include cut sheets with type, size, specifications, Intertek Testing Services verification/ETL listing or UL listing, manufacturer, and catalog or part number for the respective unit duct.
- G. Where cable is required to have color coded insulation, provide information on the color coding for the respective conductors.

EQUIPMENT AND MATERIALS

108-2.1 GENERAL. Add the following.

"All cable shall be FAA approved or UL-listed as suitable for installed application. Cable furnished on this project shall comply with the requirements of the "Airport Improvement Program Buy American Preference requirements. All conductors shall be Copper."

108-2.2 CABLE. Revise this section to read as follows:

"L-824 Cable – L-824 cable shall be FAA L-824, Type C and shall conform to the requirements of FAA Advisory Circular 150/5345-7 (current edition in effect) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS". L-824 cable shall be FAA approved and listed in the current AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum. Circuits for use with constant current regulator outputs (runway or taxiway lighting circuits) shall use 5000-Volt rated cable. Circuits for use with low voltage applications (600 Volts or below) shall use either 5000-Volt rated cable or 600-Volt rated cable and shall have colored insulation corresponding to the respective voltage system. Cable shall be manufactured in the United States of America to comply with the Airport Improvement Program Buy American Requirement or be on the Federal Aviation Administration list of Nationwide Buy American Waivers.

Cable for use with airfield lighting series circuits (including runway lighting, taxiway lighting and taxi guidance signs) shall be one conductor No. 8, 5,000-Volt, FAA L-824, Type C, stranded.

Item AR108258, 2/C #8 5KV UG Cable in UD shall be two No. 8, 5,000-Volt, FAA L-824, Type C, stranded conductors, in unit duct (1-in.).

XLP-USE Wire. Cable shall comply with UL Standard 44, UL Standard 854, and Federal Specification A-A-59544. Conductor shall be concentric-strand, soft copper, conforming to ASTM B8 and Underwriters' Laboratories Standard UL44 for Rubber Insulated Wires. Insulation shall be rated for 600-Volt. Insulation shall be cross-linked polyethylene conforming to Underwriter's Laboratories Requirements for Type USE-2 insulation. Cable shall be UL-listed and marked USE-2. Cable shall be manufactured in the United States of America to comply with the Airport Improvement Program Buy American Preference Requirements.

Color-coding: Color-code phase and neutral conductor insulation for No. 4 AWG or smaller. Provide colored marking tape or colored insulation for phase and neutral conductors for No. 3 AWG and larger. **Insulated ground conductors shall have green colored insulation for all conductor sizes (AWG and/or KCMIL) to comply with NEC 250.119. Neutral conductors shall have white colored insulation for No. 6 AWG and smaller to meet the requirements of NEC 200.6.** Standard colors for power wiring and branch circuits for 120/240 VAC, 1-Phase, 3-Wire system shall be Phase A – Black, Phase B – Red, Neutral – White, and Ground – Green.

The wiring associated with the airport electrical vault work will be paid for under Item AR109200 Install Electrical Equipment – per lump sum."

108-2.3 BARE COPPER WIRE (COUNTERPOISE). Add the following:

"Item AR108706 1/C #6 Counterpoise shall be #6 AWG bare solid Copper ground wire conforming to ASTM B3. Item AR108706 1/C #6 Counterpoise shall be used to protect the series circuit homerun cables for the PAPI units. Ground rods for counterpoise shall be 3/4-inch in diameter by 30 feet long (minimum) UL listed copper-clad steel. Connections of counterpoise to ground rods shall be exothermic weld."

108-2.4 CABLE CONNECTIONS. Add the following to this section:

"The Contractor will use a cable stripper/penciller whenever cable connections are made.

All breaks in the unit duct shall be sealed by shrink kits.

All below grade splices shall be installed in splice cans, handholes, or manholes. Splice cans shall be L-867, Class IA, Size D (16 in. diameter), and 24 inches deep, with 3/8 inch (minimum) thick, galvanized steel cover and stainless steel bolts. Larger size splice cans shall be provided, as applicable, for specific equipment applications or manufacturer's recommendations, and/or where detailed on the Plans. Splice cans located in areas subject to heavy aircraft or vehicle loading shall be L-868 type. The Resident Engineer/Resident Technician shall approve all splice locations before work commences. The furnishing and installing of splice cans for new homerun cables shall be incidental to the respective cable pay item, and no additional compensation will be allowed."

108-2.5 RESERVED. Revise 108-2.5 as follows to comply with the requirements of FAA Advisory Circular Number 150/5370-10H Standards for Specifying Construction of Airports, Item L-108 Underground Power Cable for Airports:

"108-2.5 SPLICER QUALIFICATIONS. Every airfield lighting cable splicer shall be qualified in making cable splices and terminations on cables rated at and/or above 5000 Volts AC. The Contractor shall submit to the Project Engineer proof of the qualifications of each proposed cable splicer for the 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."

108-2.13 UNIT DUCT. Add the following:

"Standard sizes of smooth wall polyethylene duct shall conform to the dimensional requirements specified below:

Nominal Duct Size	Nominal Inside Diameter	Nominal Standard Wall	Nominal Outside Diameter*
3/4"	0.910"	0.070"	1.050"
1"	1.145"	0.085"	1.315"
1-1/4"	1.440"	0.110"	1.660"
1-1/2"	1.650"	0.125"	1.900"
2"	2.065"	0.155"	2.375"
2-1/2"	2.449"	0.213"	2.875"
3"	3.048"	0.226"	3.500"
4"	4.000"	0.250"	4.500"

* Dimensions include allowance for duct eccentricity."

CONSTRUCTION METHODS

108-3.1 GENERAL. Add the following to this section:

"The cable quantities as shown on the Construction plans are based on straight-line measurement. All other cable lengths, such as slack or waste, will not be measured for payment.

If the Contractor wishes to lay cable on a line other than that shown on the Plans, he shall obtain approval of the Resident Engineer/Resident Technician before doing so. Any additional cable needed because of such change will be at the Contractor's expense.

Only cable in unit duct may be plowed or directional-bored.

The Contractor shall identify all existing underground utilities located within the area where the proposed cables are being installed, and will take all precautions to protect these utilities from damage. Care shall be taken so as not to damage any existing circuits. Any existing circuits damaged shall be immediately repaired to the satisfaction of the Resident Engineer/Resident Technician and/or the respective utility or owner where applicable. Any underground utility damaged will be repaired or replaced at the Contractor's own expense. Any repairs of existing cables will be considered incidental to the contract, and no additional compensation will be allowed.

Contractor shall coordinate work and any power outages with the Airport Manager or respective Airport personnel. Any shutdown of existing systems shall be scheduled with and approved by the Airport Manager prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures, including, but not limited to, 29 CFR Section 1910.147 The Control of Hazardous Energy (lockout/tagout).

Contractor shall comply with the requirements of FAA AC No. 150/5370-2 (current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".

Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

All temporary installations shall comply with National Electrical Code Article 590 – "Temporary Installations." The Contractor shall secure, identify, and place temporary exposed wiring in conduit, duct, or unit duct to prevent electrocution and fire ignition sources in conformance with the requirements of FAA AC 150/5370-2G "Operational Safety on Airports During Construction", Part 2.18.3 "Lighting and Visual NAVAIDS".

All cables installed by the Contractor shall be properly labeled and tagged at all points of access (handholes, manholes, terminal panels, control panels, and the respective wireway in the vault).

All changes to the airfield lighting system shall be documented by the Contractor and provided to the Resident Engineer/Resident Technician."

108-3.2 INSTALLATION IN DUCT OR CONDUIT. Add the following to this section:

"The unit duct will be run continuous through all ducts and conduits.

Where cable in unit duct enters a handhole or manhole with a continuous duct bank system to the termination point (such as from a handhole to the vault or between handholes and/or manholes) the unit duct will not be required for the respective cable."

108-3.3 TRENCHING. Add the following to this section:

"F. Cable installed in cultivated fields shall be installed a minimum of 42 in. below grade.

G. Any and all trenches will be backfilled to a smooth grade to the satisfaction of the Resident Engineer/Resident Technician. All trench settlement shall be corrected for a period of one year. Restoration, grading, and seeding of areas disturbed during the installation of the proposed cable will be incidental to the respective 108 Pay Item."

108-3.5 SPLICING. Add the following:

"In-line connections for existing cables cut during construction shall be repaired with a cast splice kit. The Contractor shall have a minimum of ten splice kits on the job site at all times for emergency repairs. Cast splice kits shall be specified in paragraph (a) of Item 108-2.4. **Splice cans shall be provided for existing cables cut and repaired for each splice in cables not to be abandoned. Where a splice can is not readily available at the time of the cable damage, splice markers shall be temporarily installed over each splice in cables not to be abandoned, then these splices shall later be replaced with new splices in an L-867 splice can.**

There shall be no splices between series lighting circuit isolation transformers unless detailed otherwise on the Plans. In the event that a series lighting circuit cable is cut between isolation transformers, the entire length of cable between these isolation transformers shall be replaced, at the Contractor's own expense.

The Contractor shall use a cable stripper/penciller whenever cable connections are made.

All splices and connections will be considered incidental to the respective cable.

Provide adequate slack cable required to perform cable splices outside of the respective splice cans, handholes, manholes, or other junction structures. Provide adequate slack cable to accommodate the ability to perform future cable splices outside of the respective splice cans, handholes, manholes, or other junction structure."

108-3.6 BARE COUNTERPOISE WIRE INSTALLATION AND GROUNDING FOR LIGHTNING PROTECTION. Revise the third paragraph as follows:

"Counterpoise wire shall be installed in the same trench for the respective entire length of buried cable, conduits and duct banks that are installed to contain airfield cables. The counterpoise shall not be extended to the vault. The counterpoise for each homerun circuit shall be terminated at a ground rod (3/4-inch diameter by 30-feet long minimum) in a manhole or handhole recommended to be not less than 200 feet or greater than 400 feet from the vault."

Add the following:

"Ground resistance tests conducted in the past have identified that Tri-Township Airport has a poor soil resistance due to sandy soil and appears to have a deep water table, which impairs the resistance to ground for individual ground rods. Therefore, the soil conditions will require additional grounding beyond the normal methods of installing an individual 3/4-in. by 10-ft long ground rod at each PAPI light unit. This situation has been studied for the Tri-Township Airport and suitable solutions have been provided in the past to comply with the requirements of the applicable FAA Advisory Circulars, National Electrical Code, and the respective equipment manufacturer requirements.

Each PAPI unit and the respective L-867 transformer can shall be bonded to the respective ground rod with a #6 AWG stranded copper grounding electrode conductor. Top of ground rods shall be buried approximately 24 in. below grade. All connections to ground rods shall be made with exothermic weld-type connections. Connections to L-867 transformer cans shall be with UL listed grounding connectors suitable for use in direct burial or concrete encasement applications. Connections to PAPI unit frame shall be as recommended by the manufacturer or with a UL listed grounding connector. All ground rods associated with the complete PAPI installation shall be bonded to together with a #6 AWG solid copper counterpoise conductor. This counterpoise conductor shall be installed in the same trench located approximately 10 in. above the power and control conductors, between each respective PAPI unit. The counterpoise conductor shall continue with the homerun series circuit conductors to a point approximately 200 feet from the vault. The counterpoise shall have ground rods 3/4-in. by 30 feet long approximately every 500 feet. The counterpoise shall terminate at ground rod located approximately 200 feet from the vault."

108-3.8 TESTING. Add the following.

- "K. Prior to beginning any excavations, airfield lighting modifications, cable installation or any other activities that might possibly affect airfield lighting, all existing series circuit cables shall be Megger tested with an insulation resistance tester and recorded at the vault. All existing series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. Copies of test results shall be provided to the Resident Engineer/Resident Technician and the respective Project Engineer within 5 business days of conducting the tests.
- L. After airfield lighting modifications, additions, and/or upgrades have been completed, series circuit cables shall be Megger tested with an insulation resistance tester and recorded at the vault. All series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. Copies of test results shall be provided to the Resident Engineer/Technician and the respective Project Engineer within 5 business days of conducting the tests.
- M. Insulation resistance testing equipment for use with 5,000 Volt series circuit cables shall use an insulation resistance tester capable of testing the cables at 5,000 Volts. Older series circuit cables and/or cables in poor condition may require the test voltage to be performed at a voltage lower than 5,000 Volts (Example 1,000 Volts, 500 Volts, or less than 500 Volts). The respective test voltage shall be recorded for each cable insulation resistance test result.
- N. Insulation resistance testing equipment for use with 600 Volt rated cables shall use a 500 Volt insulation resistance tester. The respective test voltage shall be recorded for each cable insulation resistance test result.
- O. It is recommended to use the same insulation resistance test equipment throughout the project to ensure reliable comparative readings at the beginning of the project and at the completion of the project.
- P. The Contractor is responsible to employ qualified personnel that are capable of properly conducting the required tests to the satisfaction of the Project Engineer. Tests that provide unsatisfactory results shall be reviewed to determine the possible cause of unsatisfactory results, corrections shall be made, and the tests shall be conducted again."

Add the following:

108-3.12 LOCATING OF EXISTING UNDERGROUND UTILITIES AND CABLES. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. Neither the Owner nor the Engineer assumes any responsibility whatsoever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size, and type of material of existing underground utilities indicated are representative of those to be encountered in construction. It shall be the Contractor's responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans, and shall obtain from the respective utility companies, detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment, where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Owner's Representative and/or the Resident Engineer/Resident Technician shall also be immediately notified. Any damage to such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract.

All utility cables and lines shall be located by the respective utility. **Contact JULIE (Joint Utility Location Information for Excavators) for utility information, phone: 1-800-892-0123.** Contact the FAA (Federal Aviation Administration) for assistance in locating FAA cables and utilities. Location of FAA power, control, and communication cables shall be coordinated with and/or located by the FAA. Also contact Airport Director/Manager and Airport Personnel for assistance in locating underground Airport cables and/or utilities. Also coordinate work with all aboveground utilities.

Contractor is responsible for the repairs of any utilities, lines, and/or cables damaged as a result of his operations.

Payment for locating and marking underground utilities and cables will not be paid for separately, but shall be considered incidental to the plowing/trenching/boring of cable and cable in unit duct.

108-3.13 SEPARATION OF HIGH-VOLTAGE AND LOW-VOLTAGE WIRING. High-voltage circuit wiring (airfield lighting 5000 Volt series circuits and/or other circuits rated above 600 Volts) and low-voltage circuit wiring (rated 600 Volts and below) shall maintain separation from each other. High-voltage wiring and low-voltage wiring shall not be installed in the same wireway, conduit, duct, raceway, handhole, or junction box. Where necessary, provide split flexible duct around low voltage cables located in a handhole with high voltage cables, to isolate the cables from possible contact with each other.

108-3.14 IDENTIFICATION OF CABLES. At electrical handholes, manholes, pull boxes, and wireways, identify and label each cable originating in the vault with respect to the system or device served. Provide identification tags rated suitable for the respective locations with permanent markings.

METHOD OF MEASUREMENT

108-4.1. Add the following:

“The footage of cable and/or cable in unit duct installed in duct, conduit, or raceway to be paid for shall be the number of linear feet of cable installed in duct, conduit, or raceway measured in place by direct measurement, completed, ready for operation and accepted as satisfactory with no allowance being made for overrun due to slack, turns, splices, etc. Slack cable required to perform cable splices outside of the respective splice cans, handholes, or manholes, shall be incidental to the respective cable pay item and no additional measurement for payment will be made. Coring and interface to handholes, manholes, or other structures shall be incidental to the respective cable pay item and no additional measurement for payment will be made. The cable quantities shown on the Plans are based on straight-line horizontal measurements and do not consider any vertical distances. Cable will be measured for payment from the respective termination or splice point in the field up to the respective termination point. For cable that enters the vault, cable outside the vault will be measured; cable inside or below the vault shall not be measured but shall be incidental to Item AR109200, and no additional measurement for payment will be made. Conduit and/or raceway necessary to interface cable or cable in unit duct to a respective power source will be considered incidental to the respective cable pay item and no additional compensation will be made.”

108-4.2. Add the following:

Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet installed including ground rods and grounding connectors, ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall not include additional quantities required for slack. Cable will be measured for payment up to the designated termination point in the field.

Add the following:

108-4.3 Cable markers shall not be measured separately for payment but shall be incidental to the Contract unit price for the respective cable. The footage of line marking tape installed shall be considered incidental to the work and shall not be measured separately.

BASIS OF PAYMENT

108-5.1. Add the following:

“Payment will be made at the contract unit price per linear foot of cable completed and accepted by the Resident Engineer/Resident Technician. This price shall be full compensation for furnishing all materials, and for all preparation, assembly, and installation of these materials; for all plowing, trenching, directional-boring, coring of manholes or handholes, installation in ducts, raceways, conduits, splice cans, handholes, or manholes, and for all excavation and backfilling; for all site restoration (topsoiling, grading, seeding, mulching) and pavement restoration; and for all labor, equipment, tools, and incidentals necessary to complete this Item.”

Payment will be made under:

Item AR108258 2/C #8 5KV UG Cable in UD - per linear foot
Item AR108706 1/C #6 Counterpoise - per linear foot

ITEM 109. INSTALLATION OF AIRPORT TRANSFORMER VAULT AND VAULT EQUIPMENT

DESCRIPTION

Add the following:

109-1.2. Item AR109200 "Install Electrical Equipment" shall consist of furnishing and installing electrical equipment and materials inside the vault to perform the vault upgrades as detailed on the Plans and specified herein. This item shall include all labor, materials, transportation, equipment, wiring, raceways, grounding, warranties, tools, coordination, relocations, operational instructions, labeling, testing, and all incidentals required to place the vault and associated equipment into proper working order as a completed unit to the satisfaction of the Owner and Resident Engineer/Resident Technician.

Included under this item shall be the following:

- A. Field verification of existing site conditions to determine complexity of the proposed work.
- B. Coordinating all work with the Airport Manager, the designated Airport Maintenance Staff, and the Resident Engineer/Resident Technician.
- C. Furnishing and installing electrical equipment, support hardware, pull boxes, junction boxes, wireways, raceways, conduits, cable, wiring, grounding, and accessories as detailed on the Plans and specified herein.
- D. Furnishing and installing series circuit plug cutouts with enclosure and support hardware as detailed on the Plans and specified herein.
- E. Relay interface control panel for the PAPI systems.
- F. Furnishing and installing circuit breaker(s).
- G. Furnishing lockout/tagout equipment for the vault.
- H. Furnishing and installing UL listed fire stop material at each series plug cutout enclosure conduit entry and exit.
- I. Furnishing and installing all grounding as detailed on the Plans and specified herein. Include ground bus bar for high voltage handhole as detailed on the Plans and specified herein.
- J. Locating, identifying, relocating, and/or replacing existing airfield lighting cables, power cables, and control wiring, as necessary to disconnect these respective cables and wiring from the existing equipment and reconnect, replace and/or interface these respective cables to the new or relocated equipment. All work shall be coordinated with the Airport Manager and shall be coordinated to minimize down time to the respective airfield systems.
- K. Identifying and labeling all wiring associated with the circuit upgrades.
- L. Furnishing shop drawings for new equipment and materials.
- M. Testing, adjusting, and retesting (where applicable) all new equipment and modifications to existing systems for proper operation.
- N. Labeling all electrical equipment and incidentals necessary to place all of the equipment in operation as a complete unit acceptable to the Owner and Resident Engineer/Resident Technician.
- O. Furnishing operation, maintenance, and installation manuals for all new equipment.

109-1.3. Item AR109302 "4 KW Regulator, Style 2" shall consist of furnishing and installing a new constant current regulator for the PAPI systems series circuit as detailed on the Plans and specified herein. This item shall include the constant current regulator and all input wiring and conduits from the power source to the regulator, all control wiring and conduits from the relay interface panel to the regulator, all output series circuit power wiring and conduit from the regulator to the respective series circuit plug cutout, and the associated grounding. This item shall include all field verification, labor, materials, transportation, equipment, wiring, connections, raceways, grounding, warranties, tools, coordination, operational instructions, labeling, identification, testing, and all incidentals required to place the constant current regulator into proper working order as a completed unit to the satisfaction of the Owner and Resident Engineer/Resident Technician.

109-1.4. Item AR109903 "Remove Regulator" shall consist of removal of the existing regulator scheduled for replacement, and all associated wiring, conduits, cutouts, controls, equipment and materials located in the existing vault as detailed on the Plans and specified herein. The regulator shall be disconnected, turned over to the Airport, and relocated to a storage location on the Airport. All other equipment and materials to be removed shall be turned over to the Airport. The Airport shall retain salvage rights to the vault and equipment. In the event that the Airport does not want the respective equipment or materials, the Contractor shall dispose of that respective equipment and materials in a legal manner off of the airport property. This item shall include all labor, equipment, tools, disposal, coordination, and incidentals required to complete this item of work.

109-1.5 REFERENCES. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

- A. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.
- B. ANSI C80.4 – Fittings Rigid Metal Conduit and EMT.
- C. ANSI Z535.4-2002 - American National Standard for Product Safety Signs and Labels.
- D. ASTM Specification B3 – Standard Specification for Soft or Annealed Copper Wire.
- E. ASTM Specification B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
- F. Federal Specification A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation).
- G. FAA AC No. 150/5340-26C (current issue in effect) "MAINTENANCE OF AIRPORT VISUAL AID FACILITIES".
- H. FAA AC No. 150/5340-30 (current issue in effect) "DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS".
- I. FAA AC 150/5345-3G (current issue in effect) SPECIFICATION FOR L-821, PANELS FOR THE CONTROL OF AIRPORT LIGHTING
- J. FAA AC No. 150/5345-7 (current issue in effect) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS.
- K. FAA AC No. 150/5345-10 (current issue in effect) "SPECIFICATION FOR CONSTANT CURRENT REGULATORS AND REGULATOR MONITORS".
- L. FAA AC No. 150/5345-53 "AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM" (current issue in effect) and AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum (current issue in effect).
- M. FAA AC No. 150/5370-2 (current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.
- N. FAA-STD-019e, December 22, 2005, Department of Transportation, Federal Aviation Administration Standard, LIGHTNING AND SURGE PROTECTION, GROUNDING, BONDING AND SHIELDING REQUIREMENTS FOR FACILITIES AND ELECTRONIC EQUIPMENT.

- O. NFPA 70 – National Electrical Code (most current issue in force).
- P. NFPA 70E – Standard for Electrical Safety in the Workplace.
- Q. NFPA 2638645-1 National Fire Protection Association MBR
- R. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- S. UL Standard 6 – Rigid Metal Conduit.
- T. UL Standard 44 – Thermoset-Insulated Wires and Cables.
- U. UL Standard 83 – Thermoplastic-Insulated Wires and Cables.
- V. UL Standard 467 – Grounding and Bonding Equipment.
- W. UL Standard 486A-486B Wire Connectors.
- X. UL Standard 514B – Conduit, Tubing and Cable Fittings.

109-1.6 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for vault equipment and materials to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** The preferred shop drawing submittal format shall be electronic (PDF) copies. Shop Drawings shall clearly indicate proposed items, capacities, characteristics, and details in conformance with the Plans and Specifications. The respective manufacturer shall certify capacities, dimensions, special features, etc. When a submittal is marked “Revise and Resubmit”, “Rejected”, and/or “Not Approved”, do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations, resubmit, and repeat if necessary to obtain a different action mark such as “No Exceptions Taken” or “Furnish as Corrected”. Contractor is responsible for compliance with the specified characteristics. Contractor’s responsibility for error and omissions in submittals is not relieved by the Project Engineer’s review of submittals. Accompany each submittal with a transmittal letter that includes the date, project title and number, Contractor’s name and address, the number of Shop Drawings, product data and/or samples submitted, notification of any deviations from the Contract, and any other pertinent information. Shop drawings shall include the following information:

- A. **Certification of compliance with the AIP (Airport Improvement Program) Buy American Preferences for all materials and equipment. Do not submit ARRA (American Recovery and Reinvestment Act) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Do not submit NAFTA (North American Free Trade Agreement) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Shop drawings submitted without certification of compliance with the Airport Improvement Program Buy American Preferences or without certification of manufacture in the United States of America in accordance with the AIP Buy American Requirements will be rejected. See the FAA website at: http://www.faa.gov/airports/aip/buy_american/ for more information on the AIP Buy American Preferences requirements. FAA approved equipment that is on the FAA Buy American Conformance List or the list of Nationwide Buy American Waivers Issued by the FAA complies with the AIP Buy American Preferences and will not require additional waiver paperwork for AIP projects.**
- B. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
- C. Provide cut sheets with part number and specifications for each constant current regulator. Include list of spare parts.

- D. Provide cut sheets with part number and specifications for the series circuit plug cutouts.
- E. Provide cut sheets with part number and specifications for the enclosure to house the Series Circuit Cutouts. Include certification that the cutout enclosure is made in the United States of America from domestic steel.
- F. Provide cut sheets with part number for the L-861T(L) taxiway edge light and transformer for indication of the respective series circuit operation associated with the cutout enclosure.
- G. Provide cut sheets for all types of conduit used in the vault (for example galvanized rigid steel conduit and UL listed liquid tight flexible metal conduit). Include certification that steel conduits are made with 100 percent domestic steel.
- H. Provide cut sheets for the power and control circuit conductors.

EQUIPMENT AND MATERIALS

109-2.1 GENERAL. Add the following to this section:

- "C. FAA approval of airport lighting equipment and subsequent inclusion in Advisory Circular 150/5345-53 "Airport Lighting Equipment Certification Program" only means that the test data satisfied the applicable Specification requirements. This does not insure that the approved equipment will satisfactorily operate when connected power-wise and/or control-wise to other approved airport lighting equipment or "off the shelf" equipment not requiring FAA approval.
- D. The Contractor shall ascertain that all lighting system components furnished by him (including FAA-approved equipment) are compatible in all respects with each other and the remainder of the new system. Any non-compatible components furnished by the Contractor shall be replaced by him, at no additional cost to the Airport Sponsor, with a similar unit approved by the Engineer (different model or different manufacturer) that is compatible with the remainder of the airport lighting system.
- E. Except as specified otherwise, all new equipment shall be provided by the Contractor and shall be tested for Specification conformance as part of the Aviation Lighting Equipment Certification Program. Certification of conformance, as tested by the respective testing laboratory, shall be provided by the manufacturer for all items submitted for approval.

109-2.4 BRICK. Delete this section.

109-2.5 RIGID STEEL CONDUIT. Add the following:

"GRSC shall be heavy wall, hot-dipped, galvanized steel pipe bearing the UL label and conforming to UL-6 and ANSI Specification C80.1. Couplings, connectors, and fittings for rigid steel conduit shall be threaded, galvanized steel, or galvanized malleable iron specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4 and UL-514B. Set screw type fittings are not acceptable. Steel used to manufacture conduits shall be 100 percent domestic steel. Contractor shall provide certification that the respective steel conduits used on this project are manufactured from 100 percent domestic steel."

109-2.13 GROUND BUS. Add the following:

"Ground bus for the high voltage handhole interior shall be 1/4 inch thick by 2 inches wide by 24 inches long tinned copper bus bar with predrilled holes to accommodate the respective ground lugs, as manufactured by Harger Lightning Protection Inc., Erico, or approved equivalent. Ground bus shall include standoffs, insulators, splices, bonding jumpers, mounting hardware, etc., as required for the respective application. All cable connections to the ground bus shall be with two-hole tongue, long barrel compression lugs bolted to the bus bar, as detailed on the Plans."

109-2.16 POTHEADS. Delete this section.

109-2.17 PRE-FABRICATED METAL HOUSING. Delete this section.

109-2.18 FAA-APPROVED EQUIPMENT. Add the following:

"FAA approved equipment shall also comply with the requirements of the Airport Improvement Program Buy American Preference Requirements. FAA approved equipment shall include the following:

- A. Constant Current Regulator for Runway 13-31 PAPI systems. Constant Current Regulator (CCR) for Runway 13-31 PAPI systems shall be a Type L-828 constant current regulator, Class 1 - 6.6 Amps output current, Style 2 – five (5) brightness steps (2.8, 3.4, 4.1, 5.2, and 6.6-Amps), **4 KW (minimum)**, 240 VAC, single-phase, 60 Hertz input. Constant current regulator shall comply with FAA AC 150/5345-10 (current issue in effect) for Type L-828 regulator and shall be FAA Approved. Constant current regulator shall properly operate the respective airfield lighting system it is powering. **The steady burning light load for the proposed PAPI systems on Runway 13-31 has been calculated to be approximately 3210 Watts. In the event that the respective PAPI circuit loads exceed 90 percent of a 4KW CCR rating a larger constant current regulator properly sized for the respective loads will be required.** Constant current regulator must cause the minimum possible radiated or conducted electromagnetic interference (EMI) to airport and FAA Equipment (example; computers, radars, instrument landing systems, radio receivers, VHF Omni-directional Range, etc.) that may be located on or near an airport. Constant current regulator shall include open circuit protection, over current protection, output current ammeter, output voltmeter, and arresters of the proper rating to protect the CCR from lightning induced voltage and current surges installed at both the input and output terminals of the CCR. Constant current regulators shall also include a remote/local control feature with selections for "Remote, Off, 10 percent Brightness, 30 percent Brightness, and 100 percent Brightness". Control voltage shall be 120 VAC (internal/external). Constant current regulators shall be ADB Airfield Solution dry-type ferro-resonant regulator, Manairco, Inc. dry-type ferromagnetic reactor regulator, or approved equal. Include the following spare components:

1. One spare control circuit board for each type in the constant current regulator
2. Primary switch contactor
3. Lightning arresters (input and two output)
4. Control circuit fuses or breaker

Note the requirement for spare parts is based on FAA AC 150/5340-26C Maintenance of Airport Visual Aid Facilities, Part 5.2 Constant Current Regulators (CCRs) which notes the following in regard to a backup regulator and/or spare parts: *"Most constant current regulators manufactured today are reliable and reasonably trouble-free. However, do not be lulled into complacency when considering preventative maintenance of the vital components in the airport lighting electrical system. A regulator failure without a spare backup regulator or spare parts on hand can shut down a vital runway or taxiway indefinitely. Many times otherwise conscientious electricians have been surprised by a sudden failure or lack of spare parts for a piece of equipment. Unlike other elements of the electrical system that use commonly available parts, when a failure in a CCR, it is most likely that a printed circuit (PC) board will need to be replaced. The CCR manufacturer may not have replacement parts readily available."*

109-2.19 OTHER ELECTRICAL EQUIPMENT. Add the following:

"Switches, cutouts, relays, lighting contactors, terminal blocks, circuit breakers, and all other regularly used commercial items of electrical equipment not covered by FAA equipment specifications shall conform to the applicable rulings and standards of the Institute of Electrical and Electronic Engineers or the National Electrical Manufacturer's Association. 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 Plans or in the proposal. Contractor shall confirm quantity for all electrical equipment with the Plans. Equipment and Materials shall be manufactured in the United States to comply with the Airport Improvement Program Buy American Preference requirements. Proposed electrical equipment for the vault shall be as follows:

- A. Radio Control Relay Interface Panel for PAPI's. Relay interface panel shall be provided for the constant current regulators to interface the L-854 radio controller to the respective constant current regulator for the PAPI systems. Relay interface panels shall be as detailed on the Plans. Relay interface panels shall be manufactured by an FAA approved L-821 control panel manufacturer or a UL 508 industrial control panel builder and shall be manufactured in the United States to comply with the Airport Improvement Program Buy American Preference Requirements.
- B. Type S-1 Series Plug Cutouts. Provide series plug cutouts for each constant current regulator as detailed on the Plans. Series plug cutouts shall be Type S-1, rated 5,000 Volts, 20-Amp, and shall be suitable for disconnecting the output of the constant current regulator and isolating it from remainder of the respective airfield lighting system. Cutouts shall be certified in writing by the manufacturer as suitable for the respective application. Cutouts shall disconnect the input from the output, short the input terminals, and short the output terminals when the handle/plug is removed. Series plug cutouts shall be Crouse-Hinds, Type S-1, Model 2, Catalog Number 30775, Manairco Catalog Number MRS1, or an approved equal. Series cutouts where the manufacturer has noted their cutouts are not recommended to operate with the handle pulled/removed are not acceptable. Other cutouts, that do not function as detailed on the Plans or that are not suitable for the respective application, are not acceptable. Install the series plug cutouts in a NEMA 1 or NEMA 12 painted steel enclosure adequately sized to house the cutout(s), with a hinged cover and back panel to mount the cutouts. All enclosures shall be pad lockable.
- C. Circuit Breakers. Circuit breakers, to be installed in the existing vault panelboard, shall be compatible with the existing panelboard. **Circuit breakers for the Tri-Township Airport at Savanna, Illinois vault distribution panel shall be bolt-on type with an amp interrupting capacity of 10,000 Amps minimum at 120/240 VAC.** Circuit breaker amperage trip settings and number of poles shall be as detailed on the Plans.
- D. Junction and Pull Boxes. Junction and pull boxes shall be sized, as required for conductors and splices and per 2017 NEC Article 314. Boxes shall be UL-listed. Special boxes made to suit conditions shall be used to accommodate the respective application, or where required by the NEC, even though they might not be indicated on the Drawings. Surface-mounted exterior junction and pull boxes located in non-hazardous, non-classified areas shall be NEMA 4X stainless steel or aluminum, with hinged cover as manufactured by Hoffman, E-Box, Saginaw Control & Engineering, or approved equal. All junction and pull boxes installed in classified hazardous areas (Class 1, Division 1 or 2, Group D) shall be NEMA 7 and NEMA 4 and shall comply with applicable provisions of the NEC, including, but not limited to, Articles 500 and 501.
- E. Liquid-Tight Flexible Metal Conduit. Liquid-tight, flexible metal conduit shall consist of polyvinyl jacket over flexible hot dip galvanized steel tubing. The flexible conduit shall be completely sealed from liquids, dust, dirt, and fumes and be resistant to oil, gasoline, grease, and abrasion. Jacket shall also be sunlight-resistant. Liquid-tight flexible metal conduit shall be UL-listed, suitable for use as a grounding conductor, and comply with Article 350 of the NEC. **Liquid-tight flexible metal conduit and associated fittings shall be UL-listed to meet the requirements of NEC 350.6.** Liquid-tight flexible metal conduit shall be Anaconda Sealtite Type UA as manufactured by Anamet Electrical Inc., Liqueflex Type LA as manufactured by Electri-Flex Company, Liquid-Tuff Type LFMC as manufactured by Atkore International AFC Cable Systems, or approved equal. Do not install liquid-tight, flexible metal conduit that is not UL listed. Confirm liquid-tight, flexible metal conduit bears the UL label prior to installation. Provide certification that liquid-tight flexible metal conduit is produced from domestic steel.
- F. Lockout/Tagout Kit. Provide a Lockout Station suitable for wall mounting, with 5 lockout padlocks each with a different key, and 25 lockout tags. Lockout station and components shall comply with OSHA Standard 1910.147. Include hardware to mount on the vault interior wall. Coordinate mounting location with the Airport Manager."

- G. Fire Barrier Moldable Material. Provide UL listed fire barrier moldable putty suitable for use with electrical box protection at electrical conduit penetrations. The fire stop material shall be designed to prevent the spread of fire, smoke and noxious gasses. The fire stop material shall be pliable, conformable, and shapeable to accommodate the respective coverage and application. Fire stop material shall be manufactured by 3M, Hilti, or approved equal.

109-2.20 WIRE. Add the following to Section A. Control Circuits:

“THWN Wire. Cable shall comply with Underwriters’ Laboratories Standard UL-83 and Federal Specification A-A-59544. Conductor shall be soft-annealed, uncoated Copper and shall comply with ASTM B3 and B8. Insulation shall be rated for 600-Volt. Insulation shall be polyvinyl-chloride conforming to Underwriters’ Laboratories requirements for Type THW. The outer covering shall be nylon-conforming to Underwriters’ Laboratories for type THHN or THWN. Cable shall be UL-listed and marked THWN.”

Delete paragraphs 1, 2, and 3 under Section B. Power Circuits.

Add the following:

“Power Cable (600-Volt and Below). All power wiring, 600-Volt and below, shall be the type, size, and number of conductors as noted on the Plans.

THWN Wire. Cable shall comply with Underwriters’ Laboratories Standard UL-83 and Federal Specification A-A-59544. Conductor shall be soft-annealed, uncoated Copper and shall comply with ASTM B3 and B8. Insulation shall be rated for 600-Volt. Insulation shall be polyvinyl-chloride conforming to Underwriters’ Laboratories requirements for Type THW. The outer covering shall be nylon-conforming to Underwriters’ Laboratories for type THHN or THWN. Cable shall be UL-listed and marked THWN-2. Power and control wiring shall be Type THWN-2, or approved equal.

Note where THWN wiring is referenced on the Plans, it shall be THWN-2.

XHHW Wire. Cable shall be UL-listed as Type XHHW-2 per UL Standard 44. Cable shall also conform to ICEA S-95-658/NEMA WC70 and Federal Specification A-A-59544. Conductors shall be Class B stranded, annealed, uncoated Copper per UL Standard 44. Insulation shall be rated for 600-Volt. Insulation shall be cross-linked polyethylene complying with the physical and electrical requirements of UL Standard 44 for Type XHHW-2. XHHW wire may be used in place of THWN wire for all applications.

XLP-USE Wire. Cable shall comply with UL Standard 44, UL Standard 854, and Federal Specification A-A-59544. Conductor shall be concentric-strand, soft Copper, conforming to ASTM B8 and Underwriters’ Laboratories Standard UL44 for Rubber-Insulated Wires. Insulation shall be rated for 600-Volts. Insulation shall be cross-linked polyethylene conforming to Underwriter’s Laboratories Requirements for Type USE-2 insulation. Cable shall be UL-listed and marked USE-2.

Series Circuit 5000-Volt Cable. Cable for use with series circuit airfield lighting shall be FAA-L-824, Type C cable complying with Item 108. L-824 cable shall be FAA approved and listed in the current AC150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum. Cable furnished on this project shall comply with the requirements of the Airport Improvement Program Buy American Requirement and the “Buy American Act”. Circuits for use with constant current regulator outputs (runway or taxiway lighting circuits) shall use 5000-Volt rated cable.

Grounding electrode conductors and/or bonding jumpers shall be the size and type, as detailed on the Plans. Ground wire for bonding constant current regulator housings, cutout enclosures, and other vault equipment frames to the vault ground bus shall be #6 AWG stranded Copper.”

109-2.21 FLOOR DRAINS. Delete this section.

CONSTRUCTION METHODS

INSTALLATION OF EQUIPMENT IN VAULT OR PREFABRICATED METAL HOUSING

109-3.10 GENERAL. Add the following to this section:

“The Contractor shall furnish and install all materials necessary for complete and operational installation of the vault equipment, as specified herein and as shown on the Plans. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NFPA 70 – National Electrical Code (NEC) most current issue in force, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical equipment and materials shall be installed in conformance with the respective manufacturer’s directions and recommendations for the respective application. Any installations which void the UL listing, Intertek Testing Services verification/ETL listing (or other third party listing), and/or the manufacturer’s warranty of a device will not be permitted.

- A. Keep a copy of the latest NEC in force on site at all times during construction for use as a reference.
- B. Each Contractor and/or Subcontractor shall keep a copy of the Plans, Special Provision Specifications including any addenda, and copies of any change orders on site at all times during construction.
- C. Verify respective circuit and power sources prior to removing, disconnecting, relocating, installing, or connecting the respective constant current regulator, equipment, or other device.
- D. Identify each respective circuit prior to performing work on that circuit.
- E. Never pull a cutout with the circuit energized. Shut off constant current regulators and circuits prior to pulling a series circuit plug cutout.
- F. Locate Existing Underground Utilities and Cables. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. Neither the Owner nor the Engineer assumes any responsibility whatsoever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size, and type of material of existing underground utilities indicated are representative of those to be encountered in the construction. It shall be the Contractor’s responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans, and shall obtain, from the respective utility companies, detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment, where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Owner’s Representative and/or the Resident Engineer/Resident Technician shall also be immediately notified. Any damage to such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract. All utility cables and lines shall be located by the respective utility. **Contact JULIE (Joint Utility Location Information for Excavators) for utility information, phone: 1-800-892-0123.** Contact the FAA (Federal Aviation Administration) for assistance in locating FAA cables and utilities. Location of FAA power, control, and communication cables shall be coordinated with and/or located by the FAA. Also contact Airport Director/Manager and Airport Personnel for assistance in locating underground Airport cables and/or utilities. Also coordinate work with all aboveground utilities.
- G. Identify, secure, and place any temporary exposed wiring in conduit to prevent electrocution and fire ignition sources.”
- H. Grounding work and modifications shall not be performed during a thunderstorm or when a thunderstorm is predicted in the area.

- I. High voltage handhole ground bus and grounding work shall be as detailed on the Plans.
- J. The respective personnel performing airfield lighting work, vault work, and/or test shall be familiar with, and qualified to work on 5000 volt airfield lighting series circuits, constant current regulators and associated airport electrical vault equipment.
- K. FAA requires that every airfield lighting cable splicer shall be qualified in making cable splices and terminations on cables rated at and/or above 5000 Volts AC and shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.
- L. Obtain approval from Airport Manager prior to shutdown of airfield lighting and other systems. Contractor shall coordinate work and any power outages with the Airport Manager and the Resident Engineer/Resident Technician. Any shutdown of existing systems shall be scheduled with and approved by the Airport Manager prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout).
- M. Obey the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.
- N. The Contractor shall comply with the requirements of FAA AC No. 150/5370-2 (current issue in effect) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION”.
- O. Electrical equipment installed by the Contractor shall be properly labeled, and all cables must be tagged. All power and control cables shall be installed in conduit, wireways, pull boxes, junction boxes, or raceways. No exposed power or control wiring will be permitted.
- P. Other projects might be underway during construction of this project. In the event that other projects are under construction the Contractor shall cooperate with other contractors.
- Q. Record and document all changes to the airfield lighting system control wiring and provide to the Resident Engineer/Resident Technician.

109-3.11 POWER SUPPLY EQUIPMENT. Add the following to this section:

“Constant Current Regulators. Install constant current regulators in conformance with the manufacturer’s recommendations, as detailed on the Plans and as specified herein. Maintain working clearances in front of constant current regulators per the requirements of NEC 110.26 and 110.34. Maintain clearance around constant current regulators for air flow and cooling per the respective manufacturer’s recommendations. Confirm circuit breaker sizes for constant current regulators are sized in conformance with the respective manufacturer’s recommendations and/or requirements and NEC. Where necessary to accommodate the respective constant current regulator input amperage requirements, circuit breakers, conductors, and conduits shall be adjusted (increased in size) to meet the manufacturer’s recommendations and/or requirements and the NEC. Conduit connections to constant current regulators shall be with UL-listed, liquid-tight, flexible metal conduit. Include an external bonding jumper or internal equipment ground wire with each piece of liquid-tight, flexible metal conduit that is connected to a constant current regulator to comply with NEC 350.60. High-voltage wiring shall enter each respective regulator at the high-voltage/series circuit output section of the regulator. 208 VAC or 240 VAC input power wiring shall enter each respective regulator at the low-voltage/input power section of the regulator. Furnish and install control wiring, as detailed on the Plans. Control wiring shall enter each respective regulator at the control section of the regulator. Bond each constant current regulator enclosure frame, to the vault ground bus with a #6 AWG (minimum), bare-stranded, Copper-bonding jumper.”

109-3.12 SWITCHGEAR AND PANELS. Add the following to this section:

- A. Installation of Control Panels. Install control panels, as detailed on the Plans and in conformance with the respective panel manufacturer's requirements and/or recommendations.
- B. Installation of S-1-Type Cutouts. Install plug cutouts in conformance with the manufacturer's recommendations, as detailed on the Plans and as specified herein. Provide NEMA 1 or NEMA 12 painted steel enclosures adequately sized for the cutouts and cables with hinged cover and back panel to mount the plug cutouts. Provide UL listed fire stop material at each conduit entry and exit to the cutout enclosure.
- C. Installation of Circuit Breakers in Panelboards. Install circuit breakers in panelboards in conformance with the respective manufacturer's directions. Connect only one wire/cable to each breaker terminal. Update circuit directory to identify the respective device fed by each new circuit breaker.

109-3.13 DUCT AND CONDUIT. Add the following to this section:

- "A. Conduit shall be installed in accordance with the following:
 - 1. All service, feeder, branch circuit, and control circuit conduits associated with the vault shall be galvanized rigid steel conduit as detailed on the Plans.
 - 2. Schedule 40 PVC conduits shall be used for individual grounding electrode conductors and/or bonding jumpers.
 - 3. Liquid-tight, flexible metal conduit shall be used as specified herein.
- B. Conduit Runs:
 - 1. All conduits shall be sized, as indicated on the Drawings, or if conduit sizes not shown shall be in accordance with the NEC. All conduit systems shall be mechanically and electrically continuous from source of current to all outlets and grounded in accordance with the NEC.
 - 2. Run all exposed conduit parallel to building walls using right angle bends. Exposed diagonal runs of conduit will not be permitted. Do not install conduit on roof surfaces unless specifically indicated on the Drawings.
 - 3. Ream conduit after threads are cut. Cut ends square and butt solidly into couplings.
 - 4. Prevent the accumulation of water, foreign matter, or concrete in the conduits during the execution of the work. Temporarily plug conduit, blowout, and swab before wires are pulled.
 - 5. Fasten conduits to all sheet metal boxes and cabinets with two locknuts in accord with the NEC where insulated bushings are used and where bushings cannot be brought into firm contact with the metal enclosures; otherwise, use at least a single locknut and bushing.
 - 6. Seal each underground joint and make water-tight.
 - 7. Where building construction or other conditions make it impossible to use standard threaded couplings, install water-tight, threaded unions.
 - 8. Make changes in direction of runs with symmetrical bends or cast-metal fittings. Make field-made bends and offsets with conduit bending machine to avoid changing the internal diameter of the conduit and not damage its protective coating either inside or outside. Individual bends shall not

exceed 90 degrees, and not more than 270 degrees in total bends will be allowed in any one conduit run. Where more bends are necessary, and conduit runs exceed 150 lineal feet, install a suitable pull box or junction box.

9. Provide empty conduits installed with a pull wire. Pull wire shall be No. 14 AWG, zinc-coated steel or of plastic having not less than 200 lb. tensile strength. Leave not less than 12 in. of slack at each end of the pull wire.
10. Use liquid-tight, flexible metal conduit for final connection to motors, constant current regulators, transformers, portable equipment, and for equipment subject to vibration and noise transmission. For each conduit size up to 1-in. trade size, flexible conduit shall be minimum length of 12 in. and a maximum length of 36 in. and for conduit sizes above 1-in. trade size, flexible conduit shall be minimum length of 20 in. and maximum length of 48 in. Liquid-tight flexible metal conduit and associated fitting shall be UL listed to meet the requirements of NEC 350.6. Liquid-tight flexible metal conduit that is used for flexibility (including connections to motors, constant current regulators, and transformers) shall require an external bonding jumper or internal equipment grounding conductor per NEC 350.60. Do not install liquid-tight flexible metal conduit that is not UL listed. Confirm liquid-tight flexible metal conduit bears the UL label prior to installation
11. Provide duct seal at conduit terminations inside enclosures where the respective conduit is from below grade.
12. All enclosures rated NEMA 4, 4X shall have watertight hubs at conduit entrances UL listed NEMA 4, 4X for the respective enclosure to maintain the NEMA 4, 4X rating. Provide NEMA 4 hubs at conduit entrances for equipment rated NEMA 3R to maintain a watertight seal.

C. Raceway Support and Hangers:

1. Securely fasten raceways in-place and support from ceiling or walls at spacing not exceeding:

<u>Material</u>	<u>Maximum Spacing of Supports</u>
a. ½-in. through 1-in. trade size conduit	6 ft.
b. 1¼-in. through 1½-in. trade size conduit	8 ft.
c. 2-in. to 4-in. trade size conduit	10 ft.
d. Liquid-tight, flexible metal conduit	4½ ft.
e. Metal wireway	10 ft.

2. Support rigid conduits within 3 feet of every outlet box, junction box, pull box, cabinet, or termination. Support flexible conduit within 12 in. on each side of every outlet box or fitting.
3. Support conduits by pipe straps, wall brackets, hangers, or ceiling trapeze. The use of perforated iron or wire for supporting conduits is prohibited. Fasten with wood screws or screw nails to wood; by toggle bolts on hollow masonry units, by concrete inserts, or expansion bolts on concrete or spring-tension or threaded C-clamps for rigid steel conduits on steel. Do not weld conduits or pipe straps to steel structures unless specifically indicated.
4. The load applied to fasteners shall not exceed one-third the proof test load of the fasteners.
5. Fasteners attached to concrete shall be vibration and shock-resistant.

6. All screws, bolts, washers, and miscellaneous hardware used for conduit supports shall be fabricated from rust-resisting metal. Trapeze hangers shall have hanger assemblies protected with galvanized finish."

109-3.15 WIRING AND CONNECTIONS. Add the following to this section.

"High-voltage circuit wiring (airfield lighting 5000 Volt series circuits and/or other circuits rated above 600 Volts) and low-voltage circuit wiring (rated 600 Volts and below) shall maintain separation from each other. High-voltage wiring and low-voltage wiring shall not be installed in the same wireway, conduit, duct, raceway, junction box, handhole, or manhole. Where necessary provide split flexible duct around low voltage cables located in a handhole with high voltage cables, to isolate the cables from possible contact with each other."

109-3.16 MARKING AND LABELING. Add the following to this section:

- C. Legend plates shall be provided for all equipment. Legend plates shall be provided to identify the equipment controlled, the power source, and the function of each device. Legend plates shall be weatherproof and abrasion-resistant phenolic/plastic engraved material and fastened with contact type permanent adhesive, screws, or rivets. Installation shall not break, crack, or deform the legend plate. Lettering shall be ¼ in. high, black on a white background, unless noted otherwise.
- D. Identify control wiring at each termination point and in junction/terminal boxes with wire number corresponding to the respective control wiring diagram or respective terminal numbering arrangement. Each individual control wire shall have unique identification and shall maintain that same identification from its point of origin to its final termination point. Wire markers shall be permanent pressure sensitive label with suitable numbers or letters for easy recognition. Where new control wiring is interfaced to existing control wiring it shall also match the color coding of the existing control wiring."
- E. Each constant current regulator shall be furnished with a phenolic-engraved legend plate that identifies the regulator number designation, the runway or taxiway served, and the power source and circuit number.
- F. Each plug cutout cabinet shall be furnished with a phenolic-engraved legend plate that identifies the respective circuit or regulator and the voltage system (5000-Volts).
- G. Each individual circuit breaker, control panel, terminal panel, safety switch, etc. shall be furnished with a phenolic-engraved legend plate that identifies the respective device, the power source, and the respective voltage, phase, and wire. Furnish additional phenolic-engraved legend plates as detailed on the Plans and/or where required by code.
- H. At electrical handholes, identify each cable originating in the vault with respect to the system or device served.
- I. Color-code phase and neutral conductor insulation for No. 6 AWG or smaller. Provide colored marking tape for phase and neutral conductors for No. 4 AWG and larger. **Insulated ground conductors shall have green colored insulation for all conductor sizes (AWG and/or KCMIL) to comply with NEC 250.119. Neutral conductors shall have white colored insulation for No. 6 AWG and smaller to meet the requirements of NEC 200.6.** Standard colors for power wiring and branch circuits shall be as follows:

208/120 VAC, 3-Phase, 4-Wire System	
Phase A	Black
Phase B	Red
Phase C	Blue
Neutral	White
Ground	Green

- J. Furnish and install weatherproof warning label for each meter socket, enclosed circuit breaker, disconnect switch, switchboard, cutout, panelboard, load center, motor control center, and control panel to warn persons of potential electric arc flash hazards, per the requirements of NEC 110.16 "Flash Protection". Labels shall also conform to ANSI Z535.4-2002 "American National Standard for Product Safety Signs and Labels". NEC 110.16 requires that switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn qualified persons of potential arc flash hazards. The markings shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment. This new requirement is intended to help reduce the occurrence of serious injury or death due to arcing faults to those working on or near energized electrical equipment. The warning labels are to indicate to a qualified worker who intends to open the equipment for analysis of work that a serious hazard exists and that the worker should follow appropriate work practices and wear appropriate personal protective equipment (PPE) for the specific hazard. Labels shall be as detailed on the Plans or shall include at least the following information: "Warning - Potential Arc-Flash Hazards exist while working on this energized equipment. Appropriate PPE Required.
- K. Furnish and install "DANGER – HIGH VOLTAGE" signs or labels on all fixed electrical equipment where potentials of 500 Volts or more terminal-to-ground are exposed (including, but not limited to, constant current regulators, series circuit cutout enclosures, high voltage junction boxes, and high voltage wireways) in accordance with FAA AC No. 150/5340-26C "Maintenance of Airport Visual Aid Facilities" and National Electrical Code Article 300.45 "Warning Signs". Place signs in a conspicuous location, usually on the outside of equipment."

109-3.18 TESTING. Add the following:

"The installation shall be tested in operation and as a completed unit prior to acceptance. Contractor shall furnish all equipment, meters, instruments, cable connections, tools, manpower, and labor to perform the respective tests. Test all new equipment and all existing equipment where modifications take place and confirm proper operation. Coordinate tests with the respective airport personnel and the Resident Engineer/Resident Technician. Tests shall include resistance, voltage, and current reading, as applicable for the respective equipment. When tests disclose any unsatisfactory workmanship or equipment furnished under this contract, correct defects and retest. Repeat tests until satisfactory results are obtained. When any wiring or equipment is damaged by tests, the wiring or equipment shall be repaired or replaced at no additional cost to the contract. Test repaired or replaced items to ensure satisfactory operation. Submit three copies of all test reports to the Project Engineer. All test reports shall be assembled and bound in a folder or binder. Each test report shall include the following information:

- Project number,
- Project title and location,
- Device or system tested,
- Test performed,
- Date performed,
- Test equipment used,
- Respective Contractor's name, address, and telephone number,
- Testing firm's name, address, and telephone number if other than the Contractor,
- Names of individuals performing tests,
- Names of individuals observing tests,
- Statement verifying each test,

- Nameplate data from respective equipment tested,
- Test results, and
- Retest results after correction of defective components or systems (where applicable).

Add the following:

109-3.19 TESTING AIRFIELD LIGHTING SYSTEMS. Prior to beginning any excavations, airfield lighting modifications, cable installation, vault work, or any other activities that might possibly affect airfield lighting, each constant current regulator shall be tested with results recorded. Copies of test results shall be provided to the Resident Engineer/Technician and the respective Project Engineer within 5 business days of conducting the tests.

After airfield lighting installations and vault modifications, additions, and/or upgrades have been completed, each constant current regulator shall be tested with results recorded. Copies of test results shall be provided to the Resident Engineer/Resident Technician and the respective Project Engineer within 5 business days of conducting the tests.

See Appendix A – “Constant Current Regulator and Cable Testing Forms” for additional information on testing requirements for airfield lighting systems. All testing will be considered incidental to the respective work items and no additional compensation will be allowed.

109-3.20 GROUNDING REQUIREMENTS. Grounding shall conform to the following as applicable: The Contractor shall furnish and install all grounding shown on the Plans and/or as may be necessary or required to make a complete grounding system, as required by the latest NEC (NFPA 70) in force. The reliability of the grounding system is dependent on careful, proper installation, and choice of materials. Improper preparation of surfaces to be joined to make an electrical path, loose joints, or corrosion can introduce impedance that will seriously impair the ability of the ground path to protect personnel and equipment and to absorb transients that can cause noise in communications circuits. The following functions are particularly important to ensure a reliable ground system:

- A. All products associated with the grounding system shall be UL-listed and labeled.
- B. All bolted or mechanical connections shall be coated with a corrosion preventative/conductive grease and lubricant suitable for electrical connections and grounding connections, before joining, Sanchem Inc. “NO-OX-ID “A-Special” compound, Burndy Penetrox E, or approved equal
- C. Metallic surfaces to be joined shall be prepared by the removal of all non-conductive material, per 2017 NEC Article 250.12. All Copper bus bars must be cleaned prior to making connections to remove surface oxidation.
- D. Metallic raceway fittings shall be made up tight to provide a permanent low impedance path for all circuits. Metal conduit terminations in enclosures shall be bonded to the enclosure with UL-listed fittings suitable for grounding. Provide grounding bushings with bonding jumpers for all metal conduits entering service equipment (meter base, CT cabinet, main service breaker enclosure, etc.), generator breaker enclosures, and automatic transfer switch enclosures. Provide grounding bushings with bonding jumpers for all metal conduits entering an enclosure through concentric or eccentric knockouts that are punched or otherwise formed so as to impair the electrical connection to ground. Standard locknuts or bushings shall not be the sole means for bonding where a conduit enters an enclosure through a concentric or eccentric knockout.
- E. Furnish and install ground rods at all locations where shown on the Plans or specified herein. Ground rods for shall be 3/4-inch diameter, 20 feet long, (or longer where detailed on the Plans), UL-listed, Copper-clad. Longer ground rods shall be provided where detailed on the Plans. Ground rods shall have 10 mils minimum Copper coating. Ground rods shall be spaced, as detailed on the Plans, and in no case spaced less than one-rod length apart. All connections to ground rods and/or ground rings shall be made with exothermic weld type connectors, Cadweld by Pentair Erico Products, Inc., Thermoweld by Continental Industries, Inc., Ultraweld by Harger, or approved equal. Exothermic weld connections shall be installed in conformance with the respective manufacturer’s directions using molds as required for each respective application. Bolted connections will not be permitted at ground rods or at buried grounding electrode conductors. Grounding electrode conductors shall be bare Copper (stranded or solid) sized, as detailed on the Plans. In addition to the

grounding work described herein and shown on the Plans, the Contractor shall test the made electrode ground system with an instrument specifically designed for testing ground systems. If ground resistance exceeds **25 Ohms**, contact the Project Engineer for further direction. Also refer to EOR-47643 for additional information on grounding requirements where applicable. Copies of ground system test results shall be furnished to the Resident Engineer/Resident Technician and the Project Engineer.

- F. All connections, located above grade, between the different types of grounding conductors shall be made using UL-listed, double-compression, crimp-type connectors or UL-listed, bolted ground connectors. For ground connections to enclosures, cases, and frames of electrical equipment not supplied with ground lugs, the Contractor shall drill required holes for mounting a bolted, ground connector. All bolted, ground connectors shall be Burndy, Dossert Corporation, ILSCO Corporation, Penn-Union Corporation, Thomas and Betts, or approval equal. Tighten connections to comply with tightening torques in UL Standard 486A to assure permanent and effective grounding.
- G. All metal equipment enclosures, conduits, cabinets, boxes, receptacles, etc. shall be bonded to the respective grounding system. Provide grounding bushings at all conduits entering service entrance equipment (meter bases, service disconnects, service panelboards, etc.) and distribution panels or load centers and ground wire from bushing to ground bus in the respective service entrance equipment or distribution panel.
- H. Each feeder circuit and/or branch circuit shall include an equipment ground wire. Metal raceway or conduit shall not meet this requirement. The equipment ground wire shall not be smaller than allowed by 2017 NEC Table 250.122 "Minimum Size Conductors or Grounding Raceway and Equipment." When conductors are adjusted in size to compensate for voltage drop, equipment-grounding conductors shall be adjusted proportionately according to circular mil area. All equipment ground wires shall be Copper, either bare or insulated green in color. Where the equipment grounding conductors are insulated, they shall be identified by the color green, and shall be the same insulation type as the phase conductors.
- I. Bond the main electrical service neutral to ground at the main service disconnect. Bond the service neutral to ground at one location only per the NEC. A grounding connection shall not be made to any neutral circuit conductor on the load side of the service disconnecting means, except as permitted by 2017 NEC 250.24.
- J. The secondary neutral of all transformers (separately derived system transformers) shall be grounded in accordance with the NEC. The respective grounding electrode conductor shall be connected to the neutral point of the transformer between the transformer and the output disconnecting means. Size of the grounding electrode conductor shall be in accordance with 2017 NEC Article 250.66 and Table 250.66 unless shown larger on the Drawings. A bond shall be provided between the neutral and transformer case, or other metal that is part of the AC equipment grounding system, so as to complete a circuit for fault current to the transformer winding from the AC equipment grounding system. Size of the neutral bonding conductor shall be in accordance with 2017 NEC Article 250.102.
- K. All exterior metal conduits, where not electrically continuous because of manholes, handholes, non-metallic junction boxes, etc., shall be bonded to all other metal conduit in the respective duct run, and at each end, with a Copper-bonding jumper sized in conformance with 2017 NEC 250.102. Where metal conduits terminate in an enclosure (such as a motor control center, switchboard, etc.) where there is not electrical continuity with the conduit and the respective enclosure, provide a bonding jumper from the respective enclosure ground bus to the conduit sized per 2017 NEC 250.102.
- L. Install grounding electrode conductors and/or individual ground conductors in Schedule 40 or Schedule 80 PVC conduit. Where grounding electrode conductors or individual ground conductors are run in PVC conduit, do not completely encircle conduit with ferrous and/or magnetic materials. Use non-metallic, reinforced fiberglass strut support. Where metal conduit clamps are installed, use nylon bolts, nuts, washers, and spacers to interrupt a complete metallic path from encircling the conduit.
- M. Individual ground conductors and/or grounding electrode conductors shall not be run in metallic conduit and shall not be encircled by metallic clamps. If local codes dictate that grounding conductors must be run in metal conduit or raceway, then the conduit or raceway must be bonded to the grounding conductor at both ends with a bonding jumper sized in accordance with the NEC 250.64(E). All such installations requiring individual grounding conduits to be run in metal conduit or raceway

shall be verified and reviewed with the Resident Engineer/Resident Technician. This does not apply to AC equipment ground wires run with AC circuits.

109-3.21 RESTORATION. Any and all trenches and disturbed areas will be backfilled and restored to a smooth grade and seeded to the satisfaction of the Resident Engineer/Resident Technician. All trench settlement or disturbed areas shall be corrected for a period of one year. Restoration, grading, and seeding of areas disturbed during the installation of the proposed vault work and/or vault removal work will be incidental to the respective 109 Pay Item. The vault interior shall be kept reasonably clean during construction and shall be cleaned when the installation is substantially complete.

METHOD OF MEASUREMENT

109-4.3. Add the following to this section:

“The quantity of vault equipment to be paid for under Item AR109200 Install Electrical Equipment shall consist of furnishing and installing all electrical equipment and materials at the vault, as detailed on the Plans and specified herein. This item shall include all labor, equipment, grounding, materials, tools, operational instructions, coordination, and testing required to place the vault and associated electrical equipment into proper working order. Cables inside or at the Airport Electrical Vault Building shall be considered incidental to this item, and no additional compensation will be allowed. Conduit entries, elbows, and fittings located at, adjacent to, or beneath the vault shall be considered incidental to this item, and no additional compensation will be allowed. This item shall include the ground bus bar to be installed in the high voltage handhole.

Add the following:

109-4.4. The quantity of “4 KW Regulator, Style 2” to be paid for under Item AR109302 shall be paid for on a per each basis and shall consist of furnishing and installing a new constant current regulator for the Runway 13-31 PAPI systems series circuit as detailed on the Plans and specified herein. This item shall include the constant current regulator and all input wiring and conduits from the power source to the regulator, all control wiring and conduits from the relay interface panel to the regulator, all output series circuit power wiring and conduit from the regulator to the respective series circuit plug cutout, and the associated grounding. This item shall include all field verification, labor, materials, transportation, equipment, wiring, connections, raceways, grounding, warranties, tools, coordination, operational instructions, labeling, identification, testing, and all incidentals required to place the constant current regulator into proper working order as a completed unit to the satisfaction of the Owner and Resident Engineer/Resident Technician.

109-4.5. The quantity of Remove Regulator to be paid for under Item AR109903 shall be paid for on a per each basis and shall consist of removal of existing the existing regulator scheduled for replacement, and all associated wiring, conduits, cutouts, equipment and materials located in the existing vault as detailed on the Plans and specified herein. The regulator shall be disconnected, turned over to the Airport, and relocated to a storage location on the Airport. All other equipment and materials to be removed shall be turned over to the Airport. The Airport shall retain salvage rights to the vault and equipment. In the event that the Airport does not want the respective equipment or materials, the Contractor shall dispose of that respective equipment and materials in a legal manner off of the airport property. This item shall include all labor, equipment, tools, disposal, coordination, and incidentals required to complete this item of work.

BASIS OF PAYMENT

109-5.1. Add the following:

“Payment will be made under:

Item AR109200	Install Electrical Equipment - per lump sum
Item AR109302	4 KW Regulator, Style 2 - per each
Item AR109903	Remove Regulator - per each”

ITEM 110. INSTALLATION OF AIRPORT UNDERGROUND ELECTRICAL DUCT

DESCRIPTION

110-1.1 Add the following:

"This item of work shall consist of the installation of all proposed conduits and ducts as shown on the Construction Plans and as specified herein. This item of work shall also consist of electrical manholes and handholes in accordance with this Specification and as detailed on the Construction Plans. This item shall include the installation of each electrical manhole and/or handhole structure with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the Resident Engineer/Resident Technician.

Furnishing and installing a tinned copper ground bus and associated ground rod at the high voltage handhole for use with the airfield lightning arrestors will be considered incidental to the respective electrical handhole installation."

Add the following:

110-1.2 REFERENCES

- A. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.
- B. ANSI C80.4 – Fittings Rigid Metal Conduit and EMT.
- C. ASTM D3350 – Specification of Polyethylene Plastics Pipe and Fittings Materials.
- D. ASTM F2160 – Standard Specification for Solid Wall, High-Density Polyethylene Conduit Based on Controlled Outside Diameter.
- E. NEMA TC-2 – Electrical Plastic Tubing and Conduit.
- F. NEMA TC-3 – Fittings Rigid PVC Conduit and Tubing.
- G. NEMA Specification TC-7 – Smooth-Wall Coilable Polyethylene Electrical Plastic Conduit.
- H. NFPA 70 – National Electrical Code (NEC), most current issue in force.
- I. UL Standard 6 – Rigid Metal Conduit.
- J. UL Standard 514B – Conduit, Tubing and Cable Fittings.
- K. UL Standard 651 – Schedule 40 and 80 Rigid PVC Conduit.
- L. UL Standard 651B – Standard for Continuous Length High-Density Polyethylene (HDPE) Conduit.

Add the following:

110-1.3 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for each type of conduit or duct to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** The preferred shop drawing submittal format shall be electronic (PDF) copies. Shop drawings shall include the following information:

- A. **Certification of compliance with the AIP (Airport Improvement Program) Buy American Preferences for all materials and equipment. Do not submit ARRA (American Recovery and Reinvestment Act) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Do not submit NAFTA (North American Free Trade Agreement) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Shop drawings submitted without certification of compliance with the Airport Improvement Program Buy American Preferences or without certification of manufacture in the United States of America in accordance with the AIP Buy American Requirements will be rejected. See the FAA website at: http://www.faa.gov/airports/aip/buy_american/ for more information on the AIP Buy American Preferences requirements.**
- B. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
- C. Illinois Department of Transportation Division of Aeronautics requires the following: ***“Under the FAA Buy American Preference, the contractor is required to submit certification that assures only domestic steel, domestic materials and domestic manufactured products are used. The Buy American statement must come from the producer, not the supplier. Producer verification must state that the items are produced in the United States and are made from 100% domestic materials. Statements that solely refer to the “Buy American Act” or “ARRA” or any federal purchasing act other than Title 49 United States code (USC), Section 50101 will be rejected. Producers may use the Illinois Department of Transportation Domestic Material Compliance Certification Form AER 25 to satisfy this requirement.”***
- D. Indicate the pay item number for each respective conduit or duct.
- E. Shop drawings shall include conduit and/or duct cut sheets with type, size, specifications, UL listing, manufacturer, and catalog or part number.
- F. Provide manufacturer's literature confirming the respective duct to be bored is suitable for directional boring with the respective Shop Drawing submittal.
- G. Provide certification that the respective steel conduits used on this project are manufactured from 100 percent domestic steel.
- H. Provide certification that the respective plastic conduits used on this project are manufactured from domestic materials.
- I. Concrete mix design.
- J. Precast concrete handholes and manholes must be on IDOT (Illinois Department of Transportation) List of Certified Precast Concrete Producers. Provide information on respective precast concrete producer for precast manholes and drawings for respective handholes. Provide drawings for handholes and/or manholes. Provide certification that the respective pre-cast handholes and manholes are manufactured in the United States of America from domestic materials.
- K. Provide cut sheets with part number and specification for each handhole and manhole frame and lid. Include certification that the respective handhole frame and lid is made in the United States of America from domestic materials.
- L. Provide shop drawings for the ground bus bar to be installed in the respective handhole. Include manufacturer, dimensions, part numbers, and information on standoffs, insulators, splices, bonding jumpers, and mounting hardware.

EQUIPMENT AND MATERIALS

110-2.1 GENERAL. Add the following:

"All materials for these items shall be in accordance with the FAA Standard Specification 110 Equipment and Materials, as detailed on the Plans, and as specified herein.

- A. The duct to be directional-bored shall be Schedule 40 PVC Conduit, Schedule 80 PVC Conduit or High-Density Polyethylene (HDPE) duct, (Schedule 40, Schedule 80, SDR 11, or SDR 13.5), and suitable for directional boring installation.

110-2.2 STEEL CONDUIT. Replace this section with the following:

"Rigid Steel Conduit and fittings shall be hot-dipped, galvanized, UL-listed, and produced in accordance with UL Standard 6 – Rigid Metal Conduit and ANSI C80.1 – Rigid Steel Conduit, Zinc Coated. Couplings, connectors, and fittings for rigid steel conduit shall be threaded, galvanized steel or galvanized, malleable iron, specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4 – Fittings Rigid Metal Conduit and EMT and UL 514B – Conduit, Tubing, and Cable Fittings. Set screw type fittings are not acceptable. Steel used to manufacture conduits shall be 100 percent domestic steel. Contractor shall provide certification that the respective steel conduits used on this project are manufactured from 100 percent domestic steel.

Miscellaneous Fittings. Fittings shall be suitable for use with conduits and ducts supplied. All fittings for use with rigid metal conduit shall be threaded. Set screw-type fittings are not acceptable. All conduit bodies, fittings, and boxes installed in classified hazardous locations (Class I, Division 1 or 2, Group D) shall be suitable for use in Class I, Division 1, and Group D locations. Fittings shall be as manufactured by Appleton, Crouse-Hinds, Hubbell-Killark, O-Z/Gedney, or approved equal."

110-2.3 PLASTIC CONDUIT. Add to this section:

"Conduits shall be suitable for underground applications encased in concrete or direct burial, and suitable for exposed applications aboveground.

- A. Conduits for concrete encasement shall be Schedule 40 PVC, UL-listed, rated for 90°C cable, conforming to NEMA Standard TC-2 and UL 651, listed suitable for concrete encasement or Schedule 40 (minimum) HDPE conduit, UL-listed, conforming to NEMA Standard TC-7 and UL 651B and listed suitable for concrete encasement.
- B. Conduits for directional boring shall be Schedule 40 PVC or Schedule 80 PVC conduit, UL-listed, rated for 90°C cable, conforming to NEMA Standard TC-2 and UL 651 and suitable for directional boring installation, Schedule 40 HDPE or Schedule 80 HDPE conduit, UL-listed, conforming to NEMA Standard TC-7 and UL 651B and suitable for directional boring installation, or Wall Type SDR 9, SDR 11, or SDR 13.5 HDPE conduit manufactured in accordance with ASTM D-3350 (Specification of Polyethylene Plastics Pipe and Fittings Materials) and ASTM F2160 (Standard Specification for Solid Wall, High-Density Polyethylene Conduit Based on Controlled Outside Diameter), and suitable for directional boring installation. **Per NEC 300.5 (K), raceways installed using directional boring equipment shall be approved for the purpose. Provide manufacturer's literature confirming the respective duct is suitable for directional boring with the respective Shop Drawing submittal.**
- C. Conduits for direct burial in earth shall be PVC Schedule 40 (minimum wall thickness), UL-listed, rated for 90°C cable, conforming to NEMA Standard TC-2 and UL 651, listed suitable for direct burial in earth, or HDPE Schedule 40 (minimum wall thickness), conforming to NEMA Standard TC-7 and UL 651B, or HDPE SDR 13.5 (minimum wall thickness) manufactured in accordance with ASTM D-3350 (Specification of Polyethylene Plastics Pipe and Fittings Materials) and ASTM F2160 (Standard Specification for Solid Wall, High-Density Polyethylene Conduit Based on Controlled Outside Diameter). Conduits shall be suitable for direct burial in earth and/or concrete encasement."

Add the following:

110-2.9 ELECTRICAL HANDHOLES. Each electrical handhole shall be constructed in accordance with the details as shown on the Construction Plans. The handholes shall be provided with heavy duty frame and lid suitable for 40,000 pound loading, square slab type with hinge, Neenah Foundry Company Catalog Number R-6662-PH frame and lid, East Jordan Iron Works Catalog Number 8213 frame and cover, or an approved equal. Lids for the handholes containing high voltage airfield lighting cables shall include lettering labeled "**DANGER HIGH VOLTAGE KEEP OUT 5000 VOLTS**" to comply with NEC Article 300.45 "Warning Signs" and NEC Article 314.30(D) "Covers". Lids for the handholes containing low voltage cables (600 Volts and below) shall include lettering labeled "**LOW-VOLTAGE**". Coordinate lettering with manufacturer. Precast electrical handholes shall be manufactured by a concrete electrical handhole producer on the Illinois Department of Transportation approved list of certified precast concrete producers. The grave cushion shall meet IDOT Specification for coarse aggregate Gradation A-7. The gravel cushion and other incidental used in furnishing a completed handhole shall be incidental to the handhole, as detail and specified in the Plans and Contract Document. Ground bus for the respective electrical handhole shall be as detailed on the Plans. Electrical handholes will be paid for under Item AR115610 Electrical Handhole per each.

CONSTRUCTION METHODS

110-3.1 GENERAL. Add to this section:

"The proposed conduits and ducts shall be constructed at the locations and in accordance with the details shown on the Construction Plans. Ducts shall be installed 18 in. minimum below grade. Ducts located in area subject to farming shall be 42 in minimum below grade. Where detailed on the Plans or where required to avoid obstructions, ducts shall be buried deeper. Where concrete-encased duct interfaces to directional-bored duct at a pavement crossing, the concrete encasement shall be installed up to the respective pavement edge. Where concrete-encased duct interfaces to an electrical handhole or manhole, the concrete encasement shall be installed up to the respective handhole or manhole. Provide bushings or bells at conduit terminations in electrical handholes or manholes.

Underground ducts installed by directional-boring method shall be installed in a manner that will not damage any existing underground utilities, and shall not disturb or damage the respective pavement or roadway surface. Ducts shall be directional-bored at the locations shown on the Construction Plans. The ducts will be bored at a minimum depth of 24 in. below the bottom of the pavement it is being bored under. Ducts installed under paved areas and roadways shall extend a minimum of 10 feet beyond the respective pavement or roadway surface. A pull wire will be left in the conduit if it is to be left vacant. The ends of the conduit will be sealed with approved plugs.

The Contractor will determine if there is a conflict between the installation of the proposed electrical ducts and any existing utilities. He will make all necessary adjustments in depth of installation to avoid any and all proposed underground improvements.

Provide conduit bushings or bells at duct terminations in handholes and manholes."

110-3.7 RESTORATION. Add to this section:

"Any and all trenches and disturbed areas will be backfilled and restored to a smooth grade and seeded to the satisfaction of the Resident Engineer/Resident Technician. All trench settlement shall be corrected for a period of one year. Restoration, grading, and seeding of areas disturbed during the installation of the proposed ducts will be incidental to the respective pay item for which the duct is installed. The fertilizing and seeding will be completed in accordance with Items 901 and 908, but will be incidental to the respective pay item for which the duct is installed."

Add the following:

110-3.8 LOCATING EXISTING UNDERGROUND UTILITIES AND CABLES. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. Neither the Owner nor the Engineer assumes any responsibility whatsoever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size, and type of material of existing underground utilities indicated are representative of those to be encountered in construction. It shall be the Contractor's responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans, and shall obtain from the respective utility companies detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment, where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Owner's Representative and/or the Resident Engineer/Resident Technician shall also be immediately notified. Any damage to such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract.

All utility cables and lines shall be located by the respective utility. **Contact JULIE (Joint Utility Location Information for Excavators) for utility information, phone: 1-800-892-0123.** Contact the FAA (Federal Aviation Administration) for assistance in locating FAA cables and utilities. Location of FAA power, control, and communication cables shall be coordinated with and/or located by the FAA. Also contact Airport Director/Manager and Airport Personnel for assistance in locating underground Airport cables and/or utilities. Also coordinate work with all aboveground utilities.

Contractor shall locate and mark all existing cables within ten (10) feet of proposed excavating/trenching area. Any cables found interfering with proposed excavation or cable/trenching shall be hand dug and exposed. Any damaged cables shall be immediately repaired to the satisfaction of the Resident Engineer/Resident Technician at the Contractor's expense. The Resident Engineer/Resident Technician and Owner shall be notified immediately if any cables are damaged.

Due to the quantities of existing utilities and lines in the proposed areas of work, the Contractor will need to carefully excavate to expose and protect these utilities and lines prior to installing manholes, handholes, and/or junction structures and the associated trenches for the proposed conduits, ducts, and raceway system.

Payment for locating and marking underground utilities and cables will not be paid for separately, but shall be considered incidental to the respective duct installation.

110-3.9 SEPARATION OF HIGH-VOLTAGE AND LOW-VOLTAGE WIRING. High-voltage circuit wiring (airfield lighting 5000 Volt series circuits and/or other circuits rated above 600 Volts) and low-voltage circuit wiring (rated 600 Volts and below) shall maintain separation from each other. High-voltage wiring and low-voltage wiring shall not be installed in the same wireway, conduit, duct, raceway, handhole, or junction box.

110-3.10 INSTALLATION OF ELECTRICAL HANDHOLES. Electrical handholes and manholes shall be constructed in accordance with the details as shown on the Construction Plans. At electrical handholes and manholes, identify and label each cable with respect to its origin and the system or device served. Coordinate conduit and duct interface with the handhole and/or manhole installation. Field cut openings for conduits and ducts according to the respective handhole and/or manhole manufacturer's recommendations. Core drill and/or cut wall of handhole and/or manhole with a tool designed for the material to be cut and suitable for the respective application. Size holes for termination fittings to be used and seal around penetrations after fittings are installed.

CA-7 cushion shall be furnished to the thickness shown on the Plans and compacted to the satisfaction of the Resident Engineer/Technician.

METHOD OF MEASUREMENT

Add the following:

110-4.3. The quantity of conduit to be paid for shall be the number of lineal feet of ducts of the particular type installed and measured in-place, complete, and accepted by the Resident Engineer/Resident Technician.

110-4.4. Electrical manholes, handholes and junction structures shall be measured by each unit completed in place and accepted by the Resident Engineer/Resident Technician. This shall include all required excavation, sheeting and bracing, dewatering, backfilling, restoration of all surfaces and finished grading, sodding, all required connections, temporary cables and connections, all coring and labor associated with conduit, duct, cable in unit duct, and/or cable entries, locating existing utilities, lines, and cables in the respective areas of work, all coordination with the respective Airport staff and site personnel and for all labor, equipment, tools and incidentals necessary to complete the structure.

BASIS OF PAYMENT

110-5.1 Add the following:

“Payment will be made at the contract unit price per each type and size of conduit, completed and accepted; extended duct completed and accepted, and electrical handhole completed and accepted. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials; locating existing utilities, lines, and cables in the respective areas of work; for all sawing and pavement removal; for all duct interface work to handholes/manholes including coring of handholes/manholes; for all excavation and backfilling with aggregate backfill, earth backfill, and concrete; for all grounding, ground bus bars, ground rods, and connections at handholes and manholes; and for all labor, coordination, equipment, tools, and incidentals necessary to complete this Item.

Payment will be made under:

Item AR110014 4" Directional Bore – per linear foot
Item AR115610 Electrical Handhole – Per each”

ITEM 125. INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.1. Revise this paragraph to read as follows:

“This Item of work shall consist of furnishing and installing splice cans at the locations shown on the Construction Plans and in accordance with the details shown on the Plans.

This item shall also consist of furnishing and installing field lightning arrestors with associated wiring and connections to reduce the risk of lightning damage to airfield lighting series circuits and associated equipment in accordance with the details in the Construction Plans and in accordance with these Special Provisions. Also included in this Item will be the testing of the installation and all incidentals necessary to place the lighting systems into operation, completed, and to the satisfaction of the Resident Engineer/Resident Technician.”

Add the following:

125-1.6 REFERENCES. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

- A. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.
- B. ANSI C80.4 – Fittings Rigid Metal Conduit and EMT.
- C. FAA AC No. 150/5340-30 (current issue in effect) “DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS
- D. FAA AC No. 150/5345-42 (current issues in effect) “Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories”.
- E. FAA AC No. 150/5345-46 (current issue in effect) “SPECIFICATION FOR RUNWAY AND TAXIWAY LIGHT FIXTURES”
- F. FAA AC No. 150/5345-47 (current issue in effect) “SPECIFICATION FOR SERIES TO SERIES ISOLATION TRANSFORMERS FOR AIRPORT LIGHTING SYSTEMS”.
- G. FAA AC No. 150/5345-53 “AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM” (current issue in effect) and AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum (current issue in effect).
- H. FAA AC No. 150/5370-2 (current issue in effect) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.
- I. FAA Engineering Brief No. 67D Light Sources Other Than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures.
- J. NFPA 70 – National Electrical Code (most current issue in force).
- K. NFPA 70E – Standard for Electrical Safety in the Workplace
- L. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures
- M. UL Standard 6 – Rigid Metal Conduit.
- N. UL Standard 514B – Conduit, Tubing and Cable Fittings.

Add the following:

125-1.7 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for airfield lighting equipment and materials to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** The preferred shop drawing submittal format shall be electronic (PDF) copies. Shop drawings shall include the following information:

- A. **Certification of compliance with the AIP (Airport Improvement Program) Buy American Preferences for all materials and equipment. Do not submit ARRA (American Recovery and Reinvestment Act) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Do not submit NAFTA (North American Free Trade Agreement) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Shop drawings submitted without certification of compliance with the Airport Improvement Program Buy American Preferences or without certification of manufacture in the United States of America in accordance with the AIP Buy American Requirements will be rejected. See the FAA website at: http://www.faa.gov/airports/aip/buy_american/ for more information on the AIP Buy American Preferences requirements. FAA approved equipment that is on the FAA Buy American Conformance List or the list of Nationwide Buy American Waivers Issued by the FAA complies with the AIP Buy American Preferences and will not require additional waiver paperwork for AIP projects.**
- B. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
- C. Illinois Department of Transportation Division of Aeronautics requires the following: ***“Under the FAA Buy American Preference, the contractor is required to submit certification that assures only domestic steel, domestic materials and domestic manufactured products are used. The Buy American statement must come from the producer, not the supplier. Producer verification must state that the items are produced in the United States and are made from 100% domestic materials. Statements that solely refer to the “Buy American Act” or “ARRA” or any federal purchasing act other than Title 49 United States code (USC), Section 50101 will be rejected. Producers may use the Illinois Department of Transportation Domestic Material Compliance Certification Form AER 25 to satisfy this requirement.”***
- D. Cut sheets with part number and specifications splice cans. Include cut sheets with part numbers and dimensions for base cans, cover plates, and associated components.
- E. Cut sheets with part number and specifications for the field lightning arrestor.
- F. Concrete mix design.
- G. Provide cut sheets with manufacturer’s name, catalog number, dimensions, material and UL listing for each type and size ground rod. Include certification of 100% domestic steel for ground rods. Include cut sheets for exothermic weld connections, ground lugs, and ground wire.

EQUIPMENT AND MATERIALS

125-2.1 GENERAL. Add the following to this section:

- “D. The concrete used in the construction of these Items shall be in accordance with Item 610 Structural Portland Cement Concrete.”

125-2.4 CONDUIT. Add the following to this section:

“Rigid Steel Conduit and fittings shall be hot-dipped, galvanized, UL-listed, produced in accordance with UL Standard 6 – Rigid Metal Conduit and ANSI C80.1 – Rigid Steel Conduit, Zinc Coated. Couplings, connectors, and fittings for rigid steel conduit shall be threaded galvanized steel or galvanized malleable iron specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4 – Fittings Rigid Metal Conduit and EMT. Set screw type fittings are not acceptable. Galvanized rigid steel conduit shall be manufactured in the United States of America produced from 100 percent domestic steel.”

125-2.8 LIGHT CANS. Add the following to this section:

“Each light base can, transformer can, and/or splice can shall include internal and external ground lugs. Cans shall be the size and depth as detailed on the Plans. L-867 splice cans shall have galvanized steel covers, 3/8 in. thick, with stainless steel bolts. Lids for splice cans containing high voltage airfield lighting cables shall include minimum 1/2-inch high lettering labeled “**DANGER HIGH VOLTAGE KEEP OUT**” to comply with National Electrical Code Article 300.45 “Warning Signs” and National Electrical Code Article 314.71(E) “Suitable Covers”. This will need to be coordinated with the splice can manufacturer. Lids for splice cans containing low voltage cables (rated 600 Volts and below) will be acceptable to use blank covers.”

Add the following:

125-2.14 IDENTIFICATION TAGS. Identification tags shall be attached to each new fixture and sign. Where shown on the Plans provide new identification tags for existing fixtures. The tag shall be of the type and with the lettering shown on the Plans. The cost of furnishing and installing these tags shall be included in the unit price for the fixtures or signs and no additional compensation will be allowed.

125-2.15 ANTI-SEIZE COMPOUND. Prior to installing the proposed airfield lights, the Contractor will apply an oxide-inhibiting, anti-seizing compound to all screws, nuts, breakable coupling, and all places where metal comes into contact with metal.

125-2.16 STAINLESS STEEL BOLTS. All base plate-mounting bolts and stake-mounting bolts shall be stainless steel.

125-2.17 GROUND RODS. **Ground rods shall be 3/4-inch diameter by 20-foot long UL listed Copper clad with 10 mils (minimum) Copper coating.** Ground rods shall be manufactured in the United States of America from 100 percent domestic steel to comply with the requirements of the Airport Improvement Program Buy American Preferences requirements and the Steel Products Procurement Act.

125-2.18 FIELD LIGHTNING ARRESTOR. The field lightning arrestor shall be designed to divert a lightning surge current to earth ground of up to 25,000A (8/20 microsecond discharge). The field lightning arrestor shall be designed such that it is compatible with and suitable for use on any series circuit: 6.6 Amp using a 4KW to 30KW constant current regulators or 20 Amp using a 15KW to 70KW constant current regulators. Field lightning arrestor shall be suitable for use in wet locations and direct burial in earth and shall be manufactured to be liquid tight according to NEMA 6P (IP 68). Connection of the Field lightning arrestor on the series circuit primary shall be by means of FAA L-823 male and female primary connectors. Field lightning arrestor shall be ADB Safegate Part Number 44A6102, Airport Lighting Company Model ALA, or approved equal. Series circuit cable connections shall be with FAA approved L-823 type connections compatible with the field lighting arrestors and the respective series circuit conductors. Cable connections shall be made water-tight in accordance with Item 108 and the details on the Plans for L-823 cable splice connections. Ground wire connection shall be with No. 4 AWG bare stranded copper conductor conforming to ASTM Specifications B3 & B8.

CONSTRUCTION METHODS

125-3.1 GENERAL. Add the following to this section:

“The proposed splice cans shall be constructed at the locations shown on the Construction Plans and in accordance with the details shown on the Construction Plans. Provide sufficient slack cable at each splice can to perform cable splices outside of the can.

Obtaining the required borrow material from an offsite borrow, placing the borrow material, grading, seeding, and mulching the disturbed areas will be considered as an Incidental Item to the proposed/relocated lights, splice cans, and/or removal/relocation work and no additional compensation will be allowed.

Verify respective circuit and power sources prior to removing, disconnecting, relocating, installing, or connecting the respective airfield lighting, taxi sign, NAVAID, or other device.

Contractor shall coordinate work and any power outages with the Airport Manager and the Resident Engineer/Resident Technician. Any shutdown of existing systems shall be scheduled with and approved by the Airport Manager prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout).

The Contractor shall furnish and install all electrical materials necessary for complete and operational installation of the airfield lighting systems as shown on the Plans and detailed herein. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NFPA 70 - National Electrical Code (NEC) most current issue in force and the applicable Federal Aviation Administration standards, orders, and advisory circulars. Equipment shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, Intertek Testing Services verification/ETL listing, (or other third party listing), and/or the manufacturer's warranty of a device will not be permitted.

Contractor shall comply with the requirements of FAA AC No. 150/5370-2 "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION" (current issue in effect).

Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

A slack of three (3') feet, minimum, plus depth of base can (if applicable), shall be provided in the primary cable at each transformer/connector termination. At stake-mounted lights, the slack shall be loosely coiled immediately below the isolation transformer. There shall be no additional payment for cable slack and therefore the quantity of proposed cable slack has not been included in the respective cable pay items.

Provisions shall be made for the temporary wiring of the affected circuits to insure that the Airport will maintain all runway and taxiway lighting capabilities for active runways and taxiways.

All temporary installations shall comply with National Electrical Code Article 590 – "Temporary Installations." The Contractor shall secure, identify, and place any above ground temporary wiring in conduit to prevent electrocution and fire ignition sources in conformance with the requirements of FAA AC 150/5370-2G, Part 2.18.3 "Lighting and Visual NAVAIDS".

Per the requirements of FAA AC 150/5340-30J, Paragraph 1.6 it notes *"Do not use the high voltage series lighting circuit to power devices that are not certified per AC 150/5345-53, Airport Lighting Equipment Certification Program, listed in Appendix 3, Addendum. Using non-certified devices can result in a poor system power factor resulting in unexpected constant current regulator (CCR) shutdowns and lighting circuit start-up problems."*

Per the requirements of FAA AC 150/5340-26C, Chapter 3, Section 3.6.6 Use of Original Equipment Manufacturer (OEM) Part, it notes the following: *"The use of non-OEM parts or lamps in FAA approved equipment is strongly discouraged. The FAA has strict specifications for approval of all airport lighting equipment and use of non-OEM parts or lamps in such equipment or systems can render the equipment to be functionally non-FAA approved. This could possibly lead to serious liability consequences in case of an aircraft incident at an airport following these practices. In the case of runway and taxiway lighting fixtures, the use of a generic, non-approved lamp can render the photometric output of the fixture out of specification and adversely affect the safety of low visibility operations."*

Add the following:

125-3.6 GROUNDING FOR SPLICE CANS. Furnish and install a ground rod at each L-867 transformer base/light can. Grounding for splice cans shall be as detailed on the Plans and as specified herein. The splice can ground shall be a #6 AWG bare copper conductor bonded to the ground lug on the respective L-867 transformer base/light can and a 3/4-inch diameter by 20-foot long (minimum), UL-listed, Copper-clad ground rod. Connections to ground lugs on the L-867 transformer base/light can shall be with a UL-listed grounding connector. Connections to ground rods shall be made with exothermic-weld type connectors; Cadweld by Pentair Erico Products, Thermoweld, Ultraweld by Harger, or approved equal. Exothermic-weld connections shall be installed in conformance with the respective manufacturer's directions using molds, as required for each respective application. Bolted connections will not be permitted at ground rods. Top of ground rods shall be buried 12 inches minimum below grade, unless noted deeper on the Plans. Ground rods at splice cans shall be tested for earth ground resistance. Where the ground resistance exceeds 25 Ohms, furnish and install a second ground rod not less than one rod length apart and connect to the first ground rod with #6 AWG bare copper conductor.

125-3.7 TESTING AIRFIELD LIGHTING SYSTEMS. Prior to beginning any excavations, airfield lighting modifications, cable installation or any other activities that might possibly affect airfield lighting, all existing series circuit cables shall be Megger tested with an insulation resistance tester and recorded at the vault. All existing series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. Copies of test results shall be provided to the Resident Engineer/Technician and the respective Project Engineer within 5 business days of conducting the tests.

After airfield lighting modifications, additions, and/or upgrades have been completed, series circuit cables shall be Megger tested with an insulation resistance tester and recorded at the vault. All series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. Copies of test results shall be provided to the Resident Engineer/Technician and the respective Project Engineer within 5 business days of conducting the tests.

The Contractor is responsible to employ qualified personnel that are capable of properly conducting the required tests to the satisfaction of the Project Engineer. Tests that provide unsatisfactory results shall be reviewed to determine the possible cause of unsatisfactory results, corrections shall be made, and the tests shall be conducted again.

See Appendix A – "Constant Current Regulator and Cable Testing Forms" for additional information on testing requirements for airfield lighting systems. All testing will be considered incidental to the respective work items and no additional compensation will be allowed.

125-3.8 INSTALLATION OF FIELD LIGHTNING ARRESTORS. Install field lightning arrestors as detailed on the Plans, in conformance with manufacturer's instructions, and as specified herein. Field lightning arrestors shall be installed at the high voltage handhole located near the airport vault. Field lightning arrestors shall also be installed at the splice cans located near each PAPI installation. Series circuit cable connections shall conform with Item 108 and as detailed on the Plans. Grounding connection to the field lightning arrestor shall be in accordance with the manufacturer's instructions, using #4 AWG stranded Copper grounding electrode conductor. Terminate the grounding electrode conductor on the respective ground bus bar located in the high voltage handhole with a 2-hole tongue compression lug and 3/8-inch stainless steel bolts, nuts, and washers. Terminate the grounding electrode conductor on the respective ground lug located in the splice can with a 1-hole tongue compression lug and 3/8-inch stainless steel bolts, nuts, and washers.

METHOD OF MEASUREMENT

125-4.1 Add the following:

"Conduits, conduit nipples, conduit couplings, and other conduit fittings included with splice cans, junction structures, NAVAID installations, base mounted airfield light fixtures, and/or taxi signs, will be considered incidental to the respective item for which they are installed and no additional compensation will be made.

Ground rods, grounding electrode conductors, connections and associated grounding work included with airfield lighting, taxi guidance signs, and splice cans will be considered incidental to the respective item for which they are installed and no additional compensation will be allowed.

Ground resistance tests for the made electrode ground system at each airfield light fixture and each taxi guidance sign will be considered incidental to the respective airfield light fixture and no additional compensation will be allowed.

Testing the airfield lighting systems and the associated constant current regulator tests and cable tests will be considered incidental to the Contract and no additional compensation will be allowed.

The quantity of Field Lightning Arrestors to be paid for under this item shall be the number of field lightning arrestors installed with connections, wiring, and interface to the respective series circuit and grounding system, installed and accepted as completed units, in place, ready for operation, and accepted by the Engineer.

BASIS OF PAYMENT

125-5.1 Add the following:

“Payment will be made at the contract price for each complete airfield light fixture, taxi guidance sign, or splice can installed in place by the Contractor and accepted by the Resident Engineer/Resident Technician. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials; and for all excavation, backfilling, and restoration; and for all labor, testing, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item AR125565 Splice Can – per each

Add the following:

125-5.2 Payment shall be made at the Contract unit price for each Field Lightning Arrestor installed in accordance with this Specification and accepted by the Engineer which shall be full compensation for all labor, materials, tools, equipment, cables, connectors, grounding, and incidentals necessary to complete this item of work.

Payment will be made under:

Item AR800985 Field Lightning Arrestor – per each

ITEM AR125620. ABBREVIATED PAPI (L-881 SYSTEM)

DESCRIPTION

125620-1.1 This item of work shall consist of furnishing and installing Precision Approach Path Indicators (PAPI's) at the locations shown on the Construction Plans. Each installation will be in accordance with the details on the Plans and these Special Provisions. Also included in this item will be the testing of the installation and all incidentals necessary to place the respective PAPI system into proper operation and to the satisfaction of the Engineer.

125620-1.2 REFERENCES. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

- A. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.
- B. ANSI C80.4 – Fittings Rigid Metal Conduit and EMT.
- C. FAA AC No. 150/5340-30 (current issue in effect) "DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS.
- D. FAA AC No. 150/5345-28 (current issue in effect) "PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEMS".
- E. FAA Advisory Circular 150/5345-7 (current issue in effect) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS.
- F. FAA AC No. 150/5345-42 (current issues in effect) "Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories".
- G. FAA AC No. 150/5345-47 (current issue in effect) "SPECIFICATION FOR SERIES TO SERIES ISOLATION TRANSFORMERS FOR AIRPORT LIGHTING SYSTEMS".
- H. FAA AC No. 150/5345-53 "AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM" (current issue in effect) and AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum (current issue in effect).
- I. FAA AC No. 150/5370-2 (current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.
- J. NFPA 70 – National Electrical Code (most current issue in force).
- K. NFPA 70E – Standard for Electrical Safety in the Workplace
- L. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures
- M. UL Standard 6 – Rigid Metal Conduit.
- N. UL Standard 467 – Grounding and Bonding Equipment.
- O. UL Standard 486A-486B Wire Connectors.
- P. UL Standard 514B – Conduit, Tubing and Cable Fittings.

125620-1.3 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for PAPI units and materials to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** The preferred shop drawing submittal format shall be electronic (PDF) copies. Contractor may submit hard copies of shop drawings instead of electronic copies where applicable. Where hard copies are provided, the Contractor shall submit sufficient copies of shop drawings to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus 4 copies to be retained by the Project Engineer. Shop drawings shall include the following information:

- A. **Certification of compliance with the AIP (Airport Improvement Program) Buy American Preferences for all materials and equipment. Do not submit ARRA (American Recovery and Reinvestment Act) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Shop drawings submitted without certification of compliance with the Airport Improvement Program Buy American Preferences or without certification of manufacture in the United States of America in accordance with the AIP Buy American Requirements will be rejected. See the FAA website at: http://www.faa.gov/airports/aip/buy_american/ for more information on the AIP Buy American Preferences requirements. FAA approved equipment that is on the FAA Buy American Conformance List or the list of Nationwide Buy American Waivers Issued by the FAA complies with the AIP Buy American Preferences and will not require additional waiver paperwork for AIP projects.**
- B. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.
- C. Cut sheets with part number and specifications for PAPI system.
- D. Concrete mix design.
- E. Provide cut sheets for L-867 light bases.
- F. Provide cut sheets with manufacturer's name, catalog number, dimensions, material and UL listing for each type and size ground rod. Include certification of 100% domestic steel for ground rods. Include cut sheets for exothermic weld connections, ground lugs, and ground wire.
- G. Provide cut sheets for all types of conduit used with the PAPI installation (for example galvanized rigid steel conduit). Include certification that steel conduits are made with 100 percent domestic steel.

MATERIALS

125620-2.1 PAPI UNITS. The proposed PAPI units shall be a Type L-881 system consisting of two (2) light housing assembly units (each containing either two (2) light channels and two (2) lamps or three (3) light channels and three (3) lamps), Style "B" (Current powered series lighting circuit system), Class I qualified to -35 degrees Centigrade, and all accessories as per FAA AC 150/5345-28 (current issue in effect) and approved by the FAA AC 150/5345-53D, or latest revision. Include isolation transformer consolidating harnesses for Style B systems. PAPI light units shall be manufactured to set the limits of the obstacle clearance surface to 10 degrees either side of the runway centerline (20 degrees total) to restrict excess horizontal light distribution, in accordance with FAA AC 150/5340-30J Figure A-81 "PAPI Obstacle Clearance Surface" and FAA Order JO 6850.2B Figure 5-4 "PAPI OBSTACLE CLEARANCE SURFACE".

125620-2.2 AIMING AND CALIBRATION EQUIPMENT. Furnish one clinometer (aiming and calibration device) with the PAPI units for each respective runway. Aiming and calibration equipment will be incidental to the PAPI units.

125620-2.3 SERIES CIRCUIT POWER CABLE. Power cables from the respective power source constant current regulator to the respective PAPI installation and between PAPI lighting units shall be FAA L-824, 5,000 Volt, Type C copper cable and shall conform to the requirements of FAA Advisory Circular 150/5345-7 (current issue in effect) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS".

125620-2.4 TILT SWITCH CONTROL CABLE. Control cable shall be as recommended by the respective PAPI manufacturer and in accordance with the applicable requirements of National Electrical Code for the respective application. Tilt switch control cable shall be MIL-W-16878 Military hook-up wire with 3,000 Volt, 105 degree C insulation or approved equal. Size shall be in accordance with the respective PAPI manufacturer's recommendation. The requirement for tilt switch wiring to have 3,000 Volt insulation is to comply with National Electrical Code Article 300.3 conductors, Part (C) (1) which states "*Conductors of ac and dc circuits rated 1000 volts, nominal, or less, shall be permitted to occupy the same equipment wiring enclosure, cable, or raceway. All conductors shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway.*" The series circuit power cables and tilt switch control cables will occupy the same L-867 transformer can. The maximum rated output voltage for a 5 KW, Type L-828 constant current regulator, Class 1 - 6.6 Amps output current, Style 2 – five (5) brightness steps (2.8, 3.4, 4.1, 5.2, and 6.6-Amps), is calculated to be approximately 758 Volts.

125620-2.5 CONDUIT AND DUCTS. Conduit and ducts for the PAPI systems shall conform to Item 110, per manufacturer's recommendations, as detailed on the Plans, and as specified herein. Conduit for power and control cables between the PAPI lighting units shall be 2-inch Galvanized Rigid Steel Conduit, or larger where required by NEC and/or manufacturer's recommendations for the respective cables. GRSC shall be heavy wall, hot-dipped, galvanized steel pipe bearing the UL label and conforming to UL-6 and ANSI Specification C80.1. Couplings, connectors, and fittings for rigid steel conduit shall be threaded galvanized steel or galvanized malleable iron specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4 and UL-514B. Galvanized rigid steel conduit shall be produced from 100 percent domestic steel.

125620-2.6 SPLICE/TRANSFORMER CANS. Splice/transformer cans shall conform to the requirements of FAA AC 150/5345-42 (respective issue in effect) for Type L-867, Class IA, Size D (16-inch nominal diameter), 24-inch deep. Splice/transformer cans shall have two 2" hubs stacked at 0 degrees and two 2" hubs stacked at 180 degrees. Include an additional 2" hub at 90 degrees to accommodate a grounding electrode conductor from the internal ground lug to the respective ground rod. Splice/transformer cans shall have galvanized steel or aviation yellow powder coat painted steel covers, 3/8 in. thick, or as recommended by the respective PAPI manufacturer where the splice can is installed at the PAPI installation. **Include internal and external ground lugs on each L-867 splice can.**

125620-2.7 ANTI-SEIZE COMPOUND. Prior to installing the proposed base cans, splice cans, and/or other junction structures, the Contractor will apply an oxide-inhibiting, anti-seizing compound to all screws, bolts, nuts, breakable couplings, and all places where metal comes into contact with metal.

125620-2.8 STAINLESS STEEL BOLTS. All base plate-mounting bolts shall be stainless steel.

125620-2.9 GROUND RODS. Ground rods shall be 3/4-inch diameter by 20-foot long UL listed copper clad, with 10-mil minimum copper coating. Steel used to manufacture ground rods shall be 100 percent domestic steel.

125620-2.10 CONCRETE. Concrete associated with the each PAPI foundation piers/pad and/or splice can shall conform to Item 610 Portland Cement Concrete of the Standard Specifications for Construction of Airports.

125620-2.11 LEGEND PLATES. Legend plates shall be required for each PAPI system. Legend plates shall be provided to identify the respective PAPI (Runway designation) and the respective power source. Legend plates shall be weatherproof and abrasion resistant phenolic material. Lettering shall be black letters on a white background, unless otherwise noted.

125620-2.12 SPARE PARTS. Spare parts for airport visual aids are allowable in accordance with the requirements of FAA Order 5100.38D "Airport Improvement Program Handbook" and the guidelines in FAA AC No. 150/5340-26C "Maintenance of Airport Visual Aid Facilities". Provide the following spare parts for the airport visual aid/PAPI systems:

- 50 spare lamps for the PAPI light units.

Spare parts for the airport visual aid/PAPI systems will be considered incidental to the respective PAPI pay items and no additional compensation will be allowed.

CONSTRUCTION METHODS

125620-3.1 INSTALLATION OF PAPI SYSTEMS. Installation of PAPI systems shall conform to FAA AC No. 150/5345-28 (current issue in effect) titled "PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEMS" and the respective manufacturer's instructions, as detailed on the Plans, and as specified herein. The Contractor shall construct concrete bases for the PAPI system units per manufacturer's instructions and recommendations and/or as shown on the Construction Plans. All bolt placements will be as per manufacturer's recommendations. The structural legs shall have breakable couplings not more than 2 in. from the top of the respective base/foundation. Coordinate conduit installations into the bases as applicable for power, control, and/or grounding cable conduits. The power control unit shall be installed in the location shown on the Plans. The poles/support posts installed to support the unit will be anchored in concrete typical to the PAPI base, and each pole/support post shall have a breakable coupling not more than 2 in. from the top of the concrete base/foundation.

The PAPI units shall be installed and aimed in accordance with manufacturer's specifications and instructions. The aiming angles shall comply with those shown on the Plans.

The Contractor will install all the required electrical equipment in the electrical vault to place the proposed PAPI units into operation. The furnishing and installing of this electrical equipment will be paid for under Item 109200 Install Electrical Equipment per lump sum.

125620-3.2 ELECTRICAL. The Contractor shall furnish and install all electrical materials necessary for complete and operational installation of the PAPI systems as shown on the plans and detailed herein. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NFPA 70 - National Electrical Code (NEC) most current issue in force. Electrical equipment and materials shall be installed in conformance with the respective manufacturer's directions and recommendations for the respective application. Any installations which void the UL listing, Intertek Testing Services verification/ETL listing, (or other third party listing), and/or the manufacturer's warranty of a device will not be permitted.

- A. Contractor shall keep a copy of the latest NEC in force on site at all times during construction for use as a reference.
- B. Contractor shall keep a copy of the Plans, Special Provision Specifications including any addenda, and copies of any change orders on site at all times during construction.
- C. Contractor shall coordinate work and any power outages with the Airport Manager, the respective Airport personnel, and the Resident Engineer/Resident Technician. Any shutdown of existing systems shall be scheduled with and approved by the Airport Manager prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures, including, but not limited to, 29 CFR Section 1910.147 The Control of Hazardous Energy (lockout/tagout).
- D. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.
- E. All electrical equipment installed by the Contractor shall be properly labeled, and all cables must be tagged.

- F. All changes to the airfield lighting system control wiring will be documented by the Contractor and provided to the Resident Engineer/Resident Technician.
- G. Locate Existing Underground Utilities and Cables. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. Neither the Owner nor the Engineer assumes any responsibility whatever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size, and type of material of existing underground utilities indicated are representative of those to be encountered in the construction. It shall be the Contractor's responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans, and shall obtain, from the respective utility companies, detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment, where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Owner's Representative and/or the Resident Engineer/Resident Technician shall also be immediately notified. Any damage to such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract. All utility cables and lines shall be located by the respective utility. **Contact JULIE (Joint Utility Location Information for Excavators) for utility information, phone: 1-800-892-0123.** Contact the FAA (Federal Aviation Administration) for assistance in locating FAA cables and utilities. Location of FAA power, control, and communication cables shall be coordinated with and/or located by the FAA. Also contact Airport Director/Manager and Airport Personnel for assistance in locating underground Airport cables and/or utilities. Also coordinate work with all aboveground utilities.
- H. Contractor shall comply with the requirements of FAA AC No. 150/5370-2 (Current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION."
- I. Secure, identify, and place any temporary exposed wiring in conduit to prevent electrocution and fire ignition sources."

125620-3.3 CABLE INSTALLATION FOR PAPI'S. Installation of cables shall conform to Item 108, the applicable sections of FAA AC 150/5345-28 (current issue in effect), per the respective equipment manufacturer's recommendations, and as detailed on the Plans. Series circuit power cable between the PAPI lighting units shall be installed in 2-inch (minimum) galvanized rigid steel conduit, or larger where required by NEC and/or manufacturer's recommendations for the respective cables. Tilt switch control cables between the PAPI lighting units shall be installed in separate 2-inch galvanized rigid steel conduit, to maintain separation from the series circuit power wiring.

125620-3.4 CONDUIT INSTALLATION FOR PAPI'S. Installation of conduit shall conform to Item 110, the respective PAPI manufacturer's installation instructions and/or recommendations, as detailed on the Plans and as specified herein. Coordinate conduit installations into the PAPI foundations and/or L-867 splice cans. Provide threaded conduit fittings, unions, and couplings to interface to the L-867 cans.

125620-3.5 GROUNDING FOR PAPI'S. Grounding for PAPI's shall conform to the respective PAPI manufacturer's installation instructions, as detailed on the Plans, and as specified herein. Furnish and install a 3/4-inch diameter by 20-foot long copper clad ground rod at each PAPI lighting unit. Bond each PAPI unit and the respective L-867 transformer can to the respective ground rod with a #6 AWG stranded copper grounding electrode conductor. Top of ground rods shall be buried approximately 24 inches below grade. All connections to ground rods shall be made with exothermic, weld-type connectors, Cadweld by Pentair Erico Products, Inc., Thermoweld by Continental Industries, Inc., Ultraweld by Harger Lightning Protection Grounding Equipment, or approved equal. Connections to L-867 splice cans shall be with UL listed grounding connectors suitable for use in direct burial or concrete encasement applications. Connections to PAPI unit frame shall be as recommended by the manufacturer or with a UL listed grounding connector. All ground rods associated with the complete PAPI installation shall be bonded to together with a #6 AWG solid copper counterpoise conductor. This counterpoise conductor shall be installed in the same trench located 10 inches above the power and control conductors, between each respective PAPI unit.

125620-3.6 GROUNDING REQUIREMENTS. Grounding shall conform to the following as applicable: The Contractor shall furnish and install all grounding shown on the Plans and/or as may be necessary or required to make a complete grounding system, as required by the latest NFPA 70 – National Electrical Code in force. The reliability of the grounding system is dependent on careful, proper installation, and choice of materials. Improper preparation of surfaces to be joined to make an electrical path, loose joints, or corrosion can introduce impedance that will seriously impair the ability of the ground path to protect personnel and equipment and to absorb transients that can cause noise in communications circuits. The following functions are particularly important to ensure a reliable ground system:

- A. All products associated with the grounding system shall be UL-listed and labeled.
- B. All bolted or mechanical connections shall be coated with a corrosion-preventative compound before joining, Sanchem Inc. "NO-OX-ID "A-Special" compound, Burndy Penetrox E, or approved equal.
- C. Metallic surfaces to be joined shall be prepared by the removal of all non-conductive material, per 2017 NEC Article 250-12. All copper bus bars must be cleaned prior to making connections to remove surface oxidation.
- D. Metallic raceway fittings shall be made up tight to provide a permanent low impedance path for all circuits. Metal conduit terminations in enclosures shall be bonded to the enclosure with UL-listed fittings suitable for grounding. Provide grounding bushings with bonding jumpers for all metal conduits entering service equipment (meter base, CT cabinet, main service breaker enclosure, etc.), generator breaker enclosures, and automatic transfer switch enclosures. Provide grounding bushings with bonding jumpers for all metal conduits entering an enclosure through concentric or eccentric knockouts that are punched or otherwise formed so as to impair the electrical connection to ground. Standard locknuts or bushings shall not be the sole means for bonding where a conduit enters an enclosure through a concentric or eccentric knockout.
- E. Furnish and install ground rods at all locations where shown on the Plans or specified herein. Ground rods shall be spaced, as detailed on the Plans, and in no case spaced less than one rod length apart. All connections to ground rods and/or buried grounding electrode conductors shall be made with exothermic, weld-type connectors; Cadweld by Pentair Erico Products, Inc., Thermoweld by Continental Industries, Inc., Ultraweld by Harger, or approved equal. Exothermic-weld connections shall be installed in conformance with the respective manufacturer's directions using molds, as required for each respective application. Bolted connections will not be permitted at ground rods or at buried grounding electrode conductors.
- F. All connections, located above grade, between the different types of grounding conductors shall be made using UL-listed, double-compression, crimp-type connectors or UL-listed, bolted ground connectors. For ground connections to enclosures, cases, and frames of electrical equipment not supplied with ground lugs, the Contractor shall drill required holes for mounting a bolted, ground connector. All bolted, ground connectors shall be Burndy, Dossert Corporation, ILSCO Corporation, Penn-Union Corporation, Thomas and Betts, or approved equal. Tighten connections to comply with tightening torques in UL Standard 486A to assure permanent and effective grounding.
- G. All metal equipment enclosures, conduits, cabinets, boxes, receptacles, etc. shall be bonded to the respective grounding system.
- H. Each new feeder circuit and/or branch circuit shall include an equipment ground wire. Metal raceway or conduit shall not meet this requirement. The equipment ground wire from equipment shall not be smaller than allowed by 2017 NEC Table 250-122 "Minimum Size Conductors or Grounding Raceway and Equipment." When conductors are adjusted in size to compensate for voltage drop, equipment-grounding conductors shall be adjusted proportionately according to circular mil area. All equipment ground wires shall be copper, either bare or insulated, green in color. Where the equipment grounding conductors are insulated, they shall be identified by the color green, and shall be the same insulation type as the phase conductors.
- I. Install grounding electrode conductors and/or individual ground conductors in Schedule 40 or Schedule 80 PVC conduit. Coordinate the installation of PVC conduit sleeves into the PAPI foundations to accommodate grounding electrode conductor installations from the respective PAPI unit to the respective ground rod.

125620-3.7 PAPI OPERATION. Control of the PAPI units shall be with the L-854 radio receiver and constant current regulator in the vault. Based on the requirements of FAA AC 150/5340-30 *Design and Installation Details for Airport Visual Aids*, FAA AC 150/5345-28 *Precision Approach Path Indicator (PAPI) Systems*, FAA Cert Alert 02-08 (12/12/2002), and review with the FAA an FAA Type L-880 (or L-881), Style B – Current powered (series lighting circuit) system PAPI powered from a 5-step constant current regulator should operate as follows:

PAPI Radio Control Day Mode Illumination Intensity

Status during idle periods – On at 5% minimum brightness; Step B3 on a 5 step regulator

3 clicks of Radio – On at 100% Brightness; Step B5 on a 5 step regulator

5 clicks of Radio – Remain on at 100% Brightness; Step B5 on a 5 step regulator

7 clicks of Radio – Remain on at 100% Brightness; Step B5 on a 5 step regulator

PAPI Radio Control Night Mode Illumination Intensity

Status during idle periods – On at 5% minimum brightness; Step B3 on a 5 step regulator

3 clicks of Radio – 5% Brightness; Step B3 on a 5 step regulator

5 clicks of Radio – 20% to 25% Brightness; Step B4 on a 5 step regulator

7 clicks of Radio – 100% Brightness; Step B5 on a 5 step regulator

125620-3.8 RESTORATION. All turf areas disturbed by the installation of the PAPI system and associated work shall be restored, graded, and seeded to establish a stand of grass to the satisfaction of the Engineer and will be considered as incidental to the installation of the PAPI.

125620-3.9 INSTRUCTION OF AIRPORT STAFF. Contractor shall provide instruction to airport staff in regard to the operation and maintenance of the PAPI system. Contractor shall demonstrate operating procedures, lamp changing procedures, and items requiring maintenance. Contractor shall furnish operation and maintenance manuals for PAPI and associated equipment.

125620-3.10 GROUND CHECK. Prior to final acceptance and activation, each completed PAPI system will be ground checked by the Resident Engineer/Resident Technician and/or the Project Engineer, and it shall be the Contractor's responsibility to have a representative present to make any necessary adjustments and/or corrections of the respective PAPI system installation. Ground check will be scheduled after the PAPI is installed and ready for check out. The ground check often includes confirmation and measurement of aiming angle of the PAPI, testing the PAPI, measurement of input voltage, measurement of input current, testing the photocell, confirmation of proper grounding, operational tests, and other tests. The Contractor shall be responsible to provide PAPI systems that pass the ground check. A copy of the PAPI Ground Check List is included in the Appendix.

125620-3.11 FLIGHT CHECK. Prior to final acceptance and activation, each completed PAPI system will be flight checked by Federal Aviation Administration and/or Illinois Division of Aeronautics, and it shall be the Contractor's responsibility to have a representative present to make any necessary adjustments in the aiming of the PAPI units. The flight check will be scheduled after the PAPI has passed the ground check. The Contractor shall be responsible to provide a PAPI system that passes the respective flight check by Federal Aviation Administration. **Note the FAA will pay the costs for one flight check. In the event that additional flight checks are required, the costs associated with the additional flight checks will be the responsibility of and paid for by the Contractor. FAA has noted the estimated cost for an additional flight check for the PAPI will be approximately \$8,700.00.**

METHOD OF MEASUREMENT

125620-4.1 The PAPI systems to be furnished and installed shall be measured for payment as a unit price per each and shall include a Type L-880 system consisting of four light units, all concrete and materials as required for foundations, all cable and conduit between and/or at the PAPI lighting units, grounding, splice cans, transformers, equipment, excavating, labor, tools, aiming and calibration equipment, testing, and incidentals necessary to furnish a complete and operational PAPI system as approved by the Resident Engineer/Resident Technician.

BASIS OF PAYMENT

125620-5.1 Payment shall be made at the contract unit price per each. This price and payment shall be full compensation for furnishing and installing all materials, for all excavating, labor, tools, equipment, and incidentals necessary to complete this item of work. Cable in unit duct from the respective power source to the respective PAPI installation shall be paid for under item 108. Cable and conduit between the PAPI light units will be considered incidental to the respective PAPI pay item and no additional compensation will be allowed.

Payment will be made under:

Item AR125620 Abbreviated PAPI (L-881 System) - per each.

APPENDIX A

Constant Current Regulator and
Cable Testing Forms

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Engineering Firm Hanson Professional Services Inc.
Airport Name SFY-Tri-Township Airport, Savanna, IL
Project Install PAPI Units at Both Runway Ends
IDA Project SFY-4668
Hanson Project 19A0009C
Date _____

TESTING FORMS

Note: Output voltage measurements are not required for constant current regulators that are not equipped with output voltage meters. **Provide a True RMS Ammeter for current measurements.**

__ Prior to beginning airfield lighting work, test Runway 13-31 CCR by Manual Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

__ Prior to beginning airfield lighting work, test Runway 13-31 CCR in remote mode by L-854 Radio Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

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TESTING FORMS

Note: Output voltage measurements are not required for constant current regulators that are not equipped with output voltage meters. **Provide a True RMS Ammeter for current measurements.**

__ Prior to beginning airfield lighting work, test Backup CCR for Runway 13-31 by Manual Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

__ Prior to beginning airfield lighting work, test Backup CCR for Runway 13-31 in remote mode by L-854 Radio Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

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TESTING FORMS

Note: Output voltage measurements are not required for constant current regulators that are not equipped with output voltage meters. **Provide a True RMS Ammeter for current measurements.**

__ Prior to beginning airfield lighting work, test Taxiway CCR by Manual Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

__ Prior to beginning airfield lighting work, test Taxiway CCR in remote mode by L-854 Radio Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

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TESTING FORMS

Note: Output voltage measurements are not required for constant current regulators that are not equipped with output voltage meters. **Provide a True RMS Ammeter for current measurements.**

__ Prior to beginning airfield lighting work, test Backup CCR for Taxiway Lighting by Manual Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

__ Prior to beginning airfield lighting work, test Backup CCR for Taxiway Lighting in remote mode by L-854 Radio Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

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TESTING FORMS

___ Megger test and record Runway 13 PAPI series circuit cable loop at the vault.

___ Runway 13 PAPI series circuit cable loop shall have the resistance tested and recorded at the vault.

___ Megger test and record Runway 31 PAPI series circuit cable loop at the vault.

___ Runway 31 PAPI series circuit cable loop shall have the resistance tested and recorded at the vault.

Engineering Firm Hanson Professional Services Inc.
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IDA Project SFY-4668
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Date _____

TESTING FORMS

Note: Output voltage measurements are not required for constant current regulators that are not equipped with output voltage meters. **Provide a True RMS Ammeter for current measurements.**

__ After airfield lighting modifications, additions, and/or upgrades have been completed, test Runway 13-31 CCR by Manual Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

__ After airfield lighting modifications, additions, and/or upgrades have been completed, test Runway 13-31 CCR in remote mode by L-854 Radio Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

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TESTING FORMS

Note: Output voltage measurements are not required for constant current regulators that are not equipped with output voltage meters. **Provide a True RMS Ammeter for current measurements.**

__ After airfield lighting modifications, additions, and/or upgrades have been completed, test Backup CCR for Runway 13-31 by Manual Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

__ After airfield lighting modifications, additions, and/or upgrades have been completed, test Backup CCR for Runway 13-31 in remote mode by L-854 Radio Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

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TESTING FORMS

Note: Output voltage measurements are not required for constant current regulators that are not equipped with output voltage meters. **Provide a True RMS Ammeter for current measurements.**

__ After airfield lighting modifications, additions, and/or upgrades have been completed, test Taxiway CCR by Manual Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

__ After airfield lighting modifications, additions, and/or upgrades have been completed, test Taxiway CCR in remote mode by L-854 Radio Control and record input current, output current, and output volts at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B10	Phase A:		
	Phase B:		
B30	Phase A:		
	Phase B:		
B100	Phase A:		
	Phase B:		

Engineering Firm Hanson Professional Services Inc.
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Hanson Project 19A0009C
Date _____

TESTING FORMS

__ Test PAPI CCR for Runway 13 by Manual Control and record input current, output amperage and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B1	Phase A:		
	Phase B:		
B2	Phase A:		
	Phase B:		
B3	Phase A:		
	Phase B:		
B4	Phase A:		
	Phase B:		
B5	Phase A:		
	Phase B:		

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IDA Project SFY-4668
Hanson Project 19A0009C
Date _____

TESTING FORMS

__ Test PAPI CCR for Runway 13 by L-854 Radio Control (**Day Time Mode; Photocell off**) and record input current, output amperage, and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B3 (Preset Step)	Phase A:		
	Phase B:		
B5 (3 clicks)	Phase A:		
	Phase B:		
B5 (5 clicks)	Phase A:		
	Phase B:		
B5 (7 clicks)	Phase A:		
	Phase B:		

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Airport Name SFY-Tri-Township Airport, Savanna, IL
Project Install PAPI Units at Both Runway Ends
IDA Project SFY-4668
Hanson Project 19A0009C
Date _____

TESTING FORMS

___ Test PAPI CCR for Runway 13 by L-854 Radio Control (**Night Time Mode; Photocell on**) and record input current, output amperage, and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B3 (Preset Step)	Phase A:		
	Phase B:		
B5 (3 clicks)	Phase A:		
	Phase B:		
B5 (5 clicks)	Phase A:		
	Phase B:		
B5 (7 clicks)	Phase A:		
	Phase B:		

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IDA Project SFY-4668
Hanson Project 19A0009C
Date _____

TESTING FORMS

__ Test PAPI CCR for Runway 31 by Manual Control and record input current, output amperage and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B1	Phase A:		
	Phase B:		
B2	Phase A:		
	Phase B:		
B3	Phase A:		
	Phase B:		
B4	Phase A:		
	Phase B:		
B5	Phase A:		
	Phase B:		

Engineering Firm Hanson Professional Services Inc.
Airport Name SFY-Tri-Township Airport, Savanna, IL
Project Install PAPI Units at Both Runway Ends
IDA Project SFY-4668
Hanson Project 19A0009C
Date _____

TESTING FORMS

___ Test PAPI CCR for Runway 31 by L-854 Radio Control (**Day Time Mode; Photocell off**) and record input current, output amperage, and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B3 (Preset Step)	Phase A:		
	Phase B:		
B5 (3 clicks)	Phase A:		
	Phase B:		
B5 (5 clicks)	Phase A:		
	Phase B:		
B5 (7 clicks)	Phase A:		
	Phase B:		

Engineering Firm Hanson Professional Services Inc.
Airport Name SFY-Tri-Township Airport, Savanna, IL
Project Install PAPI Units at Both Runway Ends
IDA Project SFY-4668
Hanson Project 19A0009C
Date _____

TESTING FORMS

___ Test PAPI CCR for Runway 31 by L-854 Radio Control (**Night Time Mode; Photocell on**) and record input current, output amperage, and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B3 (Preset Step)	Phase A:		
	Phase B:		
B5 (3 clicks)	Phase A:		
	Phase B:		
B5 (5 clicks)	Phase A:		
	Phase B:		
B5 (7 clicks)	Phase A:		
	Phase B:		

Engineering Firm Hanson Professional Services Inc.
Airport Name SFY-Tri-Township Airport, Savanna, IL
Project Install PAPI Units at Both Runway Ends
IDA Project SFY-4668
Hanson Project 19A0009C
Date _____

TESTING FORMS

___ Test PAPI CCR with both PAPI's on the circuit (Runway 13 and Runway 31) by Manual Control and record input current, output amperage and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B1	Phase A:		
	Phase B:		
B2	Phase A:		
	Phase B:		
B3	Phase A:		
	Phase B:		
B4	Phase A:		
	Phase B:		
B5	Phase A:		
	Phase B:		

Engineering Firm Hanson Professional Services Inc.
Airport Name SFY-Tri-Township Airport, Savanna, IL
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TESTING FORMS

___ Test PAPI CCR with both PAPI's on the circuit (Runway 13 and Runway 31) by L-854 Radio Control (**Day Time Mode; Photocell off**) and record input current, output amperage, and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B3 (Preset Step)	Phase A:		
	Phase B:		
B5 (3 clicks)	Phase A:		
	Phase B:		
B5 (5 clicks)	Phase A:		
	Phase B:		
B5 (7 clicks)	Phase A:		
	Phase B:		

Engineering Firm Hanson Professional Services Inc.
Airport Name SFY-Tri-Township Airport, Savanna, IL
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TESTING FORMS

___ Test PAPI CCR with both PAPI's on the circuit (Runway 13 and Runway 31) by L-854 Radio Control (**Night Time Mode; Photocell on**) and record input current, output amperage, and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B3 (Preset Step)	Phase A:		
	Phase B:		
B5 (3 clicks)	Phase A:		
	Phase B:		
B5 (5 clicks)	Phase A:		
	Phase B:		
B5 (7 clicks)	Phase A:		
	Phase B:		

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APPENDIX B

PAPI GROUND CHECK LIST

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Airport Identifier:	
Airport Name:	
Location:	
Illinois Project No.:	
AIP Project No.:	
Hanson Project No.:	
Date:	
Site Conditions:	

- a. Inspect PAPI to determine that it is installed correctly, at the proper height, at the correct location, level, and properly oriented.
- b. Check all fixture securing screws or bolts to ensure that they have been tightened per manufacturer recommendations. Use an anti-seize compound on bolts made of stainless steel.
- c. Check PAPI to determine that the lenses are clean and unscratched and the channels in front of the lenses are clean.
- d. Test PAPI feeder circuits for continuity and insulation resistance to ground. Observe and record megger test for PAPI feeder circuit conductors.
- e. Check fuses and circuit breakers to determine if they are of the proper rating.
- f. Check PAPI to determine that it is properly oriented with respect to the runway longitudinal sides and the threshold. Check PAPI for proper location.
- g. Check identification number or legend plate for PAPI unit to determine that the respective identification at the installation is as assigned in the Plans.
- h. Check equipment covered by FAA specifications to determine if the manufacturers have supplied certified equipment. Also check the equipment for general conformance with requirements of the Plans, Specifications, and Special Provisions.

- i. Inspect all cables, wiring, and splices to obtain assurance that the installation is per Illinois Standard Specifications for Construction of Airports, the Special Provision Specifications, the Plans, the National Electrical Code, and local codes. Inspect and test insulation resistance of underground cables before backfilling.

- j. Check all ducts and duct markers to determine that the installation is per Illinois Standard Specifications for Construction of Airports, the Special Provision Specifications, and the Plans. Inspect underground ducts before backfill is made.

- k. Check the input voltage at the power and control circuits to determine that the voltage is within limits required for proper equipment operation. Note: for a Style B PAPI check the input voltage to the constant current regulator powering the PAPI systems. Select the proper voltage tap on equipment where taps are provided. Circuitry should also be checked per the manufacturer’s requirements.

- l. Check base plates for damage during installation and refinish according to manufacturer’s instructions and as acceptable to the Engineer.

- m. Check the current or voltage at the lamps to determine if the regulator current or supply voltage is within specified tolerance. If a current or voltage exceeds rated values, the lamp life will be reduced.

- n. Record nameplate data for PAPI.

Manufacturer:	
Model:	
Part No.:	
Serial No.:	
Weight:	
Power Requirement:	
Type:	

- o. Test PAPI by respective control system and confirm proper operation.
- p. Check the size and type of feeder conductors from the vault or power source to the PAPI.
- q. Make sure each PAPI unit has good ground. Test and record ground resistance of ground rod installation at each PAPI Unit.
- r. Observe and record the aiming angle of each PAPI Light Housing Unit.

PAPI LIGHT HOUSING UNIT	MEASURED AIMING ANGLE
PAPI Light Housing Unit #1 (Closest to the Runway Pavement)	
PAPI Light Housing Unit #2	

- s. Observe operation of the PAPI Power and Control Unit photocell and confirm proper operation of day/night brightness levels.
- t. Confirm Operation and Maintenance Manuals are provided for each PAPI unit.

- u. Test PAPI CCR for respective PAPI by Manual Control and record input current, output amperage and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B1	Phase A:		
	Phase B:		
B2	Phase A:		
	Phase B:		
B3	Phase A:		
	Phase B:		
B4	Phase A:		
	Phase B:		
B5	Phase A:		
	Phase B:		

- v. Test PAPI CCR for respective PAPI by L-854 Radio Control (**Day Time Mode; Photocell off**) and record input current, output amperage, and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B3 (Preset Step)	Phase A:		
	Phase B:		
B5 (3 clicks)	Phase A:		
	Phase B:		
B5 (5 clicks)	Phase A:		
	Phase B:		
B5 (7 clicks)	Phase A:		
	Phase B:		

- w. Test PAPI CCR for respective PAPI by L-854 Radio Control (**Night Time Mode; Photocell on**) and record input current, output amperage, and output voltage at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT	OUTPUT VOLTS
B3 (Preset Step)	Phase A:		
	Phase B:		
B3 (3 clicks)	Phase A:		
	Phase B:		
B4 (5 clicks)	Phase A:		
	Phase B:		
B5 (7 clicks)	Phase A:		
	Phase B:		

x. Ground Check test results submitted by:

Name:	
Company:	
Date:	

APPENDIX C

IDA Policy Memorandum Number 96-1
Item 610, Structural Portland Cement Concrete:
Job Mix Formula Approval & Production Testing

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State of Illinois
Department of Transportation
Division of Aeronautics

POLICY MEMORANDUM

April 1, 2010

Springfield

Number 96-1

TO: CONSULTING ENGINEERS

SUBJECT: ITEM 610, STRUCTURAL PORTLAND CEMENT CONCRETE:
JOB MIX FORMULA APPROVAL & PRODUCTION TESTING.

- I. This policy memorandum addresses the Job Mix Formula (JMF) approval process and production testing requirements when Item 610 is specified for an airport construction contract.
- II. PROCESS
 - a. The contractor may submit a mix design with recent substantiating test data or he may submit a mix design generated by the Illinois Division of Highways with recent substantiating test data for approval consideration. The mix design should be submitted to the Resident Engineer.
 - b. The Resident Engineer should verify that each component of the proposed mix meets the requirements set forth under Item 610 of the *Standard Specifications for Construction of Airports* and/or the contract special provisions.
 - c. The mix design should also indicate the following information:
 1. The name, address, and producer/supplier number for the concrete.
 2. The source, producer/supplier number, gradation, quality, and SSD weight for the proposed coarse and fine aggregates.
 3. The source, producer/supplier number, type, and weight of the proposed flyash and/or cement.
 4. The source, producer/supplier number, dosage rate or dosage of all admixtures.
 - d. After completion of Items b and c above, the mix with substantiating test data shall be forwarded to the Division of Aeronautics for approval. Once the mix has been approved, the production testing shall be at the rate in Section III as specified herein.

III. PRODUCTION TESTING

- a. One set of cylinders or beams, depending on the strength specified, shall be cast for acceptance testing for each day the mix is used. In addition, at least one slump and one air test shall be conducted for each day the mix is used. If more than 100 c.y. of the mix is placed in a given day, additional tests at a frequency of 1 per 100 c.y. shall be taken for strength, slump, and air. The concrete shall have a maximum slump of three inches (3") and minimum slump of one inch (1") when tested in accordance with ASTM C-143. The air content of the concrete shall be between 5% and 8% by volume. At no time shall the temperature of the concrete exceed 90 degrees Fahrenheit.
- b. If the total proposed amount of Item 610 Structural Portland Cement Concrete as calculated by the Resident Engineer is less than 50 c.y. for the entire project, the following shall apply:
 - The Resident Engineer shall provide calculations of the quantity of Item 610 to the Division of Aeronautics.
 - One set of cylinders or beams, depending on the strength specified, shall be cast for acceptance testing.
 - One air content and one slump test shall be taken for acceptance testing.
 - The concrete shall have a maximum slump of three inches (3") and minimum of one inch (1") when tested in accordance with ASTM C-143. The air content of the concrete shall be between 5% and 8% by volume. At no time shall the temperature of the concrete exceed 90 degrees Fahrenheit.
- c. The Resident Engineer shall collect actual batch weight tickets for every batch of Item 610 concrete used for the project. The actual batch weight tickets shall be kept with the project records and shall be available upon request of the Department of Transportation.

Steven J. Long, P.E.
Acting Chief Engineer

Supersedes Policy Memorandum 96-1 dated January 1, 2004

(END OF SPECIAL PROVISIONS)



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