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Letting January 19, 2024

Notice to Bidders, Specifications and Proposal

Illinois Department of Transportation

Springfield, Illinois 62764

Contract No. CO072
Coles County Memorial Airport
Mattoon, Illinois
Coles County
Illinois Project No. MTO-4816
SBG Project No. N/A

(Printed by authority of the State of Illinois)

Illinois Department of Transportation

NOTICE TO BIDDERS

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 12:00 p.m. on January 19, 2024, 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. CO072
   Coles County Memorial Airport
   Mattoon, Illinois
   Coles County
   Illinois Project No. MTO-4816
   SBG Project No. N/A

   Reconstruct West Aircraft T-hangar Area Pavements

   For engineering information, please contact Lindsay Hausman, P.E. of Hanson Professional Services, Inc. at 217.747.9314.

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 (Adopted April 1, 2012), 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 7.0%.

7. **SPECIFICATIONS AND DRAWINGS.** The work shall be done in accordance with the Illinois Standard Specifications for Construction of Airports (Adopted April 1, 2012), the Special Provisions dated November 17, 2023, and the Construction Plans dated November 17, 2023 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 Base Bid: 83 calendar days; Additive Alternate #1: 8 additional calendar days; Additive Alternate #2: 12 additional 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.** The Illinois Department of Transportation, Division of Aeronautics does not offer any material cost adjustment provisions.

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,
Secretary

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
EEO

Effective: July 21, 1978
Revised: November 18, 1980

The requirements of the following provisions written for federally-assisted construction contracts, including all goals and timetables and affirmative action steps, shall also apply to all State-funded construction contracts awarded by the Illinois Department of Transportation.

Notice of Requirement for Affirmative Action to Ensure
Equal Employment Opportunity (Executive Order 11246)

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:

APPENDIX A

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 contact or subcontract.

Area Covered (Statewide)

Goals for Women apply nationwide.

GOAL	Goal (percent)
Female Utilization	6.9

APPENDIX B

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.

Economic Area	Goal (percent)
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 - 19.6
IL - Cook, DuPage, Kane,
Lake, McHenry, Will
3740 Kankakee, IL - 9.1
IL - Kankakee
Non-SMSA Counties 18.4
IL - Bureau, DeKalb, Grundy, Iroquois,
Kendall, LaSalle, Livingston, Putnam
IN - Jasper, Laporte, Newton,
Pulaski, Starke

084 Champaign - Urbana, IL:
SMSA Counties:
1400 Champaign - Urbana - Rantoul, IL - 7.8
IL - Champaign
Non-SMSA Counties - 4.8
IL - Coles, Cumberland, Douglas,
Edgar, Ford, Piatt, Vermilion

085 Springfield - Decatur, IL:
SMSA Counties:
2040 Decatur, IL - 7.6
IL - Macon
7880 Springfield, IL - 4.5
IL - Menard, Sangamon
Non-SMSA Counties 4.0
IL - Cass, Christian, Dewitt, Logan,
Morgan, Moultrie, Scott, Shelby

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 - 2.5
IL - McLean
6120 Peoria, IL - 4.4
IL - Peoria, Tazewell, Woodford
Non-SMSA Counties - 3.3
IL - Fulton, Knox, McDonough, Marshall,
Mason, Schuyler, Stark, Warren

088 Rockford, IL:
SMSA Counties:
6880 Rockford, IL - 6.3
IL - Boone, Winnebago
Non-SMSA Counties - 4.6
IL - Lee, Ogle, Stephenson

098 Dubuque, IA:
Non-SMSA Counties - 0.5
IL - JoDaviess
IA - Atlamakee, Clayton, Delaware,
Jackson, Winnesheik
WI - Crawford, Grant, Lafayette

099 Davenport, Rock Island, Moline, IA - IL:
SMSA Counties:
1960 Davenport, Rock Island, Moline, IA - IL - 4.6
IL - Henry, Rock Island
IA - Scott
Non-SMSA Counties - 3.4
IL - Carroll, Hancock, Henderson, Mercer, Whiteside
IA - Clinton, DesMoines, Henry, Lee, Louisa, Muscatine
MO - Clark

107	St. Louis, MO:	
	SMSA Counties:	
	7040 St. Louis, MO - IL -	14.7
	IL - Clinton, Madison, Monroe, St. Clair	
	MO - Franklin, Jefferson, St. Charles,	
	St. Louis, St. Louis City	
	Non-SMSA Counties -	11.4
	IL - Alexander, Bond, Calhoun, Clay,	
	Effingham, Fayette, Franklin, Greene,	
	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 the Contractor's construction work (whether or not it is federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with Executive Order 11246 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 provisions and specifications set forth in its federally assisted contracts, and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. 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 11246 and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

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

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is the entire State of Illinois for the goal set forth in APPENDIX A and the county or counties in which the work is located for the goals set forth in APPENDIX B.

STANDARD FEDERAL EQUAL EMPLOYMENT
OPPORTUNITY CONSTRUCTION CONTRACT
SPECIFICATIONS (EXECUTIVE ORDER 11246)

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, United States Department of Labor, or any person to whom the Director delegates authority;
   (c) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
   (d) "Minority" includes:
      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

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 must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p 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 geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

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

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

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

   (a) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site 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 as such sites or in such facilities.

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

   (c) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractors may have taken.

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

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

   (f) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreements; 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 Foreman, 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 of 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 nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

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

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

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specified 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 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 numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy his 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).

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES
NONFEDERAL-AID CONTRACTS

Effective: March 20, 1969
Revised: January 1, 1994

1. General

a. The requirements set forth herein shall constitute the specific affirmative action requirements under this contract and supplement the non- discrimination requirements contained elsewhere in this proposal.

b. The Contractor shall work with the Illinois Department of Transportation (IDOT) in carrying out Equal Employment Opportunity (EEO) obligations and in reviews of activities under the contract.

c. The Contractor, and all subcontractors holding subcontracts (not including material suppliers) of $10,000 or more, shall comply with the following minimum specific requirement activities of EEO. The Contractor shall include these requirements in every subcontract of $10,000 or more with such modification of language as is necessary to make them binding on the subcontractor.

2. Equal Employment Opportunity Policy

The Contractor shall accept as operating policy the following statement which is designed to further the provision of EEO to all persons, and to promote the full realization of equal employment opportunity through a positive continuing program: "It is the policy of this Company to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age, or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

3. Equal Employment Opportunity Officer

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

4. Dissemination of Policy

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

(1) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the Contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

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

(3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the Contractor's procedures for locating and hiring minority and female employees.

b. In order to make the Contractor's EEO policy known to all employees, prospective employees, and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the Contractor shall take the following actions:

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

(2) The Contractor's EEO policy and the procedures to implement such policy shall be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5. Recruitment

a. When advertising for employees, the Contractor shall include in all advertisements for employees the notation: "An Equal Opportunity Employer". All such advertisements shall be published in newspapers, or other publications, having a large circulation among minority groups in the area from which the project work force would normally be derived.

b. The Contractor shall, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants, including, but not limited to, State employment

agencies, schools, colleges and minority and female organizations. To meet this requirement, the Contractor shall, identify sources of potential minority and female employees, and establish with such identified sources procedures whereby minority and female applicants may be referred to the Contractor for employment consideration. In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he/she is expected to observe the provisions of that agreement to the extent that the system permits the Contractor's compliance with EEO contract provisions.

c. The Contractor shall encourage present employees to refer minority and female applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority and female applicants shall be discussed with employees.

6. Personnel Actions

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

a. The Contractor shall conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

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

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

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

7. Training and Promotion

a. The Contractor shall assist in locating, qualifying and increasing the skills of minority and female employees and applicants for employment.

b. Consistent with the Contractor's work force requirements and as permissible under Federal and State regulations, the Contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance.

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

d. The Contractor shall periodically review the training and promotion potential of minority and female employees and shall encourage eligible employees to apply for such training and promotion.

8. Unions

If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor shall use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minorities and females within the unions, and to effect referrals by such unions of minority and female employees. Actions by the Contractor, either directly or through a Contractor's association acting as agent, shall include the procedures set forth below:

a. The Contractor shall use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority and female employees for membership in the unions and increasing the skills of minority and female and employees so that they may qualify for higher paying employment.

b. The Contractor shall use best efforts to incorporate an EEO clause into each union agreement to the end that such union shall be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age, or disability.

c. The Contractor is to obtain information as to the referral practices and policies of the labor union, except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the Contractor, the Contractor shall so certify to IDOT and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the Contractor with a reasonable flow of minority and female referrals within the time limit set forth in the collective bargaining agreement, the Contractor shall, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and females. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minorities or female employees). In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to these Special Provisions, such Contractor shall immediately notify IDOT.

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

The Contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The Contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR Part 23, shall have equal opportunity to compete for and perform subcontracts which the Contractor enters into pursuant to this contract. The Contractor shall use best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority and female representation among their employees. Contractors shall obtain lists of DBE construction firms from IDOT personnel.

c. The Contractor shall use his/her best efforts to ensure subcontractor compliance with their EEO obligations.

10. Records and Reports

The Contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of IDOT.

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

(1) the number of minorities, non-minorities and females employed in each work classification on the project;

(2) the progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and females;

(3) the progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) the progress and efforts being made in securing the services of DBE subcontractors, or subcontractors with meaningful minority and female representation among their employees.

b. The Contractor shall submit to IDOT a monthly report every month for the duration of the project, indicating the number of minority, non-minority and female employees currently engaged in each work classification required by contract work and the number of hours worked. This information is to be reported on Form SBE-956. If on-the-job training is being required by special provision, the Contractor will be required to collect and report training data.

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
REQUIRED PROVISIONS – STATE CONTRACTS

Effective: April 1 1965
Revised: January 1, 2017

I. SELECTION OF LABOR

The Contractor shall comply with all Illinois statutes pertaining to the selection of labor.

EMPLOYMENT OF ILLINOIS WORKERS DURING PERIODS OF
EXCESSIVE UNEMPLOYMENT

Whenever there is a period of excessive unemployment in Illinois, which is defined herein as any month immediately following two consecutive calendar months during which the level of unemployment in the State of Illinois has exceeded five percent as measured by the United States Bureau of Labor Statistics in its monthly publication of employment and unemployment figures, the Contractor shall employ at least 90 percent Illinois laborers. "Illinois laborer" means any person who has resided in Illinois for at least 30 days and intends to become or remain an Illinois resident.

Other laborers may be used when Illinois laborers as defined herein are not available, or are incapable of performing the particular type of work involved, if so certified by the Contractor and approved by the Engineer. The Contractor may place no more than three of his/her regularly employed non-resident executive and technical experts, who do not qualify as Illinois laborers, to do work encompassed by this Contract during period of excessive unemployment.

This provision applies to all labor, whether skilled, semi-skilled, or unskilled, whether manual or non-manual.

II. 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.

III. SUBLETTING OR ASSIGNING THE CONTRACT

1. The Contractor shall perform with his/her own organization contract work amounting to not less than 51 percent of the original total contract price, except that any items designated by the State as "Specialty Items" may be performed by subcontract and the amount of any such "Specialty Items" so performed may be deducted from the original total contract price before computing the amount of work required to be performed by the Contractor with his/her own organization.

   a. "His/her own organization" shall be construed to include only worker employed and paid directly by the Contractor and equipment owned or rented by him/her, with or without operators.

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

2. In addition to the 51 percent requirement set forth in paragraph 1 above, the Contractor shall furnish (a) a competent superintendent or foreman who is employed by him/her, who has full authority to direct performance of the work in accordance with the contract requirements, and who is in charge of all construction operations (regardless of who performs the work), and (b) such other of his/her own organizational capability and responsibility (supervision, management, and engineering services) as the State highway department contracting officer determines is necessary to assure the performance of the contract.

3. The Contractor shall not sublet, sell, transfer, assign or otherwise dispose of the contract or contracts or any portion thereof, or of his/her right, title or interest therein, without written consent of the Engineer. In case such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with the Contractor's own organization, work amounting to not less than 51 percent of the total contract cost, except that any items designated in the contract as "specialty items" may be performed by subcontract and the cost of any such specialty items so performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the Contractor with his/her own organization. Materials purchased or produced by the Contractor must be incorporated into the project by the Contractor's own organization if their cost is to be applied to the 50 percent requirement.

   No subcontracts, or transfer of contract, shall in any case release the Contractor of his/her liability under the contract and bonds. All transactions of the Engineer shall be with the Contractor. The Contractor shall have representative on the job at all times when either contract or subcontract work is being performed.

   All requests to subcontract shall contain a certification that the subcontract agreement exists in writing and physically contains the required Federal and State Equal Employment Opportunity provisions and Labor compliance provisions, including the contract minimum wage requirements. The Contractor shall permit Department or Federal representatives to examine the subcontract agreements upon notice.

4. Any items that have been selected as "Specialty Items" for the contract are listed as such in the Special Provisions, bid schedule, or elsewhere in the contract documents.

5. No portion of the contract shall be sublet, assigned or otherwise disposed of, except with the written consent of the State highway department contracting officer, or his/her authorized representative, and such consent when given shall not be construed to relieve the Contractor of any responsibility for the fulfillment of the contract. Request for permission to sublet, assign or otherwise dispose of any portion of the contract shall be in writing and accompanied by (a) a showing that the organization which will perform the work is particularly experienced and equipped for such work, and (b) an assurance by the Contractor that the labor standards provisions set forth in this contract shall apply to labor performed on all work encompassed by the request.

IV. COMPLIANCE WITH THE PREVAILING WAGE ACT

1. Prevailing Wages. All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. If the Department of Labor revises the wage rates, the Contractor will not be allowed additional compensation on account of said revisions. Current wage rate information shall be obtained by visiting the Department of Labor website at http://www.illinois.gov/idol/Pages/default.aspx. It is the responsibility of the Contractor to review the rates applicable to the work of this contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the Contractor by means of the Department of Labor website satisfies the notification of revisions by the Department to the Contractor pursuant to the Act, and the Contractor agrees that no additional notice is required.

2. Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of three years from the later of the date of final payment under the contract or completion of the contract, records of the wages paid to his/her workers. The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid. Upon seven business days' notice, these records shall be available at a location within the State, during reasonable hours, for inspection by the Department or the Department of Labor; and Federal, State, or local law enforcement agencies and prosecutors.

3. **SUBMISSION OF PAYROLL RECORDS (BDE)**

   Effective: April 1, 2021
   Revised: November 2, 2023

   Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15th day of each calendar month, file a certified payroll for the immediately preceding month to the Illinois Department of Labor (IDOL) through the Illinois Prevailing Wage Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Prevailing-Wage-Portal.aspx. Payrolls shall be submitted in the format prescribed by the IDOL.

In addition to filing certified payroll(s) with the IDOL, the Contractor and each subcontractor shall certify and submit payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers shall not be included on weekly submittals. Instead, the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). In addition, starting and ending times of work each day may be omitted from the payroll records submitted. The submittals shall be made using LCPtracker Pro software. The software is web-based and can be accessed at https://lcptracker.com/. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option ("No Work", "Suspended", or "Complete") selected."

4. Employee Interviews. The Contractor and each subcontractor shall permit his/her employees to be interviewed on the job, during working hours, by compliance investigators of the Department or the Department of Labor.

V. NONSEGREGATED FACILITIES

(Applicable to State Financed Construction Contracts and related subcontracts exceeding $10,000 which are not exempt from the Equal Opportunity clause).

By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement, as appropriate, the bidder, construction Contractor, subcontractor, or material supplier, as appropriate, certifies that (s)he does not maintain or provide for his/her employees any segregated facilities at any of his/her establishments, and that (s)he does not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. (S)He certifies further that (s)he will not maintain or provide for his/her employees any segregated facilities at any of his/her establishments, and that (s)he will not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. (S)He agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. (S)He agrees that (except where he/she has obtained identical certifications from proposed subcontractors and material suppliers for specific time periods), he/she will obtain identical certifications from proposed subcontractors or material suppliers prior to the award of subcontracts or the consummation of material supply agreements, exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that (s)he will retain such certifications in his/her files.

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.

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Construction of Airports," adopted April 1, 2012, and the Special Provisions included herein which apply to and govern the airport improvement of: Reconstruct West Aircraft T-hangar Area Pavements at Coles County Memorial, Contract CO072, and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

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 **Base Bid: 83 calendar days; Additive Alternate #1: 8 additional calendar days; Additive Alternate #2: 12 additional 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.

CONSTRUCTION AIR QUALITY – DIESEL VEHICLE EMISSIONS CONTROL (BDE)
Effective: April 1, 2009
Revised: January 2, 2012

Diesel Vehicle Emissions Control. The reduction of construction air emissions shall be accomplished by using cleaner burning diesel fuel. The term "equipment" refers to any and all diesel fuel powered devices rated at 50 hp and above, to be used on the project site in excess of seven calendar days over the course of the construction period on the project site (including any "rental" equipment).

All equipment on the jobsite, with engine ratings of 50 hp and above, shall be required to: use Ultra Low Sulfur Diesel fuel (ULSD) exclusively (15 ppm sulfur content or less).

Diesel powered equipment in non-compliance will not be allowed to be used on the project site, and is also subject to a notice of non-compliance as outlined below.

The Contractor shall certify that only ULSD will be used in all jobsite equipment. The certification shall be presented to the Department prior to the commencement of the work.

If any diesel powered equipment is found to be in non-compliance with any portion of this specification, the Engineer will issue the Contractor a notice of non-compliance and identify an appropriate period of time, as outlined below under environmental deficiency deduction, in which to bring the equipment into compliance or remove it from the project site.

Any costs associated with bringing any diesel powered equipment into compliance with these diesel vehicle emissions controls 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. The Contractor's compliance with this notice and any associated regulations shall also not be grounds for a claim.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists, he/she will notify the Contractor in writing, and direct the Contractor to correct the deficiency within a specified time period. The specified time-period, which begins upon Contractor notification, will be from 1/2 hour to 24 hours long, based on the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge regarding the time period.

The deficiency will be based on lack of repair, maintenance and diesel vehicle emissions control.

If the Contractor fails to correct the deficiency within the specified time frame, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be $1,000.00 for each deficiency identified.

If a Contractor or subcontractor accumulates three environmental deficiency deductions in a contract period, the Contractor will be shutdown until the deficiency is corrected. Such a shutdown will not be grounds for any extension of contract time, waiver of penalties, or be grounds for any claim.

CONSTRUCTION AIR QUALITY – IDLING RESTRICTION (BDE)
Effective: April 1, 2009

Idling Restrictions. The Contractor shall establish truck-staging areas for all diesel powered vehicles that are waiting to load or unload material at the jobsite. Staging areas shall be located where the diesel emissions from the equipment will have a minimum impact on adjacent sensitive receptors. The Department will review the selection of staging areas, whether within or outside the existing highway right-of-way, to avoid locations near sensitive areas

or populations to the extent possible. Sensitive receptors include, but are not limited to, hospitals, schools, residences, motels, hotels, daycare facilities, elderly housing and convalescent facilities. Diesel powered engines shall also be located as far away as possible from fresh air intakes, air conditioners, and windows. The Engineer will approve staging areas before implementation.

Diesel powered vehicle operators may not cause or allow the motor vehicle, when it is not in motion, to idle for more than a total of 10 minutes within any 60 minute period, except under any of the following circumstances:

1) The motor vehicle has a gross vehicle weight rating of less than 8000 lb (3630 kg).
2) The motor vehicle idles while forced to remain motionless because of on-highway traffic, an official traffic control device or signal, or at the direction of a law enforcement official.
3) The motor vehicle idles when operating defrosters, heaters, air conditioners, or other equipment solely to prevent a safety or health emergency.
4) A police, fire, ambulance, public safety, other emergency or law enforcement motor vehicle, or any motor vehicle used in an emergency capacity, idles while in an emergency or training mode and not for the convenience of the vehicle operator.
5) The primary propulsion engine idles for maintenance, servicing, repairing, or diagnostic purposes if idling is necessary for such activity.
6) A motor vehicle idles as part of a government inspection to verify that all equipment is in good working order, provided idling is required as part of the inspection.
7) When idling of the motor vehicle is required to operate auxiliary equipment to accomplish the intended use of the vehicle (such as loading, unloading, mixing, or processing cargo; controlling cargo temperature; construction operations, lumbering operations; oil or gas well servicing; or farming operations), provided that this exemption does not apply when the vehicle is idling solely for cabin comfort or to operate non-essential equipment such as air conditioning, heating, microwave ovens, or televisions.
8) When the motor vehicle idles due to mechanical difficulties over which the operator has no control.
9) The outdoor temperature is less than 32 °F (0 °C) or greater than 80 °F (26 °C).

When the outdoor temperature is greater than or equal to 32 °F (0 °C) or less than or equal to 80 °F (26 °C), a person who operates a motor vehicle operating on diesel fuel shall not cause or allow the motor vehicle to idle for a period greater than 30 minutes in any 60 minute period while waiting to weigh, load, or unload cargo or freight, unless the vehicle is in a line of vehicles that regularly and periodically moves forward.

The above requirements do not prohibit the operation of an auxiliary power unit or generator set as an alternative to idling the main engine of a motor vehicle operating on diesel fuel.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists based on non-compliance with the idling restrictions, he/she will notify the Contractor, and direct the Contractor to correct the deficiency.

If the Contractor fails to correct the deficiency a monetary deduction will be imposed. The monetary deduction will be $1,000.00 for each deficiency identified.

SPECIAL PROVISION FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
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 7.0% 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 is 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 of 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.DBE.UP@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: November 1, 2021

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 Sunday through Saturday 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 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).

ILLINOIS WORKS APPRENTICESHIP INITIATIVE – STATE FUNDED CONTRACTS (BDE)
Effective: June 2, 2021
Revised: September 2, 2021

Illinois Works Jobs Program Act (30 ILCS 559/20-1 et seq.). For contracts having an awarded contract value of $500,000 or more, the Contractor shall comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules. The goal of the Illinois Apprenticeship Works Initiative is that apprentices will perform either 10% of the total labor hours actually worked in each prevailing wage classification or 10% of the estimated labor hours in each prevailing wage classification, whichever is less. The Contractor may seek from the Department of

Commerce and Economic Opportunity (DCEO) a waiver or reduction of this goal in certain circumstances pursuant to 30 ILCS 559/20-20(b). The Contractor shall ensure compliance during the term of the contract and will be required to report on and certify its compliance. An apprentice use plan, apprentice hours, and a compliance certification shall be submitted to the Engineer on forms provided by the Department and/or DCEO.

REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES

The Prevailing rates of wages are included in this Contract proposal. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and this Proposal, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Rates.aspx or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.

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SECTION III

Coles County Memorial Airport,

Mattoon, Illinois

Reconstruct West Aircraft T-Hangar Area Pavements

Illinois Project No.: MTO-4816

LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

11/15/2023
EXPIRES: 11/30/2025
COVERING
ELECTRICAL DESIGN

Prepared by:

HANSON
ngineering | Planning | Allied Services

anson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886

LICENSED PROFESSIONAL ENGINEER
LINDSAY DENET HAUSMAN
062-059464
STATE OF ILLINOIS

Exp. 11/30/25

Lindsay Hausman

100% Submittal

November 17, 2023

IDOT Letting: January 19, 2024

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INDEX OF SPECIAL PROVISIONS

GENERAL

These Special Provisions, together with applicable Standard Specifications, Manuals, Policies, Memorandums, Worksheets, 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 (Division) for the following improvement project at Coles County Memorial Airport, Mattoon, Coles County, Illinois:

Reconstruct West Aircraft T-Hangar Area Pavements

This project is to reconstruct the pavements surrounding the west t-hangars at Coles County Memorial Airport including, among other incidental work, the following items:

Base Bid:

- Placement of temporary soil erosion control measures.
- Removal of existing pavements.
- Earth Excavation for new pavement section.
- Placement of underdrains, trench drain and drainage modifications.
- Placement of granular drainage layer and aggregate base course.
- Placement of PCC pavement, PCC sidewalk and HMA pavement.
- Placement of pavement markings.
- Topsoiling, seeding, and mulching along pavement edges.

Additive Alternate No. 1:

- Milling and overlay of existing pavements.

Additive Alternate No. 2:

- Placement of temporary soil erosion control measures.
- Milling and overlay of existing pavements.
- Placement of pavement markings.
- Topsoiling, seeding, and mulching along pavement edges.

GOVERNING SPECIFICATIONS AND RULES AND REGULATIONS

The Illinois Standard Specifications for Construction of Airports, State of Illinois Department of Transportation, Division of Aeronautics, adopted **April 1, 2012**, as revised (Standard Specifications), shall govern the Project except as otherwise revised or noted in these Special Provisions dated November 17, 2023. All references to IDOT Specifications refer to Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, adopted January 1, 2022, as revised. Resolution of conflicts with any part or parts of said Specifications shall be in accordance with Section 50-03 of the Standard Specifications.

ILLINOIS DEPARTMENT OF TRANSPORTATION, DIVISION OF AERONAUTICS

MANUALS, POLICY MEMORANDUMS, AND GUIDES

The Illinois Department of Transportation, Division of Aeronautics, Manuals, Policies, Memorandums and Guides that are incorporated into this Project by reference are listed below. Also provided is a notation as to whether all or a portion of each applicable Manual, Policy Memorandum, and Guide has been modified by these Special Provisions.

Manuals

Title	Modified by Special Provisions
Airport Construction Documentation Manual (Updated 6/2014)	No
Manual for Documentation of Airport Materials (Updated 4/01/2010)	No

Policy Memorandums

No.	Title	Modified By Special Provision
07-21	Acceptance Procedure for Finely Divided Minerals Used in Portland Cement Concrete and Other Applications	No
87-2	Density Acceptance of Bituminous Pavements	No
87-3	Mix Design, Test Batch, Quality Control, and Acceptance Testing of PCC Pavement Mixtures	No
87-4	Determination of Bulk Specific Gravity (d) of Compacted Bituminous Mixes	No
90-1	Resampling and Retesting of PCC Pavement	No
95-1	Field Test Procedures for Mixer Performance and Concrete Uniformity Testing	No
96-1	Item 610, Structural Portland Cement Concrete: Job Mix Formula Approval & Production Testing	No
96-3	Requirements for Quality Assurance on Projects with Bituminous Concrete Paving	No
97-2	Pavement Marking Paint Acceptance	No
2001-1	Requirements for Cold Weather Concreting	No
2003-1	Requirements for Laboratory, Testing, Quality Control, and Paving of Superpave Bituminous Concrete Mixtures for Airports	No
	Bituminous Mix Design Memorandum	No
	Comparison Samples Memorandum	No

Templates

Title	Modified By Special Provision
Cold Weather Concreting Plan Template	No
Concrete Quality Control Plan Template	No
Hot Mix Asphalt (HMA) Quality Control Plan Template	No

It is the Bidder's and Contractor's responsibility to review and incorporate into their bid, and work, the requirements contained in these Manuals, Policy Memorandums and Guides. Copies of each applicable manual, policy memorandum, and guide can be found on the Illinois Department of Transportation, Division of Aeronautics webpage at https://idot.illinois.gov/doing-business/procurements/construction-services/contractor-resources/aeronautics/construction-and-materials.html.

DIVISION I

GENERAL PROVISIONS

SECTION 10

DEFINITION OF TERMS

The Work shall be provided in accordance with Section 10 of the Standard Specifications.

SECTION 20

ADVERTISEMENT, BIDDING, AWARD, AND CONTRACT EXECUTION

The Work shall be provided in accordance with Section 20 of the Standard Specifications.

SECTION 40

SCOPE OF WORK

Revise Section 40 of the Standard Specifications as follows:

40-09 SAFETY PLAN COMPLIANCE DOCUMENT (SPCD). Add the following Paragraphs:

"The Contractor shall consult with the Airport Manager and the Resident Engineer in arranging his construction operations. The Airport Manager will at all times have jurisdiction over the safety of air traffic during construction. Wherever the safety of air traffic during construction is affected, his decisions as to methods, procedures and measures used shall be final and any Contractors performing work must be governed by said decisions.

"The Contractor shall not have access to any part of the active airfield (runway, taxiway, or apron) for all equipment or personnel without the approval of the Resident Engineer. The Contractor will erect signs stating, "Construction Access Only" and "Construction Exit Route" at all gates or areas where they are gaining access/egress to/from the airfield. These signs will be provided to help keep the public off the airfield. The Contractor shall be responsible for coordinating all hauling and access on city, township or county roads with the agency responsible for the roadway.

"To maintain airport operations and to facilitate the construction of the proposed work, the project has been divided into separate phases in accordance with FAA Advisory Circular 150/5370-2 (Latest Edition) Operational Safety on Airports During Construction. References to Construction Safety and Phasing Plans (CSPP) in that document shall be interpreted to mean the phase limits, barricade locations, access points, and notes shown on the construction activity plan sheets included in the as-bid contract documents. When safety is used or referred to in the contract documents and in the Advisory Circular(s) (AC) it shall be redefined by this contract as meaning operational safety. The CSPP establishes the airport and project specific requirements, supplementing the requirements in the AC, that are to be included in the Contractor's bid for maintaining operational safety during construction.

"The CSPP contained herein has been approved by the Airport, Department, and FAA. The Contractor shall be required to divide the overall work into separate phases in substantial conformance with the CSPP shown in the plans, except as allowed by the contract documents, and approved by the Department on behalf of the FAA. Durations specified for individual phases shall become requirements of the contract and shall be subject to liquidated damages."

SECTION 50

CONTROL OF WORK

Revise Section 50 of the Standard Specifications as follows:

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."

Add the following to RESPONSIBILITY OF THE CONTRACTOR, Paragraph G:

"**These grades shall be furnished by the Contractor to the Project Engineer and shall include: the final grade for subgrade for new pavements established under Item 152; the first /final lift of granular drainage subbase for new pavements furnished under Item 154606 and 800928; the final lift of crushed aggregate base-course furnished under item 209; the first and final lifts of HMA base course furnished under Item 403, the final pavement surface furnished under Item 401 or 501 and; the final sidewalk grades furnished under Item 501605. Surveying shall also be furnished by the Contractor after any constructed surface requested by the Resident Engineer for which deviations from Plan grade elevations and/or slopes that are greater than those allowed in the Standard Specifications or these Special Provisions are identified by the Resident Engineer.**"

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 facilities' owners.

"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 routes within the Airport, as noted on the Plans, or as directed by the Resident Engineer. This work is included in Item 150530, Traffic Maintenance, of these Special Provisions."

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 these Special Provisions, dated November 17, 2023, contained in Paragraph 40-5, Maintenance of Traffic, and Item 150530, Traffic Maintenance."

Runway closures will not be required as part of this project. During construction, the Contractor must follow the procedures outlined on the Safety Plan that assures safe operating conditions for aircraft, as well as his personnel and equipment. The Airport Manager will, at all times, have jurisdiction over the safety of air traffic during construction. Whenever working within the proposed construction areas, it will be the Contractor's responsibility to place barricades and traffic control devices as shown on the Plans or as directed by the Resident Engineer/Resident Technician. The barricades on the airfield will be equipped with red-flashing or steady-burn lights and 20-in. square orange flags. The barricades will remain in place until the pavement areas are open for traffic. The barricades will be placed at intervals shown on the Plans.

The Contractor and his employees will be restricted to the work areas. All other areas of the Airport are off limits.

Extreme care will be taken not to impose on the operations of any open runway or taxiway. The proposed Safety Plan, as outlined on the Construction Plans and in the Special Provisions, will address safety and attempt to minimize disruption to Airport daily operations.

When the Contractor's vehicles are on Airport property, they shall be properly marked. The markings shall consist of a 3-ft sq. flag consisting of a checkered pattern of international orange and white squares of not less than 1 ft on each side displayed in full view above the vehicle. Contractor vehicles engaged in continuous hauling operations will not be required to display a flag.

70-27 AIRPORT SECURITY NOTES.

Airport security will be maintained at all times. The Contractor will monitor the site access to the proposed job site to insure no one will enter the access gate that is not authorized to be on the construction site or on the air side of the airport.

70-28 SITE INSPECTION.

The Contractor shall be responsible for any on-site inspection necessary prior to submitting a bid on this project. Upon receipt of a bid, it shall be assumed that the Contractor is fully familiar with the construction site.

SECTION 80

PROSECUTION AND PROGRESS

Revise Section 80 of the Standard Specifications as follows:

80-03 NOTICE TO PROCEED. Add the following to this section:

The Notice to Proceed (NTP) will not be issued until the Contractor provides the Safety Plan Compliance Documents (SPCD) in conformance with the FAA Advisory Circular (AC) 150/5370-2 (latest revision) and all materials are certified by the Contractor to be available and on hand. The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and from which date contract time will be charged. The Contractor shall begin the work to be performed under the contract within 10 days of the date set by the Engineer in the written notice to proceed, but in any event, the Contractor shall notify the Project Engineer at least 24 hours in advance of the time actual construction operations will begin. The Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Engineer. The Contract Time will begin on the date the Contractor actually begins construction or 10 days from the date of the Notice to Proceed, whichever is earlier.

80-05 LIMITATIONS OF OPERATIONS. Add the following:

"The Contractor shall also meet the requirements of the Standard Specifications and these Special Provisions, dated November 17, 2023, contained in Paragraph 40-5, Maintenance of Traffic, and Item 150530, Traffic Maintenance."

Add the following:

80-14 OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION.

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.

SECTION 90

MEASUREMENT AND PAYMENT

The Work shall be provided in accordance with Section 90 of the Standard Specifications.

DIVISION II

PAVING CONSTRUCTION DETAILS

EARTHWORK

ITEM 150510

ENGINEER'S FIELD OFFICE

Revise Item 150510 of the Standard Specifications as follows:

CONSTRUCTION METHODS

150 2.1 Add the following to the first Paragraph:

"Should sanitary facilities that are an integral part of the office not be practicable, temporary toilet facilities shall be provided. The temporary facilities must be of a size to permit use by access-challenged persons. A separate facility for hand washing must also be available and maintained. Solid waste disposal consisting of two (2) waste baskets and an outside trash container of sufficient size to accommodate a weekly-provided pick-up shall be furnished."

Omit Item B.

Replace Item I. in the list of equipment to be furnished by the Contractor with the following:

"I. One dry process copy machine (including maintenance and operating supplies) capable of both collating and reproducing prints up to a Ledger Size (11" by 17"); the copier shall be interconnected with Items J. and N. to permit printing directly from the router and the scanner (a separate printer with maintenance and operating supplies may also be permitted)."

Replace Item J. in the list of equipment to be furnished by the Contractor with the following:

"J. One (1) Windows-compatible scanner configured to operate with the wireless router furnished in this item (Item N. as added to the list of items to be furnished), and capable of producing images of documents sized up to 11 inch by 17 inch, for the exclusive use by the Resident Engineer."

Add the following to Item H. in the list of equipment to be furnished by the Contractor:

"a functional internet Wi-Fi device such as a mobile hot spot providing hi-speed broadband internet access to the field office for the exclusive use of the Resident Engineer shall be provided."

Add the following to Item K. in the list of equipment to be furnished by the Contractor:

"Item K in the list of equipment to be furnished by the Contractor is **NOT** required for this Project."

Add the following to the list of equipment to be furnished by the Contractor:

"N. Available for the exclusive use of the Resident Engineer, an Internet service connection using telephone DSL, cable broadband, or wireless (4G LTE minimum speed) technology. Additionally, an 802.11g/n wireless router shall be provided, which will allow connection by the Resident Engineer and up to four engineer staff.

"O. One (1) 800 watt, 0.8 cubic foot microwave oven.

"P. Two (2) 28-quart wastebaskets with 8-gallon trash bags.

"Q. One (1) first aid cabinet - fully equipped."

BASIS OF PAYMENT

150 3.1 Revise this Section to read:

"The building fully equipped as specified herein will be paid for at the Contract unit price per lump sum for Engineer's Field Office. This price shall include all utility costs and shall reflect the salvage value of the building, equipment, and furniture, which become the property of the Contractor after release by the Resident Engineer.

"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 150/5370-2 (current issue). The item shall also include the provision of: sweepers for pavement cleaning, flaggers and radio equipment for traffic control, and set-up, operation, maintenance, and removal of runway and taxiway closure markers, as shown in the Site and Safety Plan and as specified in these 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 Resident Engineer. When directed by the Resident 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 Resident Engineer. The Contractor shall be responsible for replacement of 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 Resident 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 150/5370-2 (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, 2020.

150530-2.2 TEMPORARY VINYL TAXIWAY CLOSURE MARKERS. The vinyl markers shall be constructed of a durable, 5-foot by 30-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 or steel anchors, meeting the requirements of the marker manufacturer. The Contractor shall furnish a sufficient number of closure markers to mark the number of closed taxiways for any construction phase.

CONSTRUCTION METHODS

150530-3.1 GENERAL. All work zone traffic control and protection shall be according to: the Site and Safety Plan, Notes, and details; FAA Advisory Circular 150/5370-2 (current issue), Operational Safety on Airports During Construction, and; Highway Standards (latest issue), as published by the Illinois Department of Transportation.

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 Site and Safety 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 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 Resident 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 Resident Engineer will provide the Contractor with the name of its representative who will be responsible for administration of the traffic control.

Removal, 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 TAXIWAY CLOSURE MARKERS. **Taxiway 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 taxiways for any construction phase. The marker shall be held in place on the pavement using sandbags or steel anchors. If steel anchors are used, any damage to the pavement made by the installation shall be repaired to the satisfaction of the Resident Engineer. The Contractor shall furnish daily inspection of the markers and make any adjustments, repairs and replacements necessary to maintain the markers in-place and to the satisfaction of the Resident Engineer.

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 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:

"For the purposes of Excavation and Embankment in this Project, this item is to be constructed for aircraft weighing less than 60,000 pounds (Standard Proctor).

"All earthwork shall be performed in accordance with the applicable NPDES Construction Site permit issued for this Project, and any applicable municipal or county ordinances or regulations.

"This item shall consist of placing the earth shoulder adjacent to the bituminous surface course overlay. The shoulder shall be placed in accordance with the dimensions shown on the Construction Plans."

"For purposes of shoulder adjustment, no proctor or sieve analysis will be required."

152-1.2 CLASSIFICATION.

Delete the second, third and fourth Paragraphs.

Add the following:

"Earthwork cut as required in the Plans may result in unsuitable/unstable material that cannot be incorporated into the work as fill material when constructing the lines and grades shown in the Plan. All such unsuitable/unstable material, that cannot be used in the Work, as determined by the Resident Engineer, shall be loaded and hauled to an off-site disposal site authorized to accept the debris. Excess but suitable material shall be used elsewhere in the Work to the extent possible. Any excess suitable 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".

"The material for the shoulder adjustment will be a topsoil material obtained from an off-site location. The material shall be approved by the Resident Engineer."

CONSTRUCTION METHODS

152-2.1 GENERAL. Add the following:

"The Contractor will proof-roll the subgrade when required by the Resident Engineer, as directed by the Resident Engineer. The cost for this proofing will **not** be paid for separately but shall be included in the cost for "Unclassified Excavation."

"The shoulder adjustment will be constructed to the proposed pavement edge and will match the existing earth grade as shown on the Proposed Grading Plan and Cross Sections. Prior to the placement of the shoulder adjustment material, the existing shoulder area will be mowed and disked/pulverized until the existing sod has been completely cut up. After the material is placed, it will be lightly shaped and rolled to achieve minimal compaction."

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".

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 and 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.

152-2.8 HAUL: Add the following:

"The Contractor shall take special precautions when hauling so as not to create ruts in adjacent earth areas. All existing graded or turfed areas outside the grading limits, which are disturbed or rutted by the Contractor during the hauling/excavating operation, shall be regraded and returfed at his own expense to the satisfaction of the Engineer. No claim for hauling will be allowed."

152-2.9 TOLERANCES: Add the following:

"**For purposes of verifying these tolerances, the Contractor shall furnish to the Project Engineer for review, survey elevations for the prepared subgrade under pavements as specified under Section 50-06 (Responsibility of the Contractor Paragraph G).**"

Add:

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.

METHOD OF MEASUREMENT

152-3.2 Delete this Section.

152-3.3 Revise this section to read as follows:

"Shoulder adjustment shall be paid for at the measured number of square yards of graded shoulder completed in accordance with this specification."

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.

BASIS OF PAYMENT

152-4.1 Revise this section as follows:

Payment shall be made at the contract unit price per cubic yard for "Unclassified Excavation". This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

Payment for "Unclassified Excavation" shall also include removal of unsuitable materials, if any, at the discretion of the Engineer and required excavation of onsite stockpiles for shoulder fill.

"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.

Add the following:

"Payment will be made under:

"Item AR152410 Unclassified Excavation - per cubic yard.

"Item AR152480 Shoulder Adjustment – per square yard.

"Item AT152480 Shoulder Adjustment – per square yard."

ITEM 152540

SOIL STABILIZATION FABRIC

Revise Item 152540 of the Standard Specifications as follows:

MATERIALS

152540-2.1 GEOTEXTILE FABRIC FOR SOIL STABILIZATION.

Delete this section and replace with the following:

"The stabilization fabric shall be a multi-purpose, woven, high-performance polypropylene geotextile providing for filtration, separation and soil reinforcement. The geotextile shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids. The fabric shall contain as a minimum the following specific properties:

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Tensile Strength (at Ultimate)	ASTM D4595	lbs/ft	4800 (MD)/4800 (CD)
Tensile Strength (at 2% Strain)	ASTM D4595	lbs/ft	960 (MD)/1320 (CD)
Tensile Strength (at 5% Strain)	ASTM D4595	lbs/ft	2400 (MD)/2700 (CD)
Flow Rate	ASTM D4491	gal/min/ft^2	30
Permittivity	ASTM D4491	sec^{-1}	.40
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve	30
Pore Size 0_{95}	ASTM D6767	microns	465
Pore Size 0_{50}	ASTM D6767	microns	632
Factory Sewn Seam	ASTM D4884	lbs/ft	3000
UV Resistance (at 500 hours)	ASTM D 4355	% Strength Retained	80

BASIS OF PAYMENT

152540-5.1 Add the following:

"Payment will be made under:

"Item AR152540 Soil Stabilization Fabric - per square yard."

ITEM 154606

GRANULAR DRAINAGE SUBBASE

GENERAL

154606-1.1 This item shall consist of furnishing, placing, shaping and compacting crushed stone for use as a granular subbase course and drainage layer. The material is to be placed to the lines and grades as shown on the Plans and as directed by the Resident Engineer.

MATERIALS

154606-2.1 COARSE AGGREGATE. The crushed coarse aggregate shall conform with the requirements of Article 1004.01 of IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2022, and the following specific requirements:

(a) Description. The coarse aggregate shall be crushed gravel, novaculite, crushed stone or crushed sandstone. **Pit run gravel and gravel shall not be used for the granular subbase material**.

The granular material, if approved by the Engineer, may be produced by blending aggregates from more than one source, provided the method of blending results in a uniform product. The components of a blend may not be of the same kind of material. The source of material shall not be changed during the progress of the Work without written permission of the Engineer. Where a natural aggregate is deficient in fines, the material added to make up deficiencies shall be a material approved by the Engineer.

(b) Quality. The coarse aggregate shall be Class D Quality or better.

(c) Gradation. The coarse aggregate base gradation shall be CA-7.

CONSTRUCTION METHODS

154606-3.1 GENERAL. All work involved in clearing and stripping of quarries and pits, including the handling of unsuitable material, shall be performed by the Contractor at his own expense. The subbase material shall be obtained from approved sources. The material shall be handled in a manner that shall secure a uniform and satisfactory product.

154606-3.2 EQUIPMENT. All equipment necessary for the proper construction of this Work shall be on the Project, in first-class working condition, and approved by the Resident Engineer before construction is permitted to start. Equipment available shall meet the requirements of IDOT Standard Specifications for Road and Bridge Construction, adopted April 1, 2016, Article 311.03, of Section 311, Granular Subbase.

154606-3.3 PREPARING UNDERLYING COURSE. The underlying subgrade shall be checked and accepted by the Resident Engineer before placing and spreading operations are started. The subgrade shall be free of ruts, objects and debris, but **shall not be proof rolled unless directed by the Resident Engineer**.

The crushed aggregate is to be placed over a Soil Stabilization Fabric as specified in Item 152540. The furnishing and placement of the fabric will be paid under Item AR152540. The aggregate will be spread over the fabric in a manner that is not injurious to the fabric. To protect the underlying course and to insure proper drainage, the spreading of the aggregate shall begin along the centerline of the area for a crowned section or on the high side of the pavement with a one-way slope. Grade control shall be provided by the Contractor using string lines, checkboards, forms or other suitable methods that will assure that the separation fabric beneath is not damaged.

154606-3.4 PLACING AND SPREADING. The depositing and spreading of the material shall commence where designated and shall progress without breaks. The drainage layer shall be constructed in a layer of not less than 3-inches nor more than 6-inches of compacted thickness. The material shall be deposited and spread on the underlying subgrade and separation fabric in lanes of a uniform thickness and gradation, without segregation by size or pockets of fine or coarse materials, and to such loose depth that, when compacted, the layer shall have the required thickness. The aggregate shall be spread by spreader boxes or other approved devices or methods that shall spread the aggregate in the required amount to avoid or minimize the need for re-handling the material and to prevent the rutting of the underlying subgrade. Hauling over the un-compacted material shall not be permitted.

No material shall be placed in snow or on a soft, muddy, or frozen underlying course, unless directed by the Resident Engineer.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

During the placing and spreading, sufficient caution shall be exercised to prevent the incorporation of subgrade or shoulder material in the base mixture.

154606-3.5 ROLLING AND COMPACTING. After spreading, the crushed aggregate shall be thoroughly compacted by rolling. The rolling shall progress gradually from the sides to the center of the lane under construction, or from one side toward previously placed material by lapping uniformly each preceding rear wheel track by one-half the width of such track. Rolling shall continue until the stone is thoroughly set, the interstices of the material reduced to a minimum, and creeping of the stone ahead of the roller is no longer visible. The base shall be compacted to the satisfaction of the Resident Engineer.

The course shall not be rolled when the underlying course is soft or yielding or when the rolling causes undulation in the subbase course.

In areas inaccessible to rollers, the crushed aggregate material shall be tamped thoroughly with mechanical tampers.

The sprinkling during rolling, if necessary, shall be in the amount and by equipment approved by the Resident Engineer.

154606-3.6 FINISHING OF SUBBASE. Prior to final shaping, the subbase shall be brought to true shape. After the subbase has been brought to its true shape and correct elevation, the surface shall be wetted and rolled as directed by the Resident Engineer with a three-wheel or tandem roller weighing between 6 and 10 tons and weighing not less than 200 pounds/inch nor more than 325 pounds/inch of width of the roller.

After the subbase has been compacted and shaped, the surface of the subbase shall be tested for crown and elevation. The Contractor shall furnish all equipment necessary for these checks. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified, reshaped, re-compacted, and otherwise manipulated as the Resident Engineer may direct until the required smoothness and accuracy are obtained. The finished surface shall not vary more than 2-inch from a 16-foot straightedge when applied to the surface parallel with, and at right angles to, the centerline, or shall not be more than 0.05 foot from the true grade as established by grade hubs or pins. The Contractor shall have at all times a minimum of one (1) day's production of subbase ahead of any crushed aggregate base course to be placed.

The subbase shall be moist at the time of placing subsequent base materials. If the subbase subsequently becomes too dry, it shall be sprinkled again, in such a manner as not to form puddles of water. The Contractor shall provide water and all equipment necessary to meet this requirement. The cost of watering shall be incidental to the Contract.

154606-3.7 TOLERANCE IN THICKNESS. The subbase shall be constructed to the thickness shown on the Plans. Thickness determinations shall be made by depth tests or cores taken at intervals in such a manner that each test shall represent no more than 1500 square yards. When the base deficiency is more than 2-inch, the Contractor shall correct such areas by scarifying, adding satisfactory base mixture, rolling, sprinkling, reshaping, and finishing in accordance with these Specifications.

The Contractor shall replace, at his expense, the subbase material where borings have been taken for test purposes.

For purposes of determining suitability for placement of Item 209, the Contractor shall furnish grade elevations for the granular drainage subbase to the Project Engineer for review, as specified under Section 50-06 (Responsibility of the Contractor Paragraph G).

154606-3.8 PROTECTION. Work on the subbase shall not be accomplished during freezing temperatures nor when the subgrade is wet. When the aggregates contain frozen materials or when the underlying course is frozen, the construction shall be stopped.

Hauling equipment may be routed over completed portions of the subbase, provided no damage results and provided that such equipment is routed over the full width of the course to avoid rutting or uneven compaction. However the Resident Engineer shall have the full and specific authority to stop all hauling over completed or partially completed subbase when, in the Resident Engineer's opinion, such hauling is causing damage. Any damage resulting from routing equipment over the course shall be repaired by the Contractor at his own expense.

154606-3.9 MAINTENANCE. Following the completion of the subbase, the Contractor shall perform all maintenance work necessary to keep the subbase in good condition. The subbase shall be properly drained at all times. If cleaning is necessary, any work or restitution necessary shall be at the expense of the Contractor.

METHOD OF MEASUREMENT

154606-4.1 The Granular Drainage Subbase to be paid for shall be the measured area in square yards for the thickness of subbase course placed, bonded and accepted by the Resident Engineer.

BASIS OF PAYMENT

154606-5.1 Payment will be made at the Contract unit price per square yard, per 6 inch thickness indicated on the Plans, for Granular Drainage Subbase. This price shall be full compensation for furnishing all materials and for the preparation, hauling, and placing of these materials, for furnishing certified scales, and for all labor, equipment, tools and incidentals necessary to complete the item to the satisfaction of the Engineer.

Payment will be made under:

Item AR154606 Granular Drainage Subbase - 6" - per square yard.

Item AR800928 Granular Drainage Subbase - 4" - per square yard.

ITEM 156000

EROSION CONTROL

Revise Item 156000 of the Standard Specifications as follows:

MATERIALS

156-2.1 SILT FENCE. Delete this Section and replace with the following:

"This fence shall be of either a pre-fabricated type or shall be constructed in the field, and regardless of the fabrication method, shall be of materials meeting the dimensions and material requirements shown in the Plans. The fabric for silt fence shall be a woven fabric meeting the requirements of AASHTO M 288 for unsupported silt fence with less than 50 percent geotextile elongation."

156-2.7 INLET AND PIPE PROTECTION. Revise this Paragraph to read as follows:

"Erosion control protection shall be provided for at drainage inlets at the locations shown in the Plans and as detailed in the Plans. The complete inlet fabric and fabric insert assembly shall be furnished, installed and maintained as shown in the Plans, and shall be IPP FleXstorm by Inlet & Pipe Protection, FLEXSTORM CATCHIT by Advanced Drainage Systems, FloGard Temporary Inlet Filter by Oldcastle, or approved equivalent. The Contractor shall determine the required assembly size to be used at each location based upon manufacturer recommendations. The used inlet protection assembly shall be disposed of off-site at a lawful disposal site when instructed by the Resident Engineer."

CONSTRUCTION METHODS

156-3.2 TEMPORARY EROSION CONTROL. Revise this Section as follows:

Add the following to Sub-paragraph B.:

"The Contractor shall empty the inlet fabric basket when the bag is half-full, or earlier when directed by the Resident Engineer."

156-3.6 REMOVAL OF EROSION CONTROL. Add the following to this section:

"Upon removal of the silt fence the disturbed area is to be regraded and reseeded incidental to the contract item for silt fence.

BASIS OF PAYMENT

156-5.1 Add:

"Payment will be made under:

"Item AR156510	Silt Fence - per foot.
Item AT156510	Silt Fence – per foot
Item AR156520	Inlet Protection – per each.
Item AT156520	Inlet Protection – per each."

PAVEMENT SURFACE PREPARATION

ITEM 201671

CRACK CONTROL FABRIC

Revise Item 201671 of the Standard Specifications as follows:

MATERIALS

201-2.1 REFLECTIVE CRACK CONTROL SYSTEM A. Delete this Section.

201-2.2 REFLECTIVE CRACK CONTROL SYSTEM B. Delete this Section and replace with the following:

"201-2.2 CRACK CONTROL FABRIC. Crack control fabric shall be a high strength, open fiberglass grid knitted in a stable construction and coated with elastomeric polymer and self-adhesive glue. As a minimum the material must meet the following specific properties:

Specification for Use in Asphalt Reinforcement	
Material	Custom-knitted fiberglass mesh with elastomeric polymer coating and pressure sensitive adhesive backing
Tensile Strength, Test Method ASTM D 6637 (A)	Across Width = 1,120 Lbs/Inch Across Length = 560 Lbs/Inch
Elongation at Break, Test Method ASTM D 6637 (A)	Less than 3 Percent
Melting Point, Test Method ASTM D 276	Greater than 450E F
Mass/Unit Area, Test Method ASTM D 5261-92	18.0 (oz/sy)
Grid Aperture Size	0.5 inch by 0.5 inch
Roll Dimensions	197.0 feet x 5.0 feet
Roll Area	109 sy
Adhesive Backing	Pressure Sensitive

BASIS OF PAYMENT

201-5.1 Delete this Section and replace with the following:

"201-5.1 The work shall be paid for at the Contract unit price per square yard for Crack Control Fabric. These prices shall be full compensation for all materials, labor and equipment, and all incidental items necessary to complete the item in accordance with these specifications.

"Payment will be made under:

"Item AR201670 Crack Control Fabric - per square yard."

FLEXIBLE BASE COURSES

ITEM 209

CRUSHED AGGREGATE BASE COURSE

Revise Item 209 of the Standard Specifications as follows:

209-1.1 DESCRIPTION. Add the following:

"The Crushed Aggregate Base Course shall be placed upon a prepared subgrade in lifts of limited thickness as required in the Standard Specifications and to the total uniform compacted thicknesses shown in the Plans. **In accordance with Section 209-3.2, the material used in this item shall be pugmilled with water at a central mixing plant or traveling plant and placed at the material's optimum moisture content."**

MATERIALS

209-2.1 CRUSHED COARSE AGGREGATE. Add the following:
"The **Gradation B column in Table 1**, Requirements for Gradation of Aggregate, shall be used."

CONSTRUCTION METHODS

209-3.4 FINISHING AND COMPACTING. Revise this section as follows:

Add the following after the first paragraph:

"For the purpose of compaction control testing, this item is to be constructed for aircraft weighing less than 60,000 pounds (Standard Proctor)."

Add the following after the third paragraph:

"The Contractor shall furnish the Resident Engineer with the size and type of straightedge required to check the pavement components as directed in the various sections of the specifications."

209-3.7 SURFACE GRADE ACCURACY. Add the following to this Section.

"For purposes of this grade check, the Contractor shall furnish grade elevations for the crushed aggregate base course to the Project Engineer for review, as specified under Section 50-06 (Responsibility of the Contractor Paragraph G)."

METHOD OF MEASUREMENT

209-4.1 Delete this Section. Section 209-4.2 of the Standard Specifications shall be used.

209-4.3 Delete this Section.

BASIS OF PAYMENT

209-5.1 Add the following:

"Payment will be made under:

"Item AR209606 Crushed Agg. Base Course - 6" - per square yard."

FLEXIBLE SURFACE COURSES

ITEM 401

BITUMINOUS SURFACE COURSE - SUPERPAVE

(Central Plant Hot Mix)

Revise Item 401 (Superpave) of the Standard Specifications as follows:

401-1.1 DESCRIPTION. Add the following paragraphs:

"Item 603 Bituminous Tack Coat shall be placed between this item and the newly placed bituminous base course, and between the first and any subsequent lifts for this item, if applicable, in accordance with Item 603, and as approved by the Resident Engineer. **Tack Coat shall NOT be deleted**.

"For purposes of materials, design and testing criteria, this item is to be constructed for Traffic Mix **Aircraft Under 60,000 Pounds – Parking Apron**, and for **Method I – Less than 2,500 tons/pay item**.

"This item shall also include the requirements prescribed in Illinois Division of Aeronautics Policy Memorandums 87-2, Density Acceptance of Bituminous Pavements; 87-4, Determination of Bulk Specific Density of Compacted Bituminous Mixes; 96-3, Requirements for Quality Assurance on Projects with Bituminous Concrete Paving, and; 2003-1, Requirements for Laboratory, Testing, Quality Control, and Paving of Superpave Bituminous Concrete Mixes for Airports, current issues."

COMPOSITION

401-3.2 JOB MIX FORMULA. Add the following:

"This item is to be designed for Traffic Mix **Aircraft Under 60,000 Pounds – Parking Apron**.

401-3.4 TEST SECTION. Delete this section.

CONSTRUCTION METHODS

401-4.4 HMA PAVERS. Add the following to the end of this Section:

"Should Plan grade elevations and slopes for the Bituminous Base Course have been achieved, subject to the tolerances permitted for Item AR403613, the Contractor may use a ski-type device of not less than 30 feet in length, or as directed by the Engineer, in conjunction with the HMA paver controls. Should Plan grade elevations and/or slopes have not been achieved for the Bituminous Base Course, taut stringline (wire) shall be used for grade control."

401-4.15 ACCEPTANCE TESTING OF HMA MIXES FOR DENSITY. Add the following as the first Paragraph:

"Acceptance of the surface mix shall be performed in accordance with requirements for Method I: Less than 2,500 tons/pay item."

401-4.16 SURFACE TESTS. Revise this Section as follows:

Add the following to the second paragraph:

"The Contractor shall furnish the Resident Engineer with the size and type of straightedge required to check the pavement components as directed in the various sections of the Specifications.

Add the following to the third paragraph:

"To verify conformance with Plan final grades, the Contractor shall furnish grade elevations for the final surface lift to the Project Engineer for review, as specified under Section 50-06 (Responsibility of the Contractor Paragraph G)."

401-4.17 SAMPLING PAVEMENT. Add the following to the end of this Section:

"The paving shall be furnished under Method I procedures."

BASIS OF PAYMENT

401-6.1 Add the following:

"Payment will be made under:

"Item AR401613	Bit. Surf. Cse. - Method I, Superpave - per ton.
"Item AS401613	Bit. Surf. Cse. - Method I, Superpave - per ton.
"Item AT401613	Bit. Surf. Cse. - Method I, Superpave - per ton."

ITEM 401650

BITUMINOUS PAVEMENT MILLING

Revise Item 401650 of the Standard Specifications follows:

DESCRIPTION

401-1.1 Add the following:

"Pavement milling necessary for butting new pavement with existing pavement to remain will be measured for pavement under this item."

METHOD OF MEASUREMENT

401-4.1 Delete the last sentence of this Section and replace with the following:

"Pavement milling necessary for butting new pavement with existing pavement to remain will be measured for pavement under this item."

BASIS OF PAYMENT

401-5.1 Add the following:

"Payment will be made under:

"Item AS401650 Bituminous Pavement Milling - per square yard.

"Item AT401650 Bituminous Pavement Milling - per square yard."

ITEM 401660

SAW AND SEAL BITUMINOUS JOINTS

DESCRIPTION

401660-1.1 This item shall consist of a resilient and adhesive joint sealing filler capable of effectively sealing joints in bituminous asphalt pavement at the locations shown in the Plans or as directed by the Resident Engineer.

MATERIALS

401660-2.1 The joint sealing materials shall conform to ASTM D6690 - Type II.

CONSTRUCTION METHODS

401660-3.1 The Contractor shall mark true lines for each joint sealant location. Each location shall then be sawed to the depth shown on the Plans and the Saw and Seal Joints detail. The costs for sawing for joint sealant placement shall be included in the Contract unit price for Item AR401660. Prior to filling, the joint shall be thoroughly cleaned of all laitance, protrusions, dirt, dust, and other objectionable material and the faces of the joints shall be dry. The filler may then be placed at the depths shown on the Plans and in accordance with manufacturer's recommendations for this type of installation. At the time of application of the sealing compound, the atmospheric and pavement temperature shall be above 50º F. The weather shall not be rainy or foggy. The temperature requirements may be waived only when so directed by the Engineer in writing. The Contractor shall not install any joint sealer material until the Resident Engineer has inspected and approved the condition of the joints immediately prior to the installation of the sealer.

Before sealing the joints, the Contractor shall be required to demonstrate that the equipment and procedures for preparing, mixing and placing the sealing compound will produce a satisfactory joint seal. During the course of the work, any batches that do not have good consistency for application shall be rejected.

METHOD OF MEASUREMENT

401660-4.1 The joint sealing filler to be paid for shall be the linear feet of filler or sealer as specified, sawed and placed, complete and accepted.

BASIS OF PAYMENT

401660-5.1 Payment will be made at the Contract unit price per linear foot for Saw and Seal Bituminous Joints, which price shall be full compensation for the materials, labor, equipment, tools and incidentals necessary to complete the item as specified and to the satisfaction of the Engineer.

Payment will be made under:

Item AR401660 Saw & Seal Bit. Joints - per linear foot.

Item AS401660 Saw & Seal Bit. Joints - per linear foot.

Item AT401660 Saw & Seal Bit. Joints - per linear foot.

ITEM 401900

REMOVE BITUMINOUS PAVEMENT

Revise Item 401900 of the Standard Specifications as follows:

DESCRIPTION

401900-1.1 Revise the second Paragraph as follows:

"Within the limits shown in the Plans or as directed by the Resident Engineer, the Contractor shall remove all of the existing bituminous concrete pavement. No separate measurements will be made for various HMA thicknesses that may be encountered. Coarse aggregate courses not impacted by the final Plan grade may be left in place after re-compaction to the requirements of Item 152. Existing Crushed Aggregate Base Course removal that may be required to furnish Plan elevations shall be paid under "Unclassified Excavation"."

CONSTRUCTION METHODS

401900-2.1 Add the following to the first Paragraph:

"Sawcutting required for this item shall be incidental to Remove Bituminous Pavement."

Add the following to the second Paragraph:

"Material removed shall include all of the existing bituminous concrete."

Add the following as a fifth Paragraph:

"The Contractor may use a power-operated mechanical scarifier, roto-mill, planing machine, grinder or other device to remove the asphalt surface in the area for Remove Pavement. However, this milling and disposal shall not be separately measured for payment, but shall be included in the Contract unit price for Remove Bituminous Pavement."

BASIS OF PAYMENT

401900-4.1 Add the following:

"Payment will be made under:

"Item AR401900 Remove Bituminous Pavement - per square yard."

ITEM 401910

REMOVE AND REPLACE BITUMINOUS PAVEMENT

DESCRIPTION

401910-1.1 This item consists of milling and removing the existing pavement associated with a large area of pavement distress and recompacting crushed aggregate (type B only), crack control repair fabric, tack coat, and bituminous surface course mix back into the removal area. The pavement repair areas will be identified in the field by the Resident Engineer/Resident Technician.

MATERIALS

401910-2.1 Bituminous Surface Course. The proposed bituminous surface course shall be an approved Item 401 Bituminous Surface Course Mix.

401910-2.2 Bituminous Tack Coat. The proposed bituminous tack coat shall conform to Item 603.

401910-2.3 Crack Control Fabric. The proposed crack control system shall conform to Item 201671.

401910-2.4 Crushed Aggregate Base Course. The proposed crushed aggregate base course shall conform to Item 209.

CONSTRUCTION METHODS

401910-3.1 (Type B) The Contractor shall remove each proposed repair area to the length, width and depths shown in the Plans. The equipment used must be approved for use on this project by the

Resident Engineer. The edge of the trench formed will have a vertical face prior to the placement of the bituminous surface mix. An additional partial depth area will be milled on both sides of the proposed patch to provide a smooth surface for the crack control fabric to be placed over, as shown in the Plans. This area is incidental to the overall patch and will not be measured for payment.

The subbase will be checked for stability following the initial excavation and then backfilled as needed with crushed aggregate conforming to Item 209, followed by the placement of multiple lifts of bituminous material conforming to Item 401. Each lift shall be of thickness as shown in the plans and compacted to a minimum density of 93%. The final lift shall be installed flush with the existing adjacent (milled) pavement.

The crack control material shall be installed according to the manufacturer's directions on the surface of the pavement following the milling operations and prior to the application of the two lifts of bituminous surface material. The bituminous tack coat shall be installed with the crack control repair material per the installation directions of the crack control repair material manufacturer. The tack coat shall also be applied to the vertical edges of the milled area.

All milled/removal material will be disposed of by the Contractor off the Airport site, unless otherwise directed by the Airport Director at the time of construction.

METHOD OF MEASUREMENT

401910-4.1 The removal and replacement quantity to be paid for shall be the number square yards completed, accepted, and measured in place by the Resident Engineer. Areas wider than the nominal width or length specified will not be measured for payment. The area of the fabric used concurrent with this task will be measured separately under Item 201671.

BASIS OF PAYMENT

401910-5.1 This Item of work will be paid for at the contract unit bid price per square yard for removal and replacement of bituminous pavement. The price shall include full compensation for all sawing (if utilized), milling, excavation, disposal of waste material, application of tack coat material, placement of bituminous material; for furnishing all materials, labor, equipment, and incidentals necessary to complete this Item of work. The fabric will be paid for separately under Item 201671.

Payment will be made under:

Item AR401916 Rem & Rep Bit Pavement – Type B --- per square yard

ITEM 403

BITUMINOUS BASE COURSE – SUPERPAVE

(Central Plant Hot Mix)

Revise Item 403 (Superpave) of the Standard Specifications as follows:

403-1.1 DESCRIPTION. Add the following paragraphs:

"The Bituminous Base Course for all new pavements shall be placed upon an aggregate base prepared in accordance with Item 602 Bituminous Prime Coat.

"For Bituminous Base Course constructed in two or more lifts, the second and succeeding lifts shall be placed upon a Bituminous Tack Coat, furnished in accordance with Item 603. Each specified tack coat application **SHALL** be required, regardless of condition of the underlying pavement.

"For purposes of materials, design and testing criteria and test section, this item is to be constructed for **Aircraft Under 60,000 Pounds, Parking Apron** and for **Method I – Less than 2,500 Tons/pay item**.

"This item shall also include the requirements prescribed in Illinois Division of Aeronautics Policy Memorandums 87-2, Density Acceptance of Bituminous Pavements; 87-4, Determination of Bulk Specific Density of Compacted Bituminous Mixes; 96-3, Requirements for Quality Assurance on Projects with Bituminous Concrete Paving, and; 2003-1, Requirements for Laboratory, Testing, Quality Control, and Paving of Superpave Bituminous Concrete Mixes for Airports, current issues."

COMPOSITION

403-3.2 JOB MIX FORMULA. Add the following:

"This item is to be designed for **Aircraft Under 60,000 Pounds, Parking Apron**."

403-3.4 TEST SECTION. Delete this section.

CONSTRUCTION METHODS

403-4.4 HMA PAVERS. Add the following to the end of this Section:

"Should Plan grade elevations and slopes for the Crushed Aggregate Base Course have been achieved, subject to the tolerances permitted for Item AR209606, the Contractor may use a ski-type device of not less than 30 feet in length, or as directed by the Engineer, in conjunction with the HMA paver controls. Should Plan grade elevations and/or slopes have not been achieved for the Crushed Aggregate Base Course, taut stringline (wire) shall be used for grade control."

403-4.14 SURFACE TESTS. Revise this section as follows:

Add the following to the second paragraph:

"The Contractor shall furnish the Resident Engineer with the size and type of straightedge required to check the pavement components as directed in the various sections of the Specifications."

Add the following to the third paragraph:

"**To verify conformance with Plan Base course grades, the Contractor shall furnish grade elevations for the first and final base course lift to the Project Engineer for review, as specified under Section 50-06 (Responsibility of the Contractor Paragraph G). Should grades not be achieved on the first lift, the Contractor shall develop a plan to achieve the required grades prior to paving the next lift, and shall survey each subsequent lift in accordance with Section 50-06 (Responsibility of the Contractor Paragraph G) until the Plan grades are achieved."**

403-4.15 SAMPLING PAVEMENT. Add the following to the end of this Section:

"**The paving shall be furnished under Method I procedures."**

BASIS OF PAYEMNT

403-6.1 Add the following:

"Payment will be made under:

"Item AR403613 Bit. Base Cse. - Method I, Superpave - per ton."

RIGID PAVEMENT

ITEM 501

PORTLAND CEMENT CONCRETE PAVEMENT

Revise Item 501 of the Standard Specifications as follows:

501-1.1 DESCRIPTION. Add the following paragraphs:

"For purposes of materials, design, and acceptance/testing criteria, this item is to be constructed based upon **Method I (quantity of less than or equal to 1,500 cubic yards)**.

"This item shall also include the requirements prescribed in Illinois Division of Aeronautics Policy Memorandums 18-08.1, Acceptance Procedure for Finely Divided Materials Used in Portland Cement Concrete and Other Applications; 87-3, Mix Design, Test Batch, Quality Control, and Acceptance Testing of PCC Pavement Mixtures; 90-1, Resampling and Retesting of PCC Pavement; 95-1, Field Test Procedures for Mixer Performance and Concrete Uniformity Tests, and; 2001-1, Requirements for Cold Weather Concreting, current issues."

MATERIALS

501-2.6 STEEL REINFORCEMENT. Replace the first Paragraph of this section with the following:

"Reinforcement of panels as shown in the Plans shall be welded wire fabric of the size and dimensions shown in the Plans conforming to ASTM A185."

501-2.9 COVER MATERIAL FOR CURING. Delete this section and replace with the following:

"501-2.9 COVER MATERIAL FOR CURING. Curing materials shall be a white pigmented liquid membrane-forming compounds for curing concrete conforming to the requirements of ASTM C309, Type 2."

CONSTRUCTION METHODS

501-3.1 EQUIPMENT. Add the following to the end of the first Paragraph:

"Because of the volume of concrete to be furnished for this item, an IDOT-approved, central mix concrete plant shall NOT be required."

501-3.3 CONDITIONING OF UNDERLYING COURSE, SLIP-FORM CONSTRUCTION. Add the following as the first Paragraph of this Section:

"Prior to placement of concrete, the Contractor shall furnish to the Project Engineer for review, grade elevations for the granular drainage subbase serving as the platform for PCC pavement placement, as specified under Section 50-06 (Responsibility of the Contractor Paragraph G)."

501-3.4 CONDITIONING OF UNDERLYING COURSE, SIDE-FORM CONSTRUCTION. Add the following as the first Paragraph of this Section:

"Prior to placement of concrete, the Contractor shall furnish to the Project Engineer for review, grade elevations for the granular drainage subbase serving as the platform for PCC pavement placement, as specified under Section 50-06 (Responsibility of the Contractor Paragraph G)."

501-3.6(B) PROPORTIONS. Delete this Section in its entirety. Section 501-3.6 (A) PROPORTIONS, shall be used.

501-3.7 FIELD TEST SPECIMENS. Add the following:

"The Contractor shall complete the field test specimens in accordance with **Method I** procedures."

501-3.12 JOINTS. Add the following to (b) Installation:

"Protection of previously sawed joints from slip form operations shall be provided in the form of rubber mats or other means acceptable to the Resident Engineer."

501-3.14 SURFACE TEXTURE. Add the following:

"The Project Engineer will select the type of finish (brush/broom, burlap, astroturf, etc.) to be furnished on the pavement surface based upon the Contractor's selected construction method (side-form or slip-form) and the type of equipment to be employed."

501-3.16 SURFACE TEST. Add the following:

"The Contractor shall furnish the Resident Engineer with the size and type of straightedge required to check the pavement components as directed in the various sections of the Specifications."

501-3.17 CURING. Add the following to the first Paragraph:

"Curing shall be performed in accordance with Method A, Impervious Membrane Method."

501-3.21 OPENING TO TRAFFIC. Add the following:

"Prior to opening, the pavement shall be cleaned of all deleterious material. Sweeping shall be conducted in such a manner that dust will not affect operations at the Airport."

501-3.22 SURFACE TOLERANCES. Add the following to this Section:

"For purposes of this tolerance check, the Contractor shall furnish grade elevations for the finished PCC pavement to the Project Engineer for review, as specified under Section 50-06 (Responsibility of the Contractor Paragraph G)."

BASIS OF PAYMENT

501-5.1 Add the following:

"Payment will be made under:

"Item AR501506 6" PCC Pavement - per square yard.

Item AR501530 PCC Test Batch - per each."

501-5.2 Delete this Section.

ITEM 501605

PORTLAND CEMENT CONCRETE SIDEWALK

501605-1.1 This item shall consist of Portland Cement concrete sidewalk constructed on a prepared subgrade, at the locations shown in the Plans. The concrete thickness shall be five (5) inches, as shown in the Plans.

MATERIALS AND EQUIPMENT

501605-2.1 MATERIALS. Concrete materials shall meet the requirements of Item 610, Structural Portland Cement Concrete. Preformed fiber joint filler shall meet the requirements of Section 1051 of the IDOT Specifications, Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, adopted January 1, 2022, as revised. Hot-poured joint sealer shall be ASTM D 6690, Type II, Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

501605-2.2 EQUIPMENT. Equipment shall meet the requirements of Section 424.03 of the IDOT Specifications, Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, adopted January 1, 2022, as revised.

CONSTRUCTION REQUIREMENTS

501605-3.1 The construction shall be completed as shown in the details and notes shown in the Plans and in accordance with Sections 424.04 through 424.11 of the IDOT Specifications, Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, adopted January 1, 2022, as revised.

In addition, all expansion and sawed contraction joints shall be sealed with hot-poured joint sealer, meeting requirements of ASTM D 6690, Type II, Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

METHOD OF MEASUREMENT

501605-4.1 Portland Cement concrete sidewalk will be measured for payment in place, and the area computed in square feet. Joint filler and sealant shall not be measured separately for payment but shall be incidental to the Contract unit price for sidewalk.

BASIS OF PAYMENT

501605-5.1 This work will be paid for at the Contract unit price per square foot for Portland Cement Sidewalk of the thickness specified, which price shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including all required expansion joints, sawed or tooled joint sealing, special texturing, and variable height edge treatment at sidewalk aprons and accessibility ramps, necessary to complete the item as specified.

Payment will be made under:

Item AR501605 5" PCC Sidewalk - per square foot.

ITEM 501900

REMOVE PCC PAVEMENT

Revise Item 501900 of the Standard Specifications as follows:

DESCRIPTION

501900-1.1 This item of work shall consist of removing existing PCC sidewalk as described herein. The Contractor shall remove PCC pavement of the thickness shown in the plans. Typical construction details are shown in the plans. Exact locations of PCC pavement removal shall be determined by the Resident Engineer.

CONSTRUCTION METHODS

501900-3.1 Add the following to the first Paragraph:

"Sawcutting under this item shall be incidental to Item 501690."

BASIS OF PAYMENT

501900-4.1 Add the following:

"Payment will be made under:

"Item AR501690 PCC Sidewalk Removal - per square foot."

MISCELLANEOUS

ITEM 602

BITUMINOUS PRIME COAT

Revise Item 602 of the Standard Specifications as follows:

DESCRIPTION

602-1.2 QUANTITIES OF BITUMINOUS MATERIAL. Add the following:

"The quantity of prime coat shown in the Plans is based upon the application of 0.30 gallon per square yard of area. **Prime coat application SHALL be required, regardless of weather or the condition of the underlying aggregate base course."**

MATERIALS

602-2.1 BITUMINOUS MATERIAL. Add the following to this Section:

"PEP may be used as an option to MC-30, as specified in IDOT Standard Specifications for Road and Bridge Construction, adopted April 1, 2016, Section 403 BITUMINOUS SURFACE TREATMENT, Article 403.02 Materials."

CONSTRUCTION METHODS

Add the following:

602-3.6 INDEPENDENT WEIGHT CHECKS. Although this item is documented for payment in gallons, it is based on a measurement of weight which requires any placement of this material be subject to the IDOT, Division of Aeronautics requirement for independent weight checks for asphalt tonnage items. The Contractor shall cooperate with the Resident Engineer in conducting and furnishing any and all before and after weight checks that are required under these policies. The costs for these weight checks shall not be paid for separately, but shall be included in the Contract unit price for this item.

METHOD OF MEASUREMENT

602-4.1 Add the following paragraph to this Section:

"Although this item is documented for payment in gallons, it is based on a measurement of weight which requires any placement of this material be subject to the IDOT, Division of Aeronautics requirement for independent weight checks for asphalt tonnage items. The Contractor shall cooperate with the Resident Engineer in conducting and furnishing any and all before and after weight checks that are required under these policies. The costs for these weight checks shall not be paid for separately, but shall be included in the Contract unit price for this item."

BASIS OF PAYMENT

602-5.1 Add the following:

"Payment will be made under:

"Item AR602510 Bituminous Prime Coat - per gallon."

ITEM 603

BITUMINOUS TACK COAT

Revise Item 603 of the Standard Specifications as follows:

DESCRIPTION

603-1.2 QUANTITIES OF BITUMINOUS MATERIAL. Add the following:

"The quantity of tack coat shown in the Plans is based upon the application of 0.15 gallons per square yard of area, per lift. **Each specified tack coat application SHALL be required, regardless of weather or the condition of the underlying bituminous base course.**"

CONSTRUCTION METHODS

Add the following:

603-3.6 INDEPENDENT WEIGHT CHECKS. Although this item is documented for payment in gallons, it is based on a measurement of weight which requires any placement of this material be subject to the IDOT, Division of Aeronautics requirement for independent weight checks for asphalt tonnage items. The Contractor shall cooperate with the Resident Engineer in conducting and furnishing any and all before and after weight checks that are required under these policies. The costs for these weight checks shall not be paid for separately, but shall be included in the Contract unit price for this item.

METHOD OF MEASUREMENT

603-4.1 Add the following paragraph to this Section:

"Although this item is documented for payment in gallons, it is based on a measurement of weight which requires any placement of this material be subject to the IDOT, Division of Aeronautics requirement for independent weight checks for asphalt tonnage items. The Contractor shall cooperate with the Resident Engineer in conducting and furnishing any and all before and after weight checks that are required under these policies. The costs for these weight checks shall not be paid for separately, but shall be included in the Contract unit price for this item."

BASIS OF PAYMENT

603-5.1 Add the following:

"Payment will be made under:

"Item AR603510	Bituminous Tack Coat - per gallon.
"Item AS603510	Bituminous Tack Coat - per gallon.
"Item AT603510	Bituminous Tack Coat - per gallon."

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. "

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.

ITEM 620

PAVEMENT MARKING

Revise Item 620 of the Standard Specifications as follows:

MATERIALS

620-2.2 PAINT. Add the following as the first Paragraph:

"Permanent yellow and black markings shall be of waterborne material."

CONSTRUCTION METHODS

620-3.3 PREPARATION OF SURFACE. Add the following:

"Surface preparation methods shall also adhere to the recommendations of Chapter 4 of Airfield Marking Handbook, Report IPRF 01-G-002-05-1, Innovative Pavement Research Foundation, September, 2008."

620-3.5 APPLICATION. Revise the third Paragraph of this Section to read:

"The paint shall be mixed in accordance with the manufacturer's instructions and, except for black paint, applied to the pavement with a marking machine in two applications as shown in TABLE 1 in paragraph 620-2.2. The first application shall be 50% of the specified application rate and applied as a temporary marking. The final marking application must be at a rate equal to 100% of the full application rate with glass beads. A period of 30 days shall elapse between placement of the surface course and application of the permanent (final) markings. The addition of thinner will not be permitted. Black paint shall be applied in one application at a rate equal to 100% of the full specified rate."

BASIS OF PAYMENT

620-5.1 Add the following:

"Payment will be made under:

Item AR620520	Pavement Marking - Waterborne - per square foot.
Item AT620520	Pavement Marking - Waterborne - per square foot.
Item AR620525	Pavement Marking – Black Border – per square foot.
Item AT620525	Pavement Marking – Black Border – per square foot."

ITEM 910410

PRECAST CONCRETE PARKING BLOCK

DESCRIPTION

910410-1.1 This item shall consist of removing, furnishing, transporting and installing pre-cast concrete parking blocks in accordance with the specifications and as shown on the Plans, and as directed by the Resident Engineer.

MATERIALS AND CONSTRUCTION REQUIREMENTS

910410-2.1 MATERIALS. The materials shall be provided in accordance with the details in the Plans. The precast structure shall be manufactured by an IDOT-approved precast producer. Concrete is to be IDOT Class PC with reinforcing bars unless otherwise approved by the Engineer. Lag pins for anchoring the block shall be rebar from an IDOT-approved producer, sized to fit the anchor holes. Holes for the anchor pins shall be drilled instead of being mechanically or hand driven.

METHOD OF MEASUREMENT

910410-3.1 Precast concrete parking blocks will be measured for payment per each as removed or supplied by the Contractor in accordance with the Plans. Anchor lag pins shall not be measured for payment but shall be incidental to the parking block.

BASIS OF PAYMENT

910410-4.1 Precast concrete parking blocks will be paid at the Contract unit price per each removed or furnished and installed and shall be full compensation for furnishing all labor, materials, tools, equipment, testing and incidentals necessary to complete the item as specified.

Payment will be made under:

Item AR910410 Parking Block - per each.

Item AR910415 Remove Parking Block – per each.

DIVISION III

FENCING (WIRE FENCES)

ITEM AR162

CHAIN LINK FENCES

(Class E Fence)

DESCRIPTION

162-1.1 Add the following:

"All metal materials used in the fencing and fencing materials shall be fabricated from steel made in the U. S. Contractor shall provide certification that the steel was 100 percent domestic-made steel, and that the fence materials were fabricated in the United States."

MATERIALS

162-2.2 BARBED WIRE. Omit this section. Barbed wire shall NOT be included.

162-2.3 FENCE POSTS, POST TOPS AND EXTENSIONS, RAILS, GATES BRACES, STRETCHER BARS, AND CLIPS. Add the following:

"Top rail shall be furnished for all Class E fence under this item. Additional corner posts shall be furnished at the locations shown in the Plans.

"Fence materials shall meet the specified requirements for 6-foot and 8-foot chain-link fence based upon the details shown in the Construction Plans for the various heights specified.

"Type C pipe may be used. The manufacturer shall furnish test results that indicate that the Type C pipe furnishes the same corrosive resistance as Type A and B pipe, tested in accordance with the materials standard for this item.

Add:

162-2.11 GATE CHAIN AND PADLOCKS. The Contractor shall furnish a new security chain and padlock for each swing or slide gate. Chain shall be 5/16-inch stainless steel cut into a three foot length. Padlock shall be solid brass body, corrosion resistant and ideal for harsh environments. Padlock dimensions shall be 2-inch shackle, 2-inch wide and 3/4-inch thick. Padlocks shall be keyed to match existing Airport padlock system. The Contractor shall coordinate the furnishing of these padlocks with the Airport Owner."

Add:

162-2.12 CERTIFICATION AND SHOP DRAWINGS. The Contractor shall submit shop drawings detailing all fence items to be furnished for approval by the Project Engineer. The Contractor shall provide a written certification that all fence materials used in the Work meet the Contract Documents.

CONSTRUCTION METHODS

162-3.1 CLEARING FENCE LINE. Add the following:

"All new fence shall be placed along a level, smooth, finished grade. The Contractor shall correct any irregularities in the ground's surface prior to installation of the fence. This grading shall be furnished in accordance with Item 152; however, separate payment will not be made, as this work shall be incidental to Fence Installation, Item 162."

162-3.2 INSTALLING POSTS. Delete the first sentence of the last Paragraph and replace with the following:

"All posts shall be set to the minimum depths below the existing ground line as detailed in the Plans. All fence post lengths shall consider the footing depths shown in the details. Concrete encasement shall extend an additional 6-inches below the post end."

162-3.6 ELECTRICAL GROUNDS. Add the following:

"Continuous fence shall be grounded at intervals not exceeding 500 feet. There shall be a ground within 100 feet of gates in each section of the fence adjacent to the gate. Fence under a power line shall be grounded by three grounds; one directly under the crossing and one on each side 25 feet to 50 feet away. A single ground shall be located directly under each telephone wire or cable crossing. The counterpoise ground shall be used only where it is impossible to drive a ground rod. The ground wire shall be connected to the fabric and tension wire with UL listed fence fabric ground clamps; Burndy Catalog number FFGC6, Harger Catalog Number FGC6, or approved equal. Grounding connectors shall be sized and suitable for the respective application. Connections to ground rods shall be with UL listed compression type grounding connectors suitable for direct burial in earth or 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 suitable for each respective application. Ground rods for fencing applications shall be 5/8-in. diameter by 8 feet long (minimum), UL-listed, Copper-clad. The ground wire used to bond the fence fabric and tension wire to the ground rod shall be #6 AWG bare solid Copper conductor.

The items furnished and installed in providing the specified grounding shall not be measured separately for payment, but shall be included in the Contract unit price for fencing."

162-3.9 EXISTING FENCE CONNECTIONS. Add the following:

"The furnishing and installing of new, additional or replacement terminal posts, line posts, end posts, fabric and brace spans and any other incidental modifications needed to provide an acceptable connection of the new fence to any existing fence, regardless of type of existing fence, as shown in the Plans or as directed by the Resident Engineer, shall not be paid separately, but shall be included in the Contract unit price for new fence."

162-3.11 FENCE AND GATE REMOVAL. Add the following:

In turf areas the existing posts shall be pulled and not cut off. All resulting holes in turf shall be filled and compacted to the satisfaction of the Resident Engineer. Turf areas disturbed by removal shall be restored in accordance with Item 901.

Add:

162-3.13 LOCATE EXISTING UTILITIES. The location, size, and type of material of existing underground and/or aboveground utilities that may be 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 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. Payment for locating and marking underground utilities and cables will not be paid for separately, but shall be considered incidental to the respective work item for which it is required.

METHOD OF MEASUREMENT

162-4.2 Delete this Section.

162-4.3 Delete this Section.

162-4.4 Delete this Section.

162-4.5 Delete this Section.

BASIS OF PAYMENT

162-5.2 Delete this Section.

162-5.3 Delete this Section.

162-5.4 Delete this Section.

162-5.5 Delete this Section.

Add:

Payment will be made under:

Item AR162508 Class E Fence 8' - per linear foot

Item AR162606 Class E Gate – 6' – per linear foot

Item AR162900 Remove Class E Fence – per linear foot

Item AR162910 Remove Class E Gate – per each.

ITEM 162700

ELECTRICAL SLIDING GATES

DESCRIPTION

162700-1.1 This item shall consist of furnishing and installing an electric slide gate **(8 feet in height with a clear opening as detailed herein for the respective gate)** in accordance with these Specifications and at the locations shown on the Construction Plans. This item will include all labor, equipment, and materials required to put the proposed electric slide gate in proper working order. This item shall also include furnishing and installing disconnects, surge arresters/protectors, conduits, ducts, wire, grounding, and all other electrical equipment and materials as detailed on the Construction Plans and specified herein.

Gate fabric, posts, braces, fittings, and related materials shall meet the requirements of Item 162.

The electric gate system for each gate shall include the following features:

A. New slide gate with operating hardware, gate operator, heater, controller, and detector amplifiers.

B. The gate shall be a card reader access control unit entry/free exit gate.

C. The gate shall have an automatic closing feature activated by an adjustable timer. Safety loops shall be provided at both sides of the gate to delay the closing of the gate in the event that it detects that the vehicle has not yet passed through the gate. The inner loop shall also provide automatic opening to exit upon detection of a vehicle.

D. Provide 25 remote control transmitter units for each gate for automatic gate operation. Coordinate frequencies with the Airport Director.

E. Power for the gate operator shall be from a 120/240 VAC, 1 phase, 3 wire power source as detailed on the Plans.

F. Controls, safety devices, and associated control wiring shall be in accordance with the respective gate operator and/or equipment manufacturer's recommendations and as detailed herein.

G. Include surge protection on the gate operator and associated control systems.

H. Contractor shall examine the existing facility to determine the extent of the work.

I. Contractor shall confirm and verify part numbers for respective materials and equipment to ensure they are correct and suitable for the respective application.

J. **Engage a factory trained and authorized service representative to provide commissioning, start-up, testing, adjustments, calibration and checkout for each electrically operated gate. Test reports from the factory trained and authorized service representative shall be provided for each gate.**

162700-1.2 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. ASTM Specification B3 - Standard Specification for Soft or Annealed Copper Wire.

D. ASTM Specification B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.

E. ASTM F 1184-05 Standard Specification for Industrial and Commercial Horizontal Slide Gates.

F. ASTM F1043 Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework.

G. ASTM F2200 Standard for Automated Vehicular Gate Construction.

H. FAA AC No. 150/5370-2G (current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".

I. Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Adopted April 1, 2016.

J. NEMA TC-2 – Electrical Plastic Tubing and Conduit.

K. NEMA TC-3 – Fittings Rigid PVC Conduit and Tubing.

L. NFPA 70 – National Electrical Code (most current issue in force).

M. NFPA 70E – Standard for Electrical Safety in the Workplace.

N. NFPA 2638645-1 = National Fire Protection Association IDN.

O. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

P. UL Standard 6 – Rigid Metal Conduit.

Q. UL Standard 44 - Thermoset-Insulated Wires and Cables.

R. UL Standard 83 - Thermoplastic-Insulated Wires and Cables.

S. UL 325, (Fourth Edition), Standard for Safety for Door, Drapery, Gate, Louver and Window Operators and Systems.

T. UL Standard 514B – Conduit, Tubing and Cable Fittings

U. UL Standard 651 – Schedule 40 and 80 Rigid PVC Conduit.

162700-1.3 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering material and equipment for the following system components. Shop drawings are required for the electric gate. **Note shop drawings that are submitted that do not include all of the following listed requirements will be rejected and will require resubmittal. Contractor shall use the following as a check list and shall verify all information noted below is included with the respective electric gate shop drawing prior to submitting the shop drawing**

for review. Shop drawings shall be clear and legible. Copies that are illegible will be rejected. Separate shop drawings shall be prepared for each electric gate. Shop drawings shall include the following information:

A. 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.

B. **Any steel used in any materials under this item shall be from steel made in the United States and meet the requirements of (30 ILCS 565) Illinois Steel Products Procurement Act; a manufacturer's certification of domestic source must be furnished.**

C. Cut sheets and specifications for the cantilever slide gate.

D. Cut sheets and specifications for the gate operator. Include manufacturer's name, address, phone number, gate operator model number, gate operator UL listing or ETL listing, gate load capability and drive rail force requirements, traveling speed, housing data, input voltage, motor horsepower rating, full load amperage requirements, manufacturer's recommended wiring requirements, and respective options, (heater option, audible beeper option, etc.).

E. Cut sheets and specifications for the card reader access control station.

F. Include information, specs, and cut sheets for the surge suppressor included with the gate operator.

G. Provide data sheets for the detector amplifiers with manufacturer's name and model number. (Note these might be part of the gate operator)

H. Provide data sheets on the loop/lead-in cables.

I. Provide cut sheets, information, voltage rating, amperage rating, fuse size, and manufacturer catalog number, and options for the 30 Amp, 2-pole, 240 VAC, UL listed heavy duty safety switch in a NEMA 4X stainless steel enclosure that is for each gate operator.

J. Provide cut sheets for the Control Panel Enclosure/Junction Box.

K. Provide cut sheets for all types of conduit used with the electric gate (for example galvanized rigid steel conduit, Schedule 40 PVC conduit, and UL listed liquid tight flexible metal conduit). Include certification that steel conduits are made with 100 percent domestic steel.

L. Provide shop drawing with cut sheets for the respective power circuit conductors and control circuit conductors.

M. Provide cut sheets with manufacturer's name, catalog number, dimensions, material, and UL listing for each type and size of ground rod used with the electric gate installation. Include certification of 100% domestic steel for ground rods.

N. All steel used in the manufacture of gate posts and gate materials shall be 100% domestic steel. Contractor shall provide certification that the respective steel used in the manufacture of gate posts and gate materials on this project is manufactured from 100 percent domestic steel.

O. Concrete mix design, per Item 610.

P. Submittals for panelboards shall include manufacturer, catalog numbers, panel schedule, voltage and amperage ratings, bus material, integrated short circuit amperage rating, circuit breaker arrangement and sizes and respective enclosure.

Q. Provide manufacturer's warranty information for the gate operator.

EQUIPMENT AND MATERIALS

162700-2.1 GENERAL. All equipment and materials used in the construction shall be in accordance with the Specifications and detailed instructions as furnished by the manufacturer.

162700-2.2 GATE. Gate shall be suitable for the respective application and in accordance with the respective gate manufacturer's recommendation for the respective application. Gate construction shall comply with ASTM F 1184-05 for Type II - Cantilever Slide, Class 2 – steel frame and aluminum frame gates using internal rollers. Metal pipe and tubing used in the gate construction shall be Aluminum complying with ASTM F1043 for materials and protective coatings. The gate shall conform to ASTM F2200 Standard for Automated Vehicular Gate Construction. The gate shall be metal framed manufactured of Aluminum, with cross bracing, and covered with chain link fence fabric, sliding-gate, cantilever-type, capable of spanning the prescribed clear opening, **8 feet** in height and have an enclosed roller assembly to be protected from freezing rain and snow. Gate shall have double tracks supported by gate posts on each side of the gate (interior and exterior). The gate frame shall be supported from the tracks by four, self-aligning, 4-wheeled, sealed lubricant, ball-bearing truck assemblies.

The gate shall be covered with chain link fence fabric; 2-in. diamond mesh steel wire, interwoven, minimum 9-gauge thick, top selvage knuckle end closed, bottom selvage twisted tight barbed or knuckle end closed.

Fence fabric, posts, braces, fittings, sleeves, bands, clips, rail ends, tension bars, fasteners, and additional miscellaneous fittings shall be galvanized steel.

Gate posts shall be fabricated from round galvanized steel pipe with outside dimensions and minimum weight according to ASTM F 1184 for Type II Gate Opening Width: Over 12 feet but not over 30 feet. Gate posts shall be 4-inch O. D. (round) Schedule 40 weighing 9.11 lbs/ft. All steel used in the manufacture of gate posts and gate materials shall be 100% domestic steel. Gate shall be a Fortress Structural Slide Gate as manufactured by Tymetal Corporation, a Twin-Trac Cantilevered Sliding Gate as manufactured by Quality Fence Builders, Inc., or approved equal.

162700-2.3 GATE OPERATOR. The hydraulic gate operator shall be equipped with a minimum one (1) horsepower electric motor (larger motors will be required where recommended by the respective gate operator manufacturer for the respective size and type of gate) capable of operating cantilever gate up to 50 ft in overall length weighing up to 3,000 pounds with a drive rail draw force requirement of no less than 300 lbs. at a preset speed of approximately 1 feet to 2 feet. per second, to close the prescribed opening. Gate operator shall be properly sized and compatible with the respective gate. Gate operators shall be suitable for operation within a temperature range of -40°F to +150°F ambient temperature, in rain, sun, and high humidity. The operator shall consist of the motor starter/controller and all relays required from the operation outlined herein. The operator and components shall be factory assembled and wired so as to require only field connections of the access controller, loops, system power supply, and remote control and safety devices. The operator housing shall be weatherproof, fabricated from stainless steel, or galvanized steel with a corrosion resistant, powder coated paint finish and shall completely enclose the motor and electrical components of the unit. Appropriate time delays shall be incorporated for safe gate operation. Gates shall close automatically after an extensive adjustable delay period, unless manually disabled. The gate operator shall be UL-listed or ETL-listed to have met requirements of UL 325, (Fourth Edition), Standard for Safety for Door, Drapery, Gate, Louver and Window Operators and Systems and suitable for UL 325 Usage Classes III and Class IV applications. The gate operator shall

include UL 325 entrapment protection sensors Type A - Inherent entrapment sensing system and Type E- inherent audio alarm to warn personnel of gate activation to comply with the requirements of UL 325 for a Class III usage application. The gate and operator system shall additionally include an entrapment protection Type B1 non-contact sensor/photoelectric eye safety device.

The proposed operator shall be a Hy-Security SlideDriver II SD40 Gate Operator, equivalent unit by Tymetal, each suitable for 240 VAC single phase input power or approved equal. Confirm proper model number and voltage codes with the respective manufacturer.

Supply voltage for the gate operator will be 120 VAC, 1 phase, 2-wire or 120/240 VAC, 1 phase, 3-wire with ground.

Gate operators shall be rated for the respective voltage available at the site and shall properly operate on the respective nominal voltage system plus or minus 10 percent. Contractor shall confirm with the gate operator manufacturer that the respective gate operator he selects is rated suitable for the respective application, is suitable and compatible with the respective gate, and will operate properly on the respective power supply. Note the gate operator must also operate properly on standby engine generator power and shall not require manual reset due to transfer from utility power to standby generator power or back to utility power. The gate operator must not require manual reset for momentary power outages. Where a power outage occurs the gate operator shall automatically resume normal operation upon restoration of power.

Include AC surge protective device at the point of the input power connection to the gate operator and/or as detailed on the Plans. AC surge protector for 120/240 VAC, single phase applications shall be UL 1449 listed with a surge current rating of 40,000 Amps, suitable for 120/240 VAC, 1 phase, 3 wire plus ground system; Joslyn Model 1265-21, Lightning Protection Corp. Model LPC-11765U-13, Square D Catalog Number TVS120XR50S, or approved equal. AC surge protector for 120 VAC, single phase applications shall be UL 1449 listed with a surge current rating of 40,000 Amps, suitable for 120 VAC, 1 phase, 2 wire plus ground system; Joslyn Model 1260-21, Square D Catalog Number TVS120XR50S, Square D Catalog Number SDSA1175T, or approved equal.

The gate operator's foundation shall be a minimum of 48 in. depth, to the dimensions recommended by the manufacturer. The foundation shall be constructed of Class SI concrete. Anchor bolts shall be per the gate operator manufacturer's requirements. The concrete must have strength of 3,500 psi after 14 days.

162700-2.4 CARD READER ACCESS CONTROL UNIT. Card station shall be furnished by the gate operator manufacturer's representative for the purpose of coordinating compatibility between the gate operator and the card reader unit. Contractor shall ensure compatibility between the gate operator control voltages, the card reader input voltage, and the respective control interface. Contractor shall include interfacing relays, transformers, power supplies, receptacles and/or control devices as applicable. Card station shall be a touch card type reader, or proximity card reader type weather resistant for outdoor installation over an ambient temperature range of -40ºF to +158ºF, surface mount housing with appropriate adapters and hardware to install on a gooseneck type pedestal. The card station shall be constructed as detailed on the Construction Plans and in accordance with the manufacturer's Specifications. The concrete foundation for the reader shall be a minimum of 48 in. below ground level and to the dimensions recommended by the manufacturer. The concrete shall have the same requirements as the gate operator foundation. Card stations shall be similar to the existing card reader units located at the Airport (which are Secura Key Entracomp 26SA-SM), or proximity card type reader. Coordinate card types and programming with the Airport Manager. Provide 250 cards for the new card readers. Include power supply for each card reader, properly sized and suitable for use with the card reader.

The concrete foundation for the card reader unit shall be a minimum of 48 inches below ground level and to the dimensions recommended by the manufacturer. The concrete shall have the same requirements as the gate operator foundation.

Contractor shall ensure compatibility between the gate operator control voltages, the card reader access control unit input voltage and output contact ratings, and the respective control interface. Include 120 VAC, 15 Amp or 20 Amp specification grade simplex receptacle that is compatible with the respective power supply. Contractor shall include interfacing relays, transformers, power supplies, receptacles, control devices, and power and control wiring, as applicable. Contractor shall provide a NEMA 4X stainless steel enclosure with hinged cover to house the receptacle, transformer, and other associated controls. Where the gate operator housing control panel has adequate space, the components may be installed in that panel.

162700-2.5 DETECTOR AMPLIFIERS. Detector amplifiers shall consist of digital design units capable of automatic tuning, pulse and presence outputs, excellent stability and accuracy, with long-term reliability. The device shall be with plug-in and plug-out circuits for rapid repair. The unit shall constantly monitor the frequency of the loop, and compare and adjust automatically for changes, such as loop aging, moisture, mechanical deterioration, and foreign bodies in the loop area. Detector amplifiers shall contain lightning protection and be capable of total loop isolation. Amplifiers shall be mounted in or on the outside of the gate controller housing. Weatherproof enclosures, when required, shall be of NEMA-4 design. The amplifiers shall be capable of stable operation and automatic tuning over a range of minus 30° F to plus 180° F. Loop detectors shall be selective as to direction of travel of vehicle with respect to the instantaneous position of the gate, i.e., close loops will activate system only with gate in open or opening state. Open loop will activate gate only with gate in closed or closing state. Contractor shall verify the selected loop detector is suitable for the respective gate installation.

162700-2.6 SECONDARY SAFETY DEVICES. The gate operator shall include UL 325 entrapment protection sensors Type A - Inherent entrapment sensing system and Type E - inherent audio alarm to warn personnel of gate activation to comply with the requirements of UL 325 for a Class III usage application. Each gate and operator system shall include an entrapment protection Type B1 non-contact sensor/photoelectric eye safety device to stop the gate and/or prevent it from closing if an obstruction is detected in the path of the gate. The photoelectric eye system shall include a transmitter and receiver pair with operating range corresponding to the respective gate length, suitable for outdoor installation and operation over a temperature range of -40° F to +150 °F. These devices shall be UL approved to maintain the UL listing and/or ETL listing (confirming compliance with UL 325) of the respective gate operator system and shall be as recommended by the respective gate operator manufacturer's representative. Contractor shall include all power and control wiring, conduits, ducts, support hardware, mounting posts, control panel enclosure, interface connections, etc. as required to provide a complete and operational system.

162700-2.7 POWER SOURCE. Power for the gate operator shall be from a 120/240 VAC, 1 phase, 3 wire panelboard located as detailed on the Plans. Power to each gate operator shall be 120/240 VAC, 1 phase, 3 wire with ground or 120 VAC, 1 phase, 2 wire with ground. Note where the respective gate operator system requires a voltage system other than 120/240 VAC, 1 phase, 3 wire with ground, the Contractor shall be responsible to furnish and install the respective transformers and/or additional feeder cable conductors to accommodate the required voltage system. The power cable feeder circuit shall be sized in accordance with the gate operator manufacturer recommendations, and in accordance with the National Electrical Code. Take into account voltage drop for the respective cable length/run for the power source to the gate operator, and increase cable sizes to maintain a voltage drop of 5% or less, or in accordance with the gate operator manufacturer's recommendations. Include an equipment ground wire with the feeder circuit of the same size as the phase conductors. The Contractor will be responsible for providing all necessary material for the installation of electrical power and control wiring from the power source to the gate operator, from the gate operator to the access control station, and from the gate operator to the detector loops. It will also be the Contractor's responsibility to locate, identify and protect all existing utilities. Any damage to these utilities will be immediately repaired at the Contractor's own expense.

162700-2.8 POWER WIRING. Power wiring, 600-Volt and below for use with the gate operator, shall be the type, size, and number of conductors as noted on the Plans. Cable shall also conform to the requirements of Item 108 Installation

of underground Cable for Airports. Cable shall be manufactured in the United States of America to comply with the Airport Improvement Program Buy American Requirement.

A. THWN Wire. Cable shall comply with Underwriters' Laboratories Standard UL-83 and Federal Specification A-A-59544. The conductor shall be soft-annealed, uncoated Copper and shall comply with ASTM B3 and B8. Insulation shall be rated for 600-Volt. The 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.**

B. 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.

C. XLP-USE Wire. Cable shall comply with UL Standard 44, UL Standard 854, and Federal Specification A-A-59544. The 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.

D. Grounding electrode conductors, bonding jumpers, and/or equipment ground wires shall be the size and type, as detailed on the Plans.

162700-2.9 CONTROL WIRING. Control wiring for the gate operator system shall be as detailed on the Plans, as specified herein, and as recommended by the respective gate operator manufacturer's representative and shall conform to the applicable sections of National Electrical Code. Contractor shall furnish and install the type, size, number, and quantity of control wiring to provide a complete and operational system for the respective gate operator. Control wires between devices shall be Copper, Type THWN, No. 14 minimum, or as recommended by the respective equipment manufacturer, color coded and tagged with wire markers for easy identification. The control wiring between the card reader access control unit and the gate operator shall include a #12 AWG THWN or XHHW copper with green colored insulation equipment ground wire.

The induction loop feed wires shall be Copper, No. 14 AWG minimum, Twin-Twisted-Shielded, meeting the State of Illinois, Department of Transportation, specifications and all the requirements of manufacturer of the respective Detector Amplifier furnished. Detector loop wires shall conform to the requirements Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Section 1079 DETECTOR LOOP.

One (1.0) inch Galvanized Rigid Steel conduit will be required for all control wires from outside the pavement area to the operator, from the card reader access control unit to the operator, and from the operator to the detector loops. All metal conduits entering the gate operator shall be bonded to the frame of the gate operator.

162700-2.10 REMOTE RECEIVER: The Contractor shall provide a remote receiver for each gate operator. Remote receiver shall have frequency as specified by the Airport Manager. Remote receiver shall have proper shielding to eliminate potential problems caused by stray radio frequency interference or noise. The remote receiver shall be high quality and capable of being activated by the respective transmitter at a distance of up to 100 feet. The Contractor is responsible to provide a properly operating receiver and transmitter pair for each gate operator. Antenna for receiver shall be mounted above the fence to ensure proper operation by remote transmitter from a distance of up to 100 feet. Include all support and mounting hardware for antenna.

162700-2.11 REMOTE TRANSMITTER. The Contractor shall provide with the remote receiver, **25** remote transmitters for use by Airport or other authorized personnel. Remote transmitters shall be high quality and capable of activating the respective receiver at a distance of up to 100 feet. Remote transmitters shall each have two push buttons suitable to control two separate gates each with different frequencies.

162700-2.12 CIRCUIT BREAKERS. Circuit breakers for the gate operator feeder circuit, and any other required circuits, shall have voltage ratings, amperage trip ratings, amp interrupting ratings, and number of poles as detailed on the Plans. Circuit breakers to be installed in an existing panelboard shall be bolt-on type, compatible with the respective panelboard and manufactured by the same manufacturer as the panelboard. Circuit breakers to be installed in an existing load center shall be plug-on type, compatible with the respective load center and manufactured by the same manufacturer as the load center. Where circuit breakers manufactured by the same manufacturer as the respective panelboard or load center are not readily available, a circuit breaker by a different manufacturer will be acceptable.

162700-2.13 SAFETY SWITCHES. Furnish and install a safety switch for the respective gate operator as detailed on the Plans and specified herein. Safety switches shall be heavy duty, UL-listed, with amperage, voltage, number of poles, and type (fusible or not fusible), and accessories as detailed on the Plans. Safety switches shall be pad lockable in the off position. Include ground lugs or grounding kits with all safety switches. Safety switches located outdoors, or in damp areas shall be in NEMA 4X stainless steel enclosures. Safety switches located in hazardous classified areas shall be UL-listed or FM approved as suitable for the respective location. Safety switches shall be as manufactured by Square D, Eaton Cutler-Hammer, or approved equivalent. Safety switches shall be manufactured in the United States to comply with the Airport Improvement Program Buy American Preferences requirements.

162700-2.14 FUSES. Fuses shall be Class RK5, UL listed with 100,000 Amp (minimum) interrupting rating at the respective voltage system. Fuses shall be properly sized and suitable for the respective equipment in accordance with the respective equipment manufacturer's recommendations and/or in accordance with the requirements of the National Electrical Code for the respective motor/equipment. Fuses shall be manufactured by Bussmann, Littelfuse, or approved equal. Furnish two additional fuses of each size and type used on the project, for use as spares.

162700-2.15 GALVANIZED RIGID STEEL CONDUIT. Galvanized rigid steel conduit (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. All fittings shall be threaded type. Fittings shall conform to ANSI C80.4. Set screw type fittings are not acceptable. The 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.

162700-2.16 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., Liquatite 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.

162700-2.17 SCHEDULE 40 and 80 PVC CONDUIT. Schedule 40 PVC and Schedule 80 PVC conduit shall comply with Item 110 and the following: Conduit shall be Schedule 40 PVC, UL-listed or ETL listed, rated for 90°C cable-conforming to NEMA Standard TC-2 and UL 651. Fittings shall conform to NEMA Standard TC-3 and UL 514B. Conduits shall be suitable for underground applications encased in concrete or direct burial, and suitable for exposed applications aboveground.

162700-2.18 JUNCTION AND PULL BOXES. Unless otherwise noted on the Plans, all junction boxes shall be 16-gauge minimum construction. Surface mounted exterior junction and pull boxes located in non-hazardous, non-classified areas, shall be NEMA 4X stainless steel. Flush-mounted exterior boxes located in non-hazardous, non-classified areas, in floors, walkways, and walls shall be NEMA 4, cast aluminum, Crouse-Hinds, Hubbell-Killark, or approved equal, and shall be supplied with asphalt paint applied to all surfaces imbedded in concrete. All junction and pull boxes installed in classified hazardous areas (Class 1, Division 1 or 2, Group D) shall be NEMA 7 and shall comply with applicable provisions of the NEC including, but not limited to, Articles 500 and 501. Junction and pull boxes shall be sized as required for conductors and splices and per 2020 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 National Electrical Code even though they might not be indicated on the drawings.

162700-2.19 GROUND RODS. Ground rods for electrical installations shall be **3/4-inch diameter by 10-foot long**, UL-listed, Copper clad with 10-mil minimum Copper coating. Ground rods for fence grounding shall be 5/8-inch diameter by 8-foot long, UL-listed, Copper clad with 10-mil minimum Copper coating. Steel used to manufacture ground rods shall be 100 percent domestic steel.

162700-2.20 LEGEND PLATES. Legend plates shall be required for all safety switches, individual circuit breakers, disconnects, etc. Legend plates shall be provided to identify the equipment controlled, the power source, the voltage system, and the function of each device. Legend plates shall be weatherproof and abrasion resistant phenolic material. Lettering shall be black letters on a white background, unless otherwise noted.

162700-2.21 SIGNAGE. The gate shall include signage as detailed on the Plans. Note: UL requires that all installations must have warning signs placed in plain view on both sides of the gate to warn pedestrians of the dangers of motorized gate systems. Furnish and install warning signs at gate exterior face and interior face noting “WARNING – MOVING GATE CAN CAUSE SERIOUS INJURY OR DEATH”. Signage shall be secured to the gate with corrosion resistant metal connectors. Additional signage shall be provided as detailed on the Plans and/or as specified herein.

162700-2.22 CONCRETE. Concrete for use with the gate installation and/or associated equipment shall conform to Item 610 Portland Cement Concrete of the Standard Specifications for Construction of Airports.

CONSTRUCTION METHODS

162700-3.1 CONTRACTOR QUALIFICATIONS. The contractor shall have at a minimum of 5 years related experience installing electric driveway gates. The Contractor or his respective subcontractor personnel shall be a factory trained and authorized service representative in regard to the electric gate operator and control systems. The respective gate operator system authorized service representative must have attended training and obtained certification directly from the gate operator manufacturer or his designated representative.

162700-3.2 AIRPORT SECURITY. The Contractor will place temporary fencing (minimum height to match existing fence) across the gate opening whenever the proposed gate cannot be closed at the end of the construction day. Security at the Airport shall be maintained at all times and coordinated with the Airport Director.

162700-3.3 SPLICES. Splices, where allowed, shall be the resin encapsulating type, suitable for direct burial, and be as manufactured by 3-M, Burndy, or approved equal.

162700-3.4 MATERIALS FURNISHED BY THE CONTRACTOR. All materials used in the work shall meet the requirements of the respective Specifications, and no material shall be used until it has been approved by the Project Engineer by means of shop drawings. All materials not otherwise specifically indicated shall be furnished by the Contractor. All materials furnished by the Contractor shall be new.

162700-3.5 STORAGE OF MATERIALS. Materials shall be stored so as to insure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground, and they shall be placed under cover. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the Owner or lessee.

162700-3.6 LOCATE EXISTING UTILITIES: 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.

162700-3.7 MANUFACTURER'S DIRECTIONS. Manufactured articles, material, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer unless herein specified to the contrary. Any installations which void the UL listing, ETL listing, (or other third-party listing), and/or the manufacturer's warranty of a device will not be permitted.

162700-3.8 CUTTING AND PATCHING. The Contractor shall do all necessary cutting and patching of the pavement that may be required by the drawings and Specifications to complete the structure. He shall restore all such cut or patched areas as directed by the Resident Engineer/Resident Technician. Cutting of existing structures that may endanger the work, adjacent property, workmen or the public shall not be done unless approved by the Owner and under his direction.

162700-3.9 CLEAN UP. The Contractor shall remove from the Owner's property and from all public and private property, all temporary structures, rubbish, and waste materials resulting from his operation or caused by his employees, and shall remove all surplus materials, leaving the site smooth, clean, and true to line and grade.

162700-3.10 WARRANTY PERIOD: Neither the final certificate of payment nor any provision in the contract, not partial or entire use of the improvements embraced in this contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the contract, or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay any damage to other work resulting from which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner shall give notice of defective materials and work with reasonable promptness. The warranty applies to equipment furnished, as well as to all other work and materials. **The gate operator shall include a 5-year limited warranty against all defects in materials or workmanship. Defective material shall be replaced with the same or comparable materials furnished by the gate operator manufacturer, at no cost to the Owner.**

162700-3.11 ELECTRIC SLIDE GATE CONSTRUCTION. The Contractor shall install the electric slide gate as detailed on the Construction Plans and in accordance with the manufacturer's directions. The Contractor will be responsible for the construction of any and all concrete bases for the proposed gate operator and Card reader access control unit.

162700-3.12 GATE CONTROL EQUIPMENT. Installation of all electrical equipment and all gate control equipment shall be in conformance with the requirements of the NFPA 70- National Electrical Code (NEC) most current issue in force, the respective equipment manufacturer's directions, and in strict accordance with the requirements of all local authorities having jurisdiction. **All control power transformers, power supplies, receptacles, loop detector amplifiers, secondary safety device equipment, and any other associated controls shall be installed either inside the gate operator control panel or inside a separate NEMA 4 stainless steel control panel enclosure. Where the control equipment is to be installed inside the gate operator control panel the Contractor shall coordinate this with the gate operator manufacturer and the respective gate operator equipment supplier. Locating these controls outside of gate operator control panel but within the gate operator housing will not meet this requirement.** All card reader access control unit stations, push button stations, operators, and controllers shall be grounded to prevent shock. All concrete work required, and the respective locations for the installation of the controller/operator, card reader access control unit, and induction loops, control panel, etc. shall be coordinated with the manufacturer's shop drawings, installation instructions, and the Resident Engineer/Resident Technician.

162700-3.13 INSTALLATION OF DETECTOR LOOPS: New loop detector wiring shall be as specified by the manufacturer furnishing the detector amplifiers. The induction loops shall be equipped with appropriate equipment to operate properly for large trucks and not activate closure of the gate onto vehicles parked in the gate opening. Induction loops shall be installed in saw-cut grooves created by the Contractor in the road surface; such grooves of length, width, and depth as required by the manufacturer of the loop control equipment. Loop detector wiring shall be installed in accordance with the respective gate operator and/or loop detector manufacturer instructions. Contractor shall saw cut approximately 6" minimum depth at the pavement edge such that the conduit for the loop detector lead-in wiring will not be less than 6" below grade at the interface point to the pavement. Loop wires shall be held in place in the bituminous/concrete pavement by completely backfilling and covering slot with a sealer rated suitable for the respective application. Sealer shall conform to the requirements Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Section 1079 DETECTOR LOOP. The gate will also include loop detectors with a free exit feature. Two loops (one exterior and one interior) shall be provided. The exterior loop shall serve as an "obstruction/safety" loop. The interior loop gate shall also serve as an "obstruction/safety" loop and additionally serve as a "free exit" loop for automatic opening to exit upon detection of a vehicle. Contractor shall coordinate and select controls and wiring in accordance with the respective gate operator representative recommendations. Contractor shall verify the selected loop detectors are suitable for the respective gate installation. Contractor shall include interfacing relays, transformers, power supplies, receptacles, control devices, and power and control wiring, as applicable.

162700-3.14 PROTECTIVE ELECTRICAL GROUND: Continuous fence shall be grounded at intervals not exceeding 500 feet. There shall be a ground within 100 feet of gates in each section of the fence adjacent to the gate. Fence under a power line shall be grounded by three grounds: one directly under the crossing and one on each side 25 feet to 50 feet away. A single ground shall be located directly under each telephone wire or cable crossing. The counterpoise ground shall be used only where it is impossible to drive a ground rod. The ground wire shall be connected to the fabric and tension wire with UL listed fence fabric ground clamps; Burndy Catalog number FFGC6, Harger Catalog Number FGC6, or approved equal. Grounding connectors shall be sized and suitable for the respective application. Connections to ground rods shall be with UL listed grounding connectors suitable for direct burial in earth or 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 suitable for each respective application. Ground rods for fencing applications shall be 5/8-in. diameter by 8 feet long (minimum), UL-listed, Copper-clad. The ground wire used to bond the fence fabric and tension wire to the ground rod shall be #6 AWG bare solid Copper conductor.

162700-3.15 ELECTRICAL GENERAL. The Contractor shall furnish and install all electrical materials necessary for complete and operational installation of the gate operator, as stipulated in the respective item 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, the respective equipment manufacturer's directions, and all other applicable local codes, laws, ordinances, and requirements in force. Electrical 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.

A. Per NEC 513, the entire area of the hangar, including any adjacent and communicating areas not suitably cut off from the hangar, shall be a Class 1, Division 2 or Zone 2 location up to a level 18 inches above the floor. The area in the vicinity of the aircraft is also Class 1, Division 2, Group D hazardous location with boundaries as noted in NEC 513. Per NEC 513.3 (C) "Vicinity of Aircraft" the area within 5 feet horizontally from aircraft power plants or aircraft fuel tanks shall be classified as a Class I, Division 2 location that shall extend upward from the floor to a level 5 feet above the upper surface of the winds and of engine enclosures. All electrical installations in the hangar shall conform to the applicable sections of NEC 500, 501, and 513 in addition to the other applicable sections of NEC. Where electrical equipment is installed in a classified hazardous location, it shall be suitable for use in the respective classified hazardous location. Where possible, avoid installation of electrical equipment, raceways, and wiring in the classified hazardous areas of aircraft hangars.

B. Per NEC 511 the Snow Removal Equipment Building may have classified hazardous areas. All electrical installations in classified hazardous areas shall be avoided unless specifically approved for such locations and installed in conformance the applicable sections of NEC 500, 501, and 511 in addition to the other applicable sections of NEC. Where electrical equipment is installed in a classified hazardous location, it shall be suitable for use in the respective classified hazardous location. Where possible, avoid installation of electrical equipment, raceways, and wiring in the classified hazardous areas of the Snow Removal Equipment Building.

C. The Contractor should examine the proposed site to evaluate the complexity of the work.

D. Always keep a copy of the latest National Electrical Code in force on site during construction for use as a reference. 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.

E. Verify and coordinate work and any power outages to buildings and facilities located on the airport with the Airport Director/Manager and/or the respective building personnel. Any shutdown of existing systems shall be scheduled with and approved by the Airport Director/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 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).

F. In the event a conflict is determined with respect to the manufacturer installation instructions, NEC, and/or the Contract Documents, contact the Project Engineer for further directions or clarifications.

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

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

I. Contractor shall confirm that the power to each gate operator rated for 240 VAC, single-phase is 240 VAC, single-phase, 2-wire with ground and that each phase to ground is 120 VAC. Contractor shall confirm that the power to each gate operator rated for 208 VAC, single-phase is 208 VAC, single-phase, 2-wire with ground and that each phase to ground is 120 VAC. Where shown on the Plans or where required to accommodate control power a neutral conductor shall be included with the power circuit to provide 120/240 VAC or 120/208 VAC single-phase, 3-wire with ground, or 120 VAC single phase, 2-wire with ground to power the gate operator and associated control systems. **Do not connect a high leg of a 240/120 VAC, 3-phase, 4-wire system to a gate operator that is rated for 240 VAC, single-phase power.**

J. Splices in conductors will be allowed only within the specified junction boxes or splice cans. Only splices between loop lead-in wires and the Twin-Twisted-Shielded conductors are approved. Circuit conductors for power wiring shall be continuous from source of power to connected device (from the respective panelboard or load center to the safety switch at the gate operator).

K. The Contractor shall be responsible for furnishing and setting all anchor bolts required to install his equipment.

L. Where concrete mounting pads are required for equipment mounting, the Contractor shall furnish all concrete and form work necessary to complete the installation.

M. Where electrical equipment is located on damp or wet walls or locations as directed, it shall be "stand-off" mounted ½ in. from the wall in a manner so that the rear of the equipment is freely exposed to the surrounding air. The Resident Engineer/Resident Technician shall approve the method of mounting before equipment is mounted.

162700-3.16 INSTALLATION OF BRANCH CIRCUIT BREAKERS: Install circuit breakers in panelboards and/or load centers in conformance with the respective manufacturer's directions. Connect only one wire/cable to each breaker terminal. Load centers and panelboards shall be thoroughly inspected for physical damage, proper alignment, anchorage, and grounding. Inspections shall be made for proper installation and tightness of connections for circuit breakers. Load centers and/or panelboards shall be thoroughly tested after installation and connection to respective loads. Update circuit directory to identify the respective device fed by each new circuit breaker.

162700-3.17 INSTALLATION OF SAFETY SWITCHES: All safety switches shall be provided with appropriate mounting hardware and strut support. Strut support shall be stainless steel strut channel with stainless steel hardware. Mount safety switches securely in accordance with the manufacturer's recommendations/instructions and as required for the respective application. Inspect all safety switches for proper operation, tight and secure connections, and correctness. All safety switch enclosures shall be bonded to ground with a ground lug or bar and ground wire. Field cut holes in safety switch enclosures to accommodate conduit entrances. Where safety switches are provided with concentric knockouts, and the respective conduit does not use the largest knockout, install a grounding bushing with ground wire connections between the bushing and the ground bus. Do not use safety switch enclosures for a splice box or for a pull box. Do not route control wires or other circuit wiring through a safety switch. Where splices are required or other control circuit wires are installed in the respective conduit to a safety switch, provide a separate junction box to accommodate the splices and/or other circuit conductors. Provide NEMA 4 hubs for all conduit entries into safety switch enclosures that are rated NEMA 4, 4X to maintain NEMA 4, 4X rating. Provide weatherproof abrasion resistant, engraved legend plates for each safety switch noting the device served, the power source, and the voltage system.

162700-3.18 CONDUIT INSTALLATION: Cable in unit duct and/or conduit for the gate operator power shall be direct bury 24 in. minimum below finished grade. Cable in conduit below roadways and walks shall be minimum 24 in. deep. Installation of cable in unit duct and/or conduit shall conform to Item 108. The installation of conduit shall conform to Item 110, as detailed on the Plans and as specified herein.

A. Conduit(s) under pavement shall be pushed or bored where possible to avoid damage to the respective pavement.

B. Conduit size and fill requirements shall comply with Appendix C, conduit fill tables, of the NEC. It should be noted these are minimum requirements and larger conduit sizes or smaller fill requirements shall be used whenever specified or detailed on the drawings.

C. Liquid-tight flexible conduit shall be provided as a connection between each motor junction box (or any other piece of equipment subject to movement or vibration) and the rigid conduit system.

D. Ream conduits only after threads are cut. Cut joints square to butt solidly into couplings. Where necessary to join two pieces of conduit, and it is impossible to use standard couplings, use 3-piece malleable iron conduit coupling. The use of running thread is prohibited. This applies to all rigid conduit installations, underground or otherwise.

E. Make all joints in steel underground conduit watertight with approved joint compound. Temporarily plug conduit openings to exclude water, concrete, or any foreign materials during construction. Clean conduit runs before pulling in conductors.

F. A run of conduit between outlet and outlet, between fitting and fitting, or between outlet and fitting shall not contain more than the equivalent of four quarter bends, including bends immediately at an outlet or fitting.

G. Where conduits enter a box or fitting, provide a steel locknut and an insulated metallic bushing. Use this method to terminate conduit in panels, pull boxes, safety switches, etc.

H. Provide NEMA four hubs for all conduit entries into enclosures rated NEMA 4, 4X to maintain NEMA 4, 4X rating.

I. Do not run conduit below or adjacent to water piping.

J. Run exposed conduits parallel with walls and at right angles to the building lines, not diagonally. Make bends and turns with pull boxes or cadmium plated or hot-dipped galvanized malleable iron fittings and covers.

162700-3.19 INSTALLATION OF JUNCTION AND PULL BOXES: Use only screws, bolts, washers, etc. fabricated from rust resisting metals for the supporting of boxes. Install pull boxes in runs of conduit such that a total of 360 degrees in bends is not exceeded. Junction boxes shall be installed at all points in conduit runs where taps or splices are located. Boxes required by code or need which are not detailed on the plans shall be considered incidental to the respective work item and will not be paid for separately.

162700-3.20 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 National Electrical Code (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 2020 National Electrical Code Article 250-12.

D. 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 (from bushing to the respective ground connection/enclosure frame) for all metal conduits entering service equipment (meter bases, CT cabinet, service disconnects, service panelboards, main service breaker enclosure, etc.). 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 electrical installations shall be **3/4-inch diameter, 10-feet long,** UL-listed, Copper clad with 10-mil minimum Copper coating. Ground rods for fence grounding shall be 5/8 inch diameter, 8-feet long (minimum), UL-listed, Copper clad with 10-mil minimum Copper coating. Top of ground rods for electrical installations shall be a minimum of 12 inches below finish grade unless otherwise noted on the Plans. Top of ground rods for fencing applications (non-electrical installations) shall be a minimum of 6 inches below finish grade unless otherwise noted on the Plans. 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, 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 stranded Copper 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 of Record for further directions. 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 of Record.

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, motors, 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. The equipment ground wire from equipment shall not be smaller than allowed by 2020 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 National Electrical Code. 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 2020 NEC 250-24.

J. All exterior metal conduit, 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 2020 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 2020 NEC 250-102.

K. Install grounding electrode conductors and/or individual ground conductors in **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.

L. 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 Project Engineer. This does not apply to AC equipment ground wires run with AC circuits.

M. Grounding work affecting operations at a facility shall be coordinated with the Owner's Representative and to minimize downtime to existing systems. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. All power systems (AC or DC) shall have provisions to lockout and tagout any circuit to help ensure the circuit is safe to work on for protection of personnel. 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). Where a facility does not have lockout/tagout kits the Contractor shall provide adequate quantities of lockout/tagout kits suitable for use with the respective equipment. Where existing electrical equipment does not have features for lockout/tagout the Contractor will be responsible to provide the appropriate lockout/tagout equipment and measures to ensure the safety of personnel. All padlocks for use with lockout/tagout procedures shall have a different key. Provide lockout hasps to accommodate multiple padlocks where multiple people are working on the same system. Include lockout tags for each piece of equipment requiring servicing and shutdown. Compliance with Lockout/Tagout Procedures and all other safety procedures and requirements are the responsibility of the respective personnel working at the facility.

N. Never remove, alter, or attempt to repair conductors or conduit systems providing grounding or electrical bonding for any electrical equipment until all power is removed from the equipment. Warn all personnel of the ungrounded condition of the equipment. Display appropriate warning signs, such as danger tags, to warn personnel of the possible hazards.

O. Grounding work and modifications shall not be performed during a thunderstorm or when a thunderstorm is predicted in the area.

P. Per NFPA 70E Standard for Electrical Safety in the Workplace it defines Electrically Safe Work Condition as "*A state in which an electrical conductor or circuit part has been disconnected from energized parts, locked/tagged in accordance with established standards, tested to verify the absence of voltage, and, if necessary, temporarily grounded for personnel protection."* Prior to conducting tests or working on equipment, verify equipment enclosures and frames have a good and secure ground connection for safety of personnel.

Q. Where a conflict is determined with respect to grounding requirements per manufacturer installation instructions, National Electrical Code, and/or the Contract Documents, contact the Project Engineer of Record; Kevin Lightfoot for further directions. Safety of personnel is the top priority.

162700-3.21 TESTING: The Contractor shall make at his own expense any tests of equipment, wiring, or insulation deemed necessary by any inspection department or by the Owner's Representative and/or Resident Engineer/Resident Technician and shall provide all apparatus, meters, materials, and labor required to make such tests. **Contractor shall engage a factory authorized service technician to provide start-up, testing, adjustments, calibration, and checkout for each electrically operated gate. This shall be scheduled while the Contractor is still on-site and be coordinated such that all the gates for the project are commissioned on a single site visit to reduce costs. All tests shall be conducted in the presence of the Owner and the Resident Engineer/Resident Technician.**

The Contractor shall test and demonstrate to the satisfaction of the Resident Engineer/Resident Technician the following:

A. That all power and control circuits are continuous and free from short circuits.

B. That all circuits are free from unspecified grounds.

C. That the insulation resistance to ground of all ungrounded conductors of multiple circuits is not less than 50 megohms.

D. That all circuits are properly connected in accordance with applicable wiring diagrams.

E. Test and adjust gate operator, controls, safety devices/features, hardware, and other operable components. Confirm that all circuits operate properly.

F. Verify ground rod is installed at electric gate operator in accordance with the manufacturer requirements.

G. Verify metal conduits terminated at gate operator are bonded to the gate operator housing.

H. Verify ground rods are installed at each side of the gate.

I. Verify card reader/keypad station includes a ground wire to it. Record size and type.

J. Verify Operation and Maintenance Manuals were furnished with equipment.

K. Verify the gate is level.

L. Verify the drive rail is smooth and has proper splice plates to reduce premature where on the drive mechanism on the gate operator.

M. Verify the drive rail has full and proper interface to the gate operator drive mechanism/drive wheels.

N. Release the gate operator braking mechanism and open and close the gate to confirm smooth and free operation over the full length of travel.

O. Verify the proximity sensor and the trip plate are installed properly and do not have an interference.

P. Verify the gate operator beeper works properly and activates at upon gate operation.

Q. Interrupt power to the gate operator and confirm that the gate does not open upon restoration of power. The gate operator shall not activate for a power interruption as it does for a card reader or card reader signal input.

R. Test gate and verify proper operation.

S. Check operation of safety loops. Does the gate remain open if the vehicle stays on the exit loop?

T. Check operation of free exit.

U. Check to see if the gate stops if an obstruction is detected.

V. Confirm remote transmitters were furnished and operational, (where applicable).

W. Train the designated owner's personnel on procedures for operation, starting, stopping, troubleshooting, servicing, programming, and maintaining equipment.

X. All tests shall be recorded, stating the test results, date, and field conditions.

METHOD OF MEASUREMENT

162700-4.1 The quantity of this item to be furnished and installed shall be measured for payment as a unit price per each for the electric slide gate and shall include all materials, equipment, support structures, foundations, detector loops, cable, wiring, conduits, ducts, raceways, directional boring, grounding, labor, coordination, tools, connections, restoration, and other incidentals as required to perform the specified work and testing the units for satisfactory operation. The quantity of power wiring and conduit from the respective power source to the gate operator and all other wiring associated with the gate operator system shall be incidental to Item AR162728 Electric Gate – 28', (or other electric gate installation), and no additional compensation will be made. The quantity of conduit and/or duct, including directional boring for the gate operator system shall be incidental to Item AR162728 Electric Gate – 28', (or other electric gate installation), and no additional compensation will be made.

All lockout/tagout procedures to ensure and maintain safety of personnel will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed.

All signage and labeling will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed.

Removals, relocations, rewiring, and/or adjustments to existing equipment will be considered incidental to this item, and no additional compensation will be allowed.

Wiring, feeder circuits, branch circuits, connections, splices, interfaces, adjustments, grounding, and associated materials will be considered incidental to this item, and no additional compensation will be allowed. Conduits, conduit fittings, raceways, junction boxes and associated materials at the facility will be considered incidental to this item, and no additional compensation will be allowed.

BASIS OF PAYMENT

162700-5.1 Payment will be made at the contract unit price per each for the respective electric sliding gate and shall be full compensation for all materials, equipment, support structures, foundations, detector loops, cable, wiring, conduits, ducts, raceways, directional boring, grounding, labor, coordination, tools, connections, restoration, and other incidentals required to perform the specified work and testing the units for satisfactory operation, and no additional compensation will be allowed.

Payment will be made under:

Item AR162728 Electric Gate – 28’ – per EACH

END OF SECTION 162700

AR162908

REMOVE ELECTRIC GATE

DESCRIPTION

162908-1.1 This item of work shall consist of the removing of electric slide gates shown on the Construction Plans to be removed. This item will include removal of the associated gate operators, card readers, control stations, concrete footings/foundations, bollards, conduits, wiring, handholes, safety switches, and other miscellaneous fittings associated with the gate to be removed. The gates, gate operators, card readers, and safety switches shall be turned over to the Airport.

162908-1.2 REFERENCES. Note: where FAA Advisory Circulars are referenced, they shall be the current issue or issues in effect.

A. FAA AC No. 150/5370-2G (current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.

B. NFPA 70E – Standard for Electrical Safety in the Workplace

C. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

CONSTRUCTION METHODS

162908-2.1 The Contractor will remove the gates, gate operators, card readers, control stations, concrete footings/foundations, bollards, conduits, wiring, handholes, safety switches and other miscellaneous fittings associated with the gate to be removed. The existing power and control cables from the power source to the existing gate operators will be removed from the conduits. Contractor shall remove and dispose of the gate posts, bollards and foundations off of the Airport site in a legal manner. The gates, gate operators, card readers, and safety switches shall be turned over to the Airport and delivered to a storage area located at the Airport. If the Airport does not want the respective items, the Contractor shall dispose of those items off the Airport site in a legal manner.

A. Contractor shall examine the site to determine the extent of the work.

B. Contractor shall coordinate work and any power outages to buildings located on the airport with the Airport Director/Manager and/or the respective building personnel. Any shutdown of existing systems shall be scheduled with and approved by the Airport Director/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 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).

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

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

E. Power for each respective electric slide gate system shall be disconnected at the respective power source prior to removing, disconnecting, or working on the respective electric slide gate system. Contractor shall field verify to confirm the respective power source for each electric slide gate system.

F. Coordinate removal of existing gates with the Airport Director/Manager and/or respective Maintenance Staff and to maintain security of the Airport facilities.

G. The existing gate operators and card readers shall be removed and turned over to the Airport Authority. Prior to the electric gate removals, the Contractor shall confirm all associated equipment to be turned over to the Airport with the Airport Director and/or the Resident Engineer. Providing the equipment is to be turned over to the Airport, care is to be taken by the Contractor not to damage the equipment while removing it. The Contractor will deliver the equipment to the storage area on the Airport selected by the Airport Director. Providing the Airport does not accept the equipment, the Contractor will dispose of it.

H. The cable shall be disconnected from the distribution panel at the respective power source. Cable shall be removed where accessible and when under grade abandoned. Contractor may remove cable that is scheduled to be abandoned and shall have the salvage rights to that cable. Removal of existing cables shall be at no additional cost to the Contract.

I. **Earth Areas:** Where there are posts or foundations in existing earth, the Contractor will furnish earth material to fill the holes left from the fence removal. The earth material furnished shall conform to Item 905 "Topsoil." The holes will be filled and compacted to prevent future settlement. Any disturbed area of gate removal, except farming areas, will be seeded in accordance with the Specifications.

J. **Paved Areas:** Where there are posts or foundations in existing pavement, the Contractor will furnish Portland Cement Concrete in accordance with Item 610 to fill the holes left from the removal. The holes will be filled to within six (6) inches of the adjacent surface with aggregate material conforming to Item 209 and compacted to prevent future settlement.

162908-2.2 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 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 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.

Payment for locating and marking underground utilities and cables will not be paid for separately but shall be considered incidental to the respective work item for which it is required.

METHOD OF MEASUREMENT

162908-3.1 The quantity of electric gate removal to be paid for shall be the number of gates removed, turned over to the Airport or disposed of, and accepted by the Resident Engineer/Resident Technician. All gate and fencing removal work and all labor, equipment, tools, clean up, disposal, and incidentals necessary to remove the fencing, gate, operator, operator foundation, bollards, card reader/keypad access control unit, support structures, safety switches, existing wiring, and associated items as shown on the Plans will be considered incidental to the respective gate removal, and no additional compensation will be made.

BASIS OF PAVEMENT

162908-4.1 This work will be paid for at the contract unit bid price per each for Remove Electric Gate. Said price and payment shall constitute full compensation for removing the gate, turning the equipment and materials over to the Airport or disposing of the removed materials, making repairs to the damaged pavement, placing the respective fill materials, as described above, in the holes left from the removal, seeding all disturbed turf areas, and for furnishing all materials, labor, equipment, and incidentals necessary to complete this item of work.

Payment will be made under:

Item AR162908 – Remove Electric Gate – per EACH.

END OF ITEM AR162908

DIVISION IV

DRAINAGE

ITEM 701

PIPE FOR STORM SEWERS AND CULVERTS

Revise Item 701 of the Standard Specifications as follows:

DESCRIPTION

701-1.1 Add the following:

"This item shall also include the removal of existing pipe, regardless of size and type, at the locations shown in the Plans, or as directed by the Resident Engineer."

"This item shall also include the removal of an existing inlet and end section at the location shown in the Construction Plans, or as directed by the Resident Engineer."

CONSTRUCTION METHODS

Add:

701-3.12 REMOVE INLET. The existing inlet marked for removal shall be carefully removed. Backfill and restoration of the opening shall be in accordance with Item 751 for structures under pavement. The removed structure shall be legally disposed of off-site by the Contractor. Backfill, restoration and disposal costs shall not be measured separately for payment but shall be incidental to the Contract unit price for Item 800967.

Add:

701-3.13 REMOVE END SECTION. The existing end section marked for removal shall be carefully removed. Backfill and restoration of the opening shall be in accordance with Item 152. The removed structure shall be legally disposed of off-site by the Contractor. Backfill, restoration and disposal costs shall not be measured separately for payment but shall be incidental to the Contract unit price for Item 800967.

METHOD OF MEASUREMENT

701-4.2 Delete this Section

701-4.3 Delete this Section.

Add:

701-4.4 The removal of pipe and structures as specified herein will be paid for at the contract unit price per lump sum for Remove Pipe & Structures. This price shall include all costs related to removal, disposal and backfill.

BASIS OF PAYMENT

701-5.1 Add the following:

”Payment will be made under:

“Item AR701012 12” PVC Storm Sewer – per foot.

“Item AR800967 Remove Pipe & Structures – per lump sum.”

ITEM 705

PIPE UNDERDRAINS FOR AIRPORTS

Revise Item 705 of the Standard Specifications as follows:

705-1.1 DESCRIPTION. Add the following:

"The underdrain pipe shall be wrapped with a filter fabric casing. **A second Underdrain Trench Envelope surrounding the trench, with the underdrain pipe and the porous granular material (Porous Material No. 2), shall also be included.**

This item shall also include the installation of concrete underdrain inspection holes and cleanouts, as shown in the Plans, and as directed by the Resident Engineer, as specified below."

MATERIALS

705-2.12 CORRUGATED POLYETHYLENE (PE) TUBING AND IGS FITTINGS. Delete this Section and replace with the following:

"705-2.12 CORRUGATED POLYETHYLENE (PE) TUBING AND IGS FITTINGS. All underdrain shall be **6-inch** perforated corrugated polyethylene (PE) pipe, **double wall** with a smooth inner surface, conforming to the requirements of AASHTO M 252, Type SP, Class 2. The underdrain shall be wrapped with a filter fabric casing, as noted in Section 705-2.13.

Add:

705-2.15 UNDERDRAIN TRENCH ENVELOPE. The trench for the underdrain pipe and porous material shall be wrapped in a nonwoven filter fabric envelope. The trench fabric shall be Mirafi 160N, by TC Mirafi, US 160NW by US Fabrics, Inc., or equal. Alternate fabrics may be submitted for consideration by the Engineer. The filter fabric shall not be measured separately but shall be included in the Contract unit price for underdrain pipe.

Add:

705-2.16 UNDERDRAIN CLEANOUT AND INSPECTION HOLE. Underdrain cleanout and inspection hole shall be as shown in the details and notes shown on the Plans. Concrete collar may be cast-in-place of concrete meeting Item 610 or pre-cast meeting IDOT Specifications for Class PC concrete. Pre-cast structures shall be from IDOT-approved sources. Frames and lids shall be of the type and size shown in the Plans. Bolts and washers for bolted frame and lid/grate assemblies shall be **stainless steel**. The area between the pipe and the frame opening shall be grouted and sealed with a cement mortar. Separate payment for the frame and grate, cement mortar and other incidentals shall not be made but shall be included in the unit price for cleanout and inspection hole.

Add:

705-2.17 RAPID SETTING FLOWABLE MORTAR. Rapid-setting flowable mortar used in underdrain structure adjustment and for water proofing the pipe connections to the underdrain cleanout and inspection hole shall be Dayton-Superior HD-50, Five Star Highway Patch, or approved equal.

Add:

705-2.18 FRAMES AND LIDS. Frames and lids shall be manufactured in the United States of U.S.-made steel, and of the type and size shown in the Plans. Bolts and washers for bolted frame and lid/grate assemblies shall be **stainless steel. In accordance with Illinois Steel Procurement Act, required under this Project, all materials used for this item shall be made in USA from raw materials manufactured in the USA. The Contractor shall furnish a certification attesting to adherence to the Illinois Steel Procurement Act.**

CONSTRUCTION METHODS

705-3.7 CONNECTIONS. Add the following:

"Underdrain pipe connections to the storm sewer system are to be made at manholes or concrete culvert pipe, unless otherwise shown on the Plans. These connections shall be made through smooth, cored holes made at the proper invert elevation. Holes remaining from existing underdrain pipe connections removed in this work shall be patched to the satisfaction of the Resident Engineer. Concrete that conforms to Item 610 shall be used. Connections to structures or pipe and patching of existing connections removed shall not be paid for separately but shall be included in the Contract price for underdrain."

METHOD OF MEASUREMENT

705-4.1 Add the following:

"The number of existing underdrain cleanouts removed shall be the number of units each removed and disposed of as specified or as accepted by the Resident Engineer."

BASIS OF PAYMENT

705-5.1 Add the following:

"The Contract unit price for remove underdrain cleanout structure shall be full compensation for furnishing and installing all materials, excavation, and backfill, and for all labor, equipment and tools necessary to complete these items to the satisfaction of the Engineer.

"Payment will be made under:

Item AR705506 6" Perforated Underdrain - per linear foot.

Item AR705640 Underdrain Cleanout - per each."

ITEM 751001

TRENCH DRAIN

DESCRIPTION

751001-1.1 This item shall also include furnishing, placing and installing a complete high-capacity, preformed trench drain including drain channels, frames, grates and accessories at the locations shown and as detailed in the plans. This item shall include all labor, equipment and materials required to provide an operating trench drainage system acceptable to the Resident Engineer.

MATERIALS

751001-2.1 PREFORMED TRENCH DRAIN SYSTEM

The preformed trench drain shall be a polyester matrix with bottom dimensions 8.63" inside to match 8" diameter pipe with lateral sidewall transitions and shall have a full radius. The frame shall fully support the grate and transfer vertical load linearly into the adjacent concrete. Channels shall be pre-slopped at 0.5% as shown in the Plans. Maximum capacity without extensions shall be 3000 GPM at flat and level grade. The channels shall permit a continuously slopped run of up to 240' without extensions.

The polyester fiberglass shall have minimum material properties as follows:

DESCRIPTION	TEST METHOD	VALUES
Water Absorption	ASTM 5-570	<1%
Chemical Resistance	ASTM D-543	75% Strength, <2% Change in Weight/Dimension
Accelerated Service	ASTM D-7566-E	75% Strength, <2% Change in Weight/Dimension
CTE (Coefficient of Thermal Expansion)	ASTM D-696	4.4 x 10-6 in/in/ºF

The grating and frames shall be made of ductile iron (ASTM A-536 minimum grade65-45-12) and meet AASHTO HS-20 and FAA load requirements. The frames shall be non-removable from the concrete. The grates shall be removable as shown in the Plans. The removable grates shall have threaded bolt lockdowns that do not unduly impede fluid flow in the channel. The lockdowns shall withstand cyclical loads of 700 pounds after slat exposure per ASTM B-517. The grates shall be made of ductile iron and suitable for frequent traffic applications. The open area shall be 40 sq.in/lin.ft.

The concrete used in encasing the trench shall be P.C. Concrete, Item 610.

CONSTRUCTION METHODS

751001-3.1 The trench drain shall be installed according to the manufacturer's recommendations. The reinforcement in the concrete surrounding the drain shall be adequate for the anticipated loads. The trench drain shall not be used in place of an Expansion joint.

The concrete used in encasing the trench shall be P.C. Concrete, Item 610.

The contractor shall furnish as-built rim and invert elevations for all installed Trench Drain, as specified in Section 50-06.

METHOD OF MEASUREMENT

751001-4.1 The trench drain shall be measured from the end of the channel frame to the opposite end of the channel frame and shall be the length of Trench Drain actually constructed as a complete unit and accepted by the Resident Engineer. No separate measurements will be made for the concrete encasement or other materials used in completing this item.

BASIS OF PAYMENT

751001-4.1 Payment shall be made at the contract unit price for Trench Drain. This price shall be full compensation for furnishing all materials and for all preparation, removals, relocation, erection, installation and disposal, and for all labor, equipment, tools, and incidentals necessary to complete this item. Separate payment shall not be made for P.C. Concrete or other incidentals used in completing the item.

Payment will be made under:

AR751001 Trench Drain - per linear foot.

DIVISION V

TURFING

ITEM 901

SEEDING

Revise Item 901 of the Standard Specifications as follows:

MATERIALS

901-2.1 SEED. Delete the seed mixture listed in the table and replace with the following:

"Minimum Amount of Common Name	Pure Live Seed per Acre
Shadow II Chewings Fescue Festuca commutate	53 Pounds
Quattro Sheep Fescue Festuca ovina	53 Pounds
Rhino Hard Fescue Festuca brevipila (F. longifolia)	26 Pounds
Henry Hard Fescue Festuca brevipila (F. longifolia)	26 Pounds
Sea Fire Slender Creeping Red Fescue Festuca rubra	26 Pounds
Kent Creeping Red Fescue Festuca rubra, subsp. rubra	26 Pounds
Gulf Annual Rye Grass Lolium multiflorum	10 Pounds
Total	220 Pounds per Acre

"Species substitutions due to unavailability of seed type shall be approved by the Engineer and must consider the endophytic properties of the original and the proposed substitution."

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 March 15 and May 15. 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 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 Engineer."

901-2.2 LIME. Replace this Section with the following:

"901-2.2 SOIL TESTING AND MODIFICATION. The Contractor shall perform a soil analysis of all on-site and off-site topsoil types at be used in the seedbed. The pH of the topsoil shall be between 5.5 pH and 6.5 pH. Should the pH be less than 5.5, the Contractor shall add agricultural lime of a type and source approved by IDOT, at application rates appropriate to achieve the required pH. Should the pH be greater than 6.5, the Contractor shall add sulfur of a type and source approved by IDOT, at rates appropriate to achieve the required pH. The Contractor shall furnish the test reports and proposed soil modifications for approval to the Engineer prior to any soil modification. All soil testing and modification shall be incidental to seeding."

901-2.3 FERTILIZER. Delete this Section.

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 12 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 AT901510	Seeding - per acre."

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.

"Item AT908510 Mulching - per acre."

DIVISION VI

LIGHTING INSTALLATION

ITEM 106 APRON LIGHTING

DESCRIPTION

106-1.1 Add the following: "This item shall also include exterior lighting to illuminate the areas and taxi lanes around hangars as detailed on the Plans and specified herein.

This item shall also include the removal of existing light poles and fixtures."

Add the following:

106-1.5 REFERENCES. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
Note: where FAA Advisory Circulars are referenced, they shall be the current issue or issues in effect.

A. ASTM A252, Standard Specification for Welded and Seamless Steel Pipe Piles.

B. ACI 336.01, Specification for Construction of Drilled Piers.

C. FAA AC 150/5370-2, "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".

D. Federal Specifications A-A-59544, Cable and Wire, Electrical (Power, Fixed Installation).

E. NEMA TC-2, Electrical Plastic Tubing and Conduit.

F. NEMA TC-3, Fittings Rigid PVC Conduit and Tubing.

G. NFPA 70, National Electrical Code (most current issue in force).

H. NFPA 70E, Standard for Electrical Safety in the Workplace.

I. NFPA 2638645-1 = National Fire Protection Association IDN.

J. OSHA 29 CFR Part 1910, Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

K. UL Standard 6, Electrical Rigid Metal Conduit – Steel.

L. UL Standard 44, Thermoset-Insulated Wires and Cables.

M. UL Standard 83, Thermoplastic-Insulated Wires and Cables.

N. UL Standard 651, Schedule 40 and 80 PVC Conduit.

EQUIPMENT AND MATERIALS

106-2.1 LIGHT FIXTURES. Add the following:

"Light fixtures shall be as detailed on the Plans."

106-2.2 LIGHT POLES. Add the following:

"Light poles shall be as detailed on the Plans."

106-2.3 LIGHTNING ARRESTERS. Add the following:

"Lightning arresters shall be as detailed on the Plans."

Add the following:

106-2.7 CABLE AND WIRING. Cable and wiring for the apron lighting system shall be as detailed on the Plans, in accordance with Item 108 Underground Power Cable for Airports, and as detailed herein.

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.

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.

Color-coding: Color-code phase and neutral conductor insulation for No. 6 AWG or smaller. Provide colored marking tape or colored insulation 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 for 120/240 VAC, 1-Phase, 3-Wire system shall be Phase A – Black, Phase B – Red, Neutral – White, and Ground – Green.

106-2.8 LIGHTING CONTROLLER. Lighting controllers shall be NEMA rated, 30 Amp, 2 poles lighting contactors with 120 VAC coil and hand-off-auto selector switch in a NEMA 12 enclosure. Include photocell control for each lighting system.

106-2.9 DUCT AND CONDUITS. Ducts and conduits for the apron lighting system shall be as detailed on the Plans and in accordance with Item 110 Airport Underground Electrical duct Banks and Conduits.

106-2.10 PANELBOARDS. Panelboard bus structure shall be copper. Bus and main lugs or main circuit breaker shall have voltage and current ratings as shown on the Plans. Such ratings shall be in accordance with UL Standard 67. Bus bar connections to the branch circuit breakers shall be the "distributed phase" or phase sequence type. All current carrying parts of copper bus structures shall be plated to prevent corrosion. Panelboards for service entrance applications shall be UL listed suitable for service entrance. All panelboards shall be Dead-Front Safety Type, equipped with thermal-magnetic molded case breakers, and solid neutral bus. Bussing shall be such that adjacent single pole breakers will be on different phases or polarities, and that two pole breakers can be installed at any location. Panelboard numbering shall be such that starting at the top, odd numbers shall be used in sequence down the left-hand side and even numbers shall be used in sequence down the right hand side. Cabinets shall be fabricated of code gauge galvanized steel with gutters sized per National Electrical Code and shall be suitable for the respective location. Cabinets shall be finished with rust inhibiting primer and baked enamel. For outdoor installations (in non-hazardous areas) the enclosure shall be rated NEMA 3R (rain proof) and NEMA 12 (dust tight) with a hinged cover. For indoor installations (in non-hazardous areas) the enclosure shall be rated NEMA 1 or NEMA 12. Panelboard shall be provided with bolt-on circuit breakers of size, type, and ratings as detailed on the Plans. Contractor shall confirm and adjust circuit breaker amperage trip ratings as required for the respective equipment or device being fed, in accordance with the respective equipment manufacturer's recommendation and NEC. Breakers shall be 1 or 2 pole with an integral crossbar to assure simultaneous opening of all poles in multiple circuit breakers. Breakers supplying 120 VAC or 120/240 VAC circuits associated with the fuel facility equipment shall include a switched neutral feature. Breakers shall have an over-center, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Handles shall have "ON," "OFF," and "TRIPPED" positions. Circuit breakers shall be UL-listed in accordance with UL Standard 489 and shall be rated 120/240 volts AC, 1-phase 3-wire. A circuit directory frame and card with a clear plastic cover shall be provided on door interior. Circuit directory shall be typed or neatly handwritten indicating each branch circuit of the panel board. Revise directory to reflect circuiting changes as required. All panelboards shall be UL-listed and bear the UL label. Panelboards shall be furnished with a copper equipment ground bar(s) and a separate insulated copper neutral bus.

106-2.11 SHOP DRAWINGS:

The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for apron lighting equipment and materials to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** Shop drawings shall include the following information:

A. 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.

B. Shop drawings shall include cut sheets, specifications, manufacturer part numbers for the respective light fixtures.

C. Provide shop drawings for lighting controllers.

D. 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.

E. Submittals for panelboards shall include manufacturer, catalog numbers, panel schedule, voltage and amperage ratings, bus material, integrated short circuit amperage rating, circuit breaker arrangement and sizes and respective enclosure.

CONSTRUCTION METHODS

Add the following:

106-3.4 GENERAL.

"The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the National Electrical Code (most current issue in force) and all other applicable local codes, laws, ordinances, and requirements in force. Electrical 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.

Per NEC 513, aircraft hangars are classified as a Class I, Division 2, Group D hazardous location for a level of 18 in. above the floor for the entire area of the hangar. Per NEC 513.3(C) "Vicinity of Aircraft", the area within 5 ft horizontally from aircraft power plants or aircraft fuel tanks shall be classified as a Class I, Division 2 location that shall extend upward from the floor to a level 5 ft above the upper surface of wings and of engine enclosures. All electrical installations in the hangar shall conform to the applicable sections of NEC 500, 501, and 513 in addition to the other applicable sections of NEC. Where electrical equipment is installed in a classified hazardous location, it shall be suitable for use in the respective classified hazardous location. Where possible, avoid installation of electrical equipment, raceways, and wiring in the classified hazardous areas of aircraft hangars.

All work, power outages, and/or shutdown of existing systems shall be coordinated with the Airport Director/Manager and the Resident Engineer. Any shutdown of existing systems shall be scheduled with and approved by the Airport Director/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).

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

Examine the site to determine the extent of the work. Contractor shall field verify existing site conditions.

Verify respective circuits and power sources prior to removing, disconnecting, relocating, installing, connecting, or working on the respective airfield lighting, apron lighting, hangar lighting, safety switch, panelboard, load center, or other device. Identify each respective circuit prior to performing work on that circuit.

Locate and identify all existing underground utilities located within the area where the proposed lighting system is being installed and 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 Engineer 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.

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 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."

106-3.5 INSTALLATION OF PANELBOARDS. Panelboards and load centers shall be installed as detailed on the Plans and as specified herein.

A. Install panelboards, load centers and accessories according to NEMA PB 1.1.

B. Bottom of panelboard or load centers enclosures located in aircraft hangars, shall not extend into the area 24 in. above the floor. Top of panelboard cabinets, located in aircraft hangars, shall not exceed 6 ft. from finished floor elevation or as detailed on the Plans. Panelboards and load centers shall be installed such that the center of the grip of the operating handle of the upper most circuit breaker, shall not exceed 6 ft-6 in. from finished grade elevation or the working platform to comply with NEC 404.8(A). Panelboards and/or load centers shall not be installed in classified hazardous locations. All installations shall conform to NEC 513 and the other applicable sections of NEC.

C. Avoid conduit runs that are to or from a classified hazardous location and terminate in the panelboard and/or load center. Any conduits that are to or from a classified hazardous area shall require explosion proof conduit seals, suitable for Class I, Division 1, Group D hazardous location, installed in conformance with NEC 500, 501, and 513.

D. Where surge protective devices are required to be furnished on panelboards install them in conformance with manufacturer's instructions for the surge protective device and the panelboard. Contractor shall confirm all connections to the surge protective device (phases, neutral, and ground) are completed and secure. Maintain leads as short and as straight as possible. Locate the surge protector device on the same side of the panelboard as the circuit breaker that connects it to the panelboard. Install the circuit breaker for the surge protector device as close as possible to the panelboard main breaker or main lugs. For example for a top feed main breaker/main lugs type panelboard install the circuit breaker for the surge protector device in positions 1 and 3 or in circuit positions 2 and 4. For a bottom feed main breaker/main lugs type panelboard (42 circuit) install the circuit breaker for the surge protector device in positions 39 and 41 or in circuit positions 40 and 42.

E. Where the surge protective device requires a conduit connection to the respective panel, the conduit or conduit nipple connecting the surge protective device enclosure to the panel enclosure shall be sealed with duct seal or other nonflammable medium to prevent soot from entering the enclosure in the event of a surge protective device failure.

F. Install grounding bushings with ground wire connections between the bushing and the ground bus at all metal conduit terminations that enter or leave the panelboard through concentric knockouts. This does not apply to conduits sized to match the largest knockout.

G. Mount panelboard cabinet plumb and rigid without distortion of box.

H. Install filler plates in unused spaces.

I. Comply with NECA 1.

J. Furnish and install circuit directory indicating the respective equipment fed by each circuit breaker. Circuit directory shall be typed or neatly handwritten and shall correctly identify each circuit in the panelboard and/or load center. Revise directory to reflect circuiting changes as required.

K. Provide legend plates for all panelboards and load centers to identify the area and/or equipment controlled by the panelboard, the power source, and the maximum calculated available fault current. Legend plates shall be weatherproof, and abrasion resistant phenolic material as specified in as detailed on the Plans. Letters shall be black on a white background.

106-3.6 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 (NEC) 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 equal.

C. Metallic surfaces to be joined shall be prepared by the removal of all non-conductive material, per 2020 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 and ground rings at all locations where shown on the Plans or specified herein. Ground rods shall be 3/4-in. diameter, 10 ft. long, UL-listed, stainless steel, unless detailed otherwise on the Plans. Longer ground rods shall be required where detailed on the Plans and/or as specified herein to accommodate respective soil conditions or respective applications. Ground rods shall have 10 mil minimum copper coating. Top of ground rods shall be a minimum of 12 inches below finish grade unless otherwise noted on the Plans. 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 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 of Record for further directions. Copies of the ground system test results shall be furnished to the Resident Engineer and the Project Engineer of Record.

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. 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 raceways or conduit shall not meet this requirement. The equipment ground wire from equipment shall not be smaller than allowed by 2020 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. All utility transformer bank grounds shall be installed in accordance with the serving utility company's recommendation and in accordance with the NEC.

J. 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 2020 NEC 250-24.

K. 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 2020 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. The size of the neutral bonding conductor shall be in accordance with 2020 NEC Article 250-102.

L. All exterior metal conduit, 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 2020 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 2020 NEC 250-102.

M. Where acceptable to the Authority of Jurisdiction, install grounding electrode conductors and/or individual ground conductors in 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, nylon bolts, and other non-ferrous support hardware. Where metal conduit clamps are installed, use nylon bolts, nuts, washers, and spacers to interrupt a complete metallic path from encircling the conduit.

N. If local codes dictate that individual grounding conductors must be run in metal conduit or raceway, then the conduit or raceway must be bonded at each end of the run with a bonding jumper sized equal to the individual grounding conductor or as required by 2020 NEC 250-102 and/or 2020 NEC 250.64(E). Note: this does not apply to AC equipment ground conductors run with AC circuits. Confirm requirements with the Authority of Jurisdiction.

O. Grounding work affecting operations at a facility shall be coordinated with the Owner's Representative and to minimize downtime to existing systems. Contractor shall coordinate work and any power outages with the Owner's Representative. Any shutdown of existing systems shall be scheduled with and approved by the Owner's Representative prior to shutdown. All power systems (AC or DC) shall have provisions to lockout and tagout any circuit to help ensure the circuit is safe to work on for protection of personnel. 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). Where a facility does not have lockout/tagout kits the Contractor shall provide adequate quantities of lockout/tagout kits suitable for use with the respective equipment. Where existing electrical equipment does not have features for lockout/tagout the Contractor will be responsible for providing the appropriate lockout/tagout equipment and measures to ensure the safety of personnel. All padlocks for use with lockout/tagout procedures shall have a different key. Provide lockout hasps to accommodate multiple padlocks where multiple people are working on the same system. Include lockout tags for each piece of equipment requiring servicing and shutdown. Compliance with Lockout/Tagout Procedures and all other safety procedures and requirements are the responsibility of the respective personnel working at the facility.

P. Never remove, alter, or attempt to repair conductors or conduit systems providing grounding or electrical bonding for any electrical equipment until all power is removed from the equipment. Warn all personnel of the ungrounded condition of the equipment. Display appropriate warning signs, such as danger tags, to warn personnel of the possible hazards.

Q. Grounding work and modifications shall not be performed during a thunderstorm or when a thunderstorm is predicted in the area.

R. Per NFPA 70E Standard for Electrical Safety in the Workplace it defines Electrically Safe Work Condition as "A state in which an electrical conductor or circuit part has been disconnected from energized parts, locked/tagged in accordance with established standards, tested to verify the absence of voltage, and, if necessary, temporarily grounded for personnel protection." Prior to conducting tests or working on equipment, verify equipment enclosures and frames have a good and secure ground connection for the safety of personnel.

S. Where a conflict is determined with respect to grounding requirements per manufacturer installation instructions, National Electrical Code, and/or the Contract Documents, or there are other questions or concerns about the

grounding requirements contact the Project Engineer of Record for further directions. Safety of personnel is the top priority.

106-3.7 REMOVAL OF EXISTING LIGHT POLES. The Contractor will remove the existing light fixtures and turn them over the existing light poles designated for removal shall be removed and disposed of off the Airport site in a legal manner. The Airport will retain the right of first refusal for all salvageable items. In the event that the Airport does not want the respective items, the Contractor shall dispose of those items off the Airport site in a legal manner.

A. Contractor shall examine the site to determine the extent of the work.

B. Contractor shall coordinate work and any power outages to buildings located on the airport with the Airport Director/Manager and/or the respective building personnel. Any shutdown of existing systems shall be scheduled with and approved by the Airport Director/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 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).

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

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

E. Power for each respective lighting system designated for removal shall be disconnected at the respective power source prior to removing, disconnecting, or working on the respective lighting system or other device. Contractor shall field verify to confirm the respective power source for each lighting system.

F. Coordinate removal of existing lighting systems with the Airport Director/Manager and/or respective Maintenance Staff and to maintain security of the Airport facilities.

G. The cable shall be disconnected from the at the respective power source. Cable shall be removed where accessible and when under grade abandoned. Contractor may remove cable that is scheduled to be abandoned and shall have the salvage rights to that cable. Removal of existing cables shall be at no additional cost to the Contract.

METHOD OF MEASUREMENT

106-4.1. Revise this section as follows:

"The Apron Lighting System shall be measured for payment on a lump sum basis. This shall include full compensation for furnishing and installing the electric feeders, distribution panelboards, and lighting controller system equipment and materials; all lighting fixtures/ lighting luminaires with lighting emitting diode system, drivers, brackets, braces, and mounting hardware; all light poles, foundations, reinforcing steel, anchor bolts, grounding, and mounting hardware; for all excavation, backfilling and restoration required; for furnishing all materials; for furnishing and installing the grounding systems, surge protection, and fusing; for all conduits, ducts, raceways, junction boxes and fittings; for all wiring including feeder conductors, branch circuit conductors, and control wiring conductors; for making all electrical connections; for testing the installation; and for all other incidentals necessary to place the lights in proper operation to the satisfaction of the Owner and the Resident Engineer. All conduits and ducts associated with the electric distribution system and lighting

system will be considered incidental to the Apron Lighting System and no additional compensation will be allowed. All wiring associated with the electric feeders, electric distribution system and apron lighting system will be considered incidental to the Apron Lighting System and no additional compensation will be allowed.

Add the following:

106-4.2. The quantity of Item AR106905 Remove Light Pole & Fixture to be paid for shall be on a per each basis and shall be the number of light poles and fixtures removed, turned over to the Airport or disposed of, and accepted by the Resident Engineer/Resident Technician.

BASIS OF PAYMENT

106-5.1. Add the following:

"Payment will be made under:

Item AR106905 Remove Light Pole & Fixture - per EACH

Item AR800527 Apron Lighting System - per L. SUM"

END OF ITEM 106

ITEM 108

UNDERGROUND POWER 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.

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."

Add the following:

108-1.2 REFERENCES. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
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 AC 150/5340-30, "DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS".

D. FAA AC 150/5345-7, "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS".

E. FAA AC 150/5345-26, "FAA SPECIFCATIONS FOR L-823 PLUG AND RECEPTACLE CABLE CONNECTORS".

F. FAA AC 150/5345-53 "AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM" and FAA AC 150/5345-53D, "AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum".

G. FAA AC 150/5370-2, "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".

H. FAA Standard-019f; Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment.

I. Federal Specification A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation).

J. Federal Specification A-A-55809 Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic.

K. NFPA 70 – National Electrical Code (most current issue in force).

L. NFPA 70E – Standard for Electrical Safety in the Workplace.

M. NFPA 2638645-1 = National Fire Protection Association IDN.

N. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

O. UL Standard 44 – Thermoset-Insulated Wires and Cables.

P. UL Standard 83 – Thermoplastic-Insulated Wires and Cables.

Q. 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.** Shop drawings shall include the following information:

A. 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.

B. Provide certification that steel products are manufactured in the USA from domestic steel to comply with the Steel Products Procurement Act (30 ILCS 565/).

C. Indicate the pay item number for each respective cable and/or cable in unit duct.

D. 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.

E. Where cable is required to have colored 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. 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 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.

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 Underwriters Laboratories Requirements for Type USE-2 insulation. Cable shall be UL-listed and marked USE-2.

Color-coding: Color-code phase and neutral conductor insulation for No. 6 AWG or smaller. Provide colored marking tape or colored insulation 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 for 120/240 VAC, 1-Phase, 3-Wire system shall be Phase A – Black, Phase B – Red, Neutral – White, and Ground – Green.

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 below grade splices shall be installed in splice cans, handholes, or manholes. Splice cans shall be L-867, Class IA, Size B (12 in. diameter), 24 in. deep, with ½ in. 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 Engineer 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:

"Unit duct shall be HDPE (High Density Polyethylene) duct. HDPE duct shall be 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."

CONSTRUCTION METHODS

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

"Keep all work, power outages, and/or shut down of existing systems coordinated with the Airport Director/Manager and the Resident Engineer. Any shutdown of existing systems shall be scheduled with and approved by the Airport Director/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).

Examine the site to determine the extent of the work. Contractor shall field verify existing site conditions.

Verify respective circuits and power sources prior to removing, disconnecting, relocating, installing, connecting, or working on the respective airfield lighting, taxi sign, NAVAID, or other device. Identify each respective circuit prior to performing work on that circuit.

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

New airfield lighting series circuit cables shall be installed a minimum of 18 inches below grade to comply with NEC 300.5 Underground Installations. Deeper depths might be required to avoid obstructions, or where detailed herein.

Locate and identify all existing underground utilities located within the area where the proposed cables are being installed and 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 Engineer 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.

In areas where there is a congestion of buried cables or where the proposed cable crosses an existing cable, the Contractor will be required to hand dig and/or carefully excavate the trench necessary for the proposed cable. At other locations, the proposed cable in unit duct, or conduit may be trenched or plowed into place. Hand digging, trenching, and/or plowing will be considered incidental to the proposed cables and no additional compensation will be allowed.

Grounding work and modifications shall not be performed during a thunderstorm or when a thunderstorm is predicted in the area. Grounding for airfield lights and taxi signs shall be as detailed on the Plans and as specified herein.

Homerun cables for a respective circuit that are installed in conduit or duct shall be run together in the same raceway or duct.

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.

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.

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

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

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

In the event a conflict is determined with respect to manufacturer installation instructions, National Electrical Code, and/or the Contract Documents, contact the Project Engineer for further direction.

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". All temporary installations shall comply with National Electrical Code Article 590 – "Temporary Installations."

Existing ducts and cables associated with removal work shall be abandoned in place unless it conflicts with the installation of the airfield light, sign, duct, cable, handhole, manhole, site work, pavement or other work, then it shall be disconnected, removed, and disposed of off the site at no additional cost to the Contract. Contractor may remove abandoned cables at no additional cost to the Contract and shall have the salvage rights to abandoned cables.

Other construction projects might be in progress on the Airport at the same time as this project. The Contractor will be required to cooperate with all other contractors and the Airport Director/Manager in the coordination of the work.

Relocation of existing cables and/or cable in unit duct will require careful excavation of the cables to prevent damage to them. The cables and/or cable in unit duct shall be excavated and exposed and then relocated to a different depth and/or route to accommodate the respective site work.

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.

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."

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

"The unit duct will be run continuous through ducts and conduits that do not terminate in junction structures, handholes, or manholes.

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 junction cans, handholes and/or manholes) the unit duct will not be required for the respective cable.

Homerun cables for a respective circuit that are installed in conduit or duct shall be run together in the same raceway or duct."

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 Engineer. 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 600 Volt cables cut during construction shall be repaired with a cast splice kit. cast splice kit. The Contractor shall have a minimum of ten splice kits for each type of splice, on the job site at all times for emergency repairs. Cast splice kits shall be as specified in paragraph (a) of Item 108-2.4.

In-line connections for existing 5,000 Volt series circuit cables cut during construction shall be repaired with an FAA approved L-823 connector kit properly sized for the respective cables. The Contractor shall have a minimum of ten splice kits for each type of splice, on the job site at all times for emergency repairs. FAA approved L-823 connector kits shall be as specified in paragraph (b) 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. Costs associated with splice cans for accidental cable cuts caused by the Contractor, repairs and/or shortages of cables will be the responsibility of the Contractor and no additional compensation will be allowed.

There shall be no splices between series lighting circuit isolation transformers. 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."

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 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/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.

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 SEPARATION OF COMMUNICATION CIRCUITS AND POWER WIRING. Communication circuits shall not be installed in the same raceway, conduit, duct, or handhole with power circuits.

108-3.15 IDENTIFICATION OF CABLES. At electrical handholes and manholes, 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

Add the following:

"108-4.3. The quantity of power cable, control cable, communication cable, and/or other cables and conductors installed in conduit, duct, raceway, installed as direct bury, and/or other installations associated with the gate operator systems will not be measured for payment. This shall be incidental to the respective item for which it is installed or the respective electric gate installation. This shall be incidental to the respective electric gate installation and shall include furnishing all materials and for all preparation, assembly, and installation of these materials; for all sawing and pavement removal; and for all excavation and backfilling with aggregate backfill, earth backfill and concrete; for all cable and conduit interface work to handholes/manholes/junction structures including coring of handholes/manholes; and for all labor, equipment, tools, and incidentals necessary to complete the installation.

The quantity of power cable, control cable, and/or other cables and conductors installed in conduit, duct, raceway, installed as direct bury, and/or other installations associated with the lighting and associated work in the hangars and/or other buildings will not be measured for payment. This shall be incidental to the respective item for which it is installed or the respective apron lighting system installation. This shall be incidental to the respective item for which it is installed and shall include furnishing all materials and for all preparation, assembly, and installation of these materials; for all sawing and pavement removal; and for all excavation and backfilling with aggregate backfill, earth backfill and concrete; for all cable and conduit interface work to handholes/manholes/junction structures including coring of handholes/manholes; and for all labor, equipment, tools, and incidentals necessary to complete the installation.

This shall include all cable and conductor removals.

All lockout/tagout procedures to ensure and maintain safety of personnel will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed.

Trenching including the excavation, backfill, dewatering and restoration shall not be measured for payment, but shall be considered incidental to the respective cable pay item for which it is required."

BASIS OF PAYMENT

Add the following:

108-5.2. Payment for power cable, control cable, communication cable, and/or other cables and conductors installed in conduit, duct, raceway, installed as direct bury, and/or other installations associated with the gate operator systems will not be measured for payment and shall be incidental to the respective item for which it is installed, and no additional compensation will be made. Payment for power cable/conductors, grounding conductors, and/or other cables and conductors installed in conduit, duct, raceway, installed as direct bury, and/or other installations associated with the panelboards and/or load centers will not be measured for payment and shall be incidental to the respective item for which it is installed, and no additional compensation will be made. Payment for power cable/conductors, grounding conductors, and/or other cables and conductors installed in conduit, duct, raceway, installed as direct bury, and/or other installations associated with the apron lighting will not be measured for payment and shall be incidental to the respective item for which it is installed, and no additional compensation will be made. This shall include furnishing all materials, and for all preparation, assembly, and installation of these materials; for all plowing, trenching, directional-boring, coring and/or interface of manholes, handholes or junction boxes, 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, testing, and incidentals necessary to complete this Item.

END OF ITEM 108

ITEM 110

AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

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."

110-1.2 REFERENCES. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
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. ASTM A706 – Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement

D. ASTM D3350 – Specification of Polyethylene Plastics Pipe and Fittings Materials.

E. ASTM F2160 – Standard Specification for Solid Wall, High-Density Polyethylene Conduit Based on Controlled Outside Diameter.

F. FAA AC 150/5340-30, "DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS".

G. FAA AC 150/5345-53, "AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM".

H. FAA STD-019f, Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment.

I. NEMA TC-2 – Electrical Plastic Tubing and Conduit.

J. NEMA TC-3 – Fittings Rigid PVC Conduit and Tubing.

K. NEMA TC-7 – Smooth-Wall Coilable Polyethylene Electrical Plastic Conduit.

L. NFPA 70 – National Electrical Code (NEC), most current issue in force.

M. NFPA 70E – Standard for Electrical Safety in the Workplace.

N. NFPA 2638645-1 = National Fire Protection Association IDN.

O. OSHA 29 CFR Part 1910, Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

P. UL Standard 6 – Electrical Rigid Metal Conduit – Steel.

Q. UL Standard 514B – Conduit, Tubing and Cable Fittings.

R. UL Standard 514C – Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers.

S. UL Standard 1242 – Electrical Intermediate Metal Conduit Steel.

T. UL Standard 651 – Schedule 40 and 80 Rigid PVC Conduit.

U. UL Standard 651A – Type EB and A Rigid PVC Conduit and HDPE Conduit.

V. UL Standard 651B – Standard for Continuous Length High-Density Polyethylene (HDPE) Conduit.

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.** Shop drawings shall include the following information:

A. 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.

B. Provide certification that steel products are manufactured in the USA from domestic steel to comply with the Steel Products Procurement Act (30 ILCS 565/)

C. Indicate the pay item number for each respective conduit or duct.

D. Shop drawings shall include conduit and/or duct cut sheets with type, size, specifications, UL listing, manufacturer, and catalog or part number.

E. Provide manufacturer's literature confirming the respective duct to be bored is suitable for directional boring with the respective Shop Drawing submittal.

F. Provide certification that the respective steel conduits used on this project are manufactured from 100 percent domestic steel.

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. Conduit for concrete encased duct shall be Schedule 40 (minimum) Polyvinyl Chloride (PVC) or Schedule 40 (minimum) High-Density Polyethylene (HDPE), sized as detailed on the Plans, and suitable for concrete encasement.

B. The duct to be directional-bored shall be Galvanized Rigid Steel Conduit (GRSC) duct, Schedule 40 PVC Conduit, Schedule 80 PVC Conduit or High-Density Polyethylene (HDPE) duct, (Schedule 40, Schedule 80, SDR 9, SDR 11, or SDR 13.5), and suitable for directional boring installation.

C. Plastic duct for direct burial applications shall be PVC Schedule 40 (minimum wall thickness) duct, High-Density Polyethylene (HDPE) Schedule 40 (minimum wall thickness) duct, or HDPE SDR 13.5 (minimum wall thickness) duct, and suitable for direct burial in earth.

D. Where Galvanized Rigid Steel Conduit is noted to be installed on the Plans, plastic conduit will not be permitted as an alternative conduit or duct."

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 to comply with the Steel Products Procurement (30 ILCS 565/). 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.

Provide NEMA 4, 4X hubs for all conduit entries into NEMA 4, 4X equipment enclosures to maintain the NEMA 4, 4X rating of the respective enclosure. Hubs for use with NEMA 4X stainless steel enclosures shall be NEMA 4X stainless steel hubs."

110-2.3 PLASTIC CONDUIT. Add the following to the end of this section:

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

C. 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 or ETL listed, conforming to NEMA Standard TC-7 and UL 651B and listed suitable for concrete encasement. Conduits shall be suitable for underground applications encased in concrete or direct burial, and suitable for exposed applications aboveground.

D. Conduits for directional boring shall be Schedule 40 PVC or Schedule 80 PVC conduit, UL-listed or ETL 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 11 (minimum) 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.**

E. 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."

110-2.4 SPLIT CONDUIT. Add the following to this section:

"NON-METALLIC SPLIT DUCT. Non-metallic spilt duct shall be used to extend existing duct that contains cables and/or for protection of existing cables as detailed on the Plans. Non-metallic split duct shall be Schedule 40 PVC designed for use with power and control cable applications. Non-metallic split duct shall be suitable for direct burial in earth and concrete encasement and exhibit superior impact strength. Joints shall be sealed with corrosion-resistant tape and heavy-duty plastic straps as recommended by the split duct manufacturer for the application. Split duct sleeve couplings, duct sweeps, fittings, and accessories shall be by the same manufacturer to assure system integrity. Non-metallic split duct shall be manufactured by Prime Conduit, Inc., Carlon Electrical Products, Cantex Inc., or approved equal. 4-in. Schedule 40 split ducts shall be Carlon Part Number 49015SD, Cantex Part Number A52EAZS, or approved equal. Install split duct as detailed on the Plans and in conformance with manufacturer's recommendations for the respective application. Provide adapters, couplings, and fittings to accommodate interface to existing duct or conduit. Where split duct is to be concrete-encased, confirm it is suitable for the respective application with the manufacturer."

Add the following:

110-2.9 DUCT SPACERS. Provide duct spacers to provide proper separation of conduits installed in concrete encased duct. Duct spacers shall be designed to provide 3" separation of conduits. Duct spacers shall be suitable for the respective size and quantity of ducts; Underground Devices Incorporated Wunpeece Series, Carlon Snap-N-Stac Combo Spacers, Cantex Spacers for Duct, or approved equal. Confirm catalog numbers with the manufacturer for the respective application.

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, unless detailed otherwise on the Plans. 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/proposed utilities. He will make all necessary adjustments in depth of installation to avoid any and all existing/proposed underground improvements.

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

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 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.

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).

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

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

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 218.3 "Lighting and Visual NAVAIDs".

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 and shall be in accordance with Item 901 Seeding and Item 908 Mulching.

Any and all disturbed pavement areas will be restored to original or better condition. Restoration of pavement areas disturbed during the installation of the proposed ducts will be incidental to the respective pay item for which the duct is installed. The restoration of concrete pavement will be completed in accordance with Item 610 for sidewalks and concrete pavement but will be incidental to the respective pay item for which the duct is installed."

Add the following:

110-3.8 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 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 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 at the Contractor's expense. The Resident Engineer 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 DUCT SPACERS. Provide duct spacers to provide proper separation of conduits installed in concrete encased duct. Duct spacers shall be designed to provide 3" separation of conduits. Duct spacers shall be suitable for the respective size and quantity of ducts. Duct spacers shall be Underground Devices Incorporated Wunpeece Series, Carlon Snap–N-Stac Combo Spacers Series, Cantex Spacers for Duct, or approved equal. Confirm catalog numbers with the manufacturer for the respective application.

110-3.10 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.

METHOD OF MEASUREMENT

110-4.1 Add the following:

> "All restoration work associated with installation of ducts and conduits will be considered incidental to the respective item for which they are installed, and no additional measurement will be made. Removal and

replacement of bituminous pavement or concrete pavement will be considered incidental to the respective pay item for which the duct is installed. All duct and conduit interface to manholes, handholes, junction structures, or pull boxes including coring of manholes, handholes, junction structures, or pull boxes will be considered incidental to the respective item for which they are installed, and no additional measurement will be made. Conduits, conduit nipples, conduit couplings, and other conduit fittings included with splice cans, junction structures, Navaid installations, base mounted airfield light fixtures, airfield signs, and/or taxi signs, will be considered incidental to the respective item for which they are installed, and no additional measurement will be made.

All lockout/tagout procedures to ensure and maintain safety of personnel will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed."

110-4.2 Delete this section.

Add the following:

"110-4.3. The quantity of conduit and/or duct for the electric slide gates and/or gate operator(s) shall not be measured for payment. This shall be incidental to the respective electric gate installation and shall include furnishing all materials and for all preparation, assembly, and installation of these materials; for all sawing and pavement removal; and for all excavation and backfilling with aggregate backfill, earth backfill and concrete; for all duct interface work to handholes/manholes including coring of handholes/manholes; and for all labor, equipment, tools, and incidentals necessary to complete the installation.

The quantity of conduits, ducts, raceways, junction boxes and/or fittings for the apron lighting and/or other lighting installation shall not be measured for payment. This shall be incidental to the respective item for which it is required and shall include furnishing all materials and for all preparation, assembly, and installation of these materials; for all sawing and pavement removal; and for all excavation and backfilling with aggregate backfill, earth backfill and concrete; for all duct interface work to handholes/manholes including coring of handholes/manholes; and for all labor, equipment, tools, and incidentals necessary to complete the installation.

The quantity of conduits, ducts, raceways, junction boxes and/or fittings for panelboards and/or load centers shall not be measured for payment. This shall be incidental to the respective work for which is it required and no additional compensation will be made."

BASIS OF PAYMENT

Add the following:

"110-5.2. Payment for the furnishing and installation of conduit and/or duct for the electric slide gates and/or gate operator(s) shall not be measured for payment and shall be incidental to the respective electric gate installation and no additional compensation will be made. For each respective electric gate installation, all costs for furnishing all materials and for all preparation, assembly, and installation of these materials; for all sawing and pavement removal; for all duct interface work to handholes/manholes including coring of handholes/manholes; for all boring and equipment; for all excavation and backfilling with aggregate backfill, earth backfill, and concrete; and for all labor, equipment, tools, and incidentals necessary to complete this item is considered incidental to the item of work for which the duct is being installed.

Payment for the furnishing and installation of conduits, ducts, raceways, junction boxes and/or fittings for the apron lighting and/or other lighting installation shall not be measured for payment and shall be incidental to the respective

item for which it is required, and no additional compensation will be made. For each respective installation, all costs for furnishing all materials and for all preparation, assembly, and installation of these materials; for all sawing and pavement removal; for all duct interface work to handholes/manholes including coring of handholes/manholes; for all boring and equipment; for all excavation and backfilling with aggregate backfill, earth backfill, and concrete; and for all labor, equipment, tools, and incidentals necessary to complete this item is considered incidental to the item of work for which the duct is being installed.

Payment for conduits, ducts, raceways, junction boxes and/or fittings for panelboards and/or load centers shall not be measured for payment and shall be incidental to the respective work for which is it required, and no additional compensation will be made."

END OF ITEM 110

ITEM 115

ELECTRICAL MANHOLES AND JUNCTION STRUCTURES

DESCRIPTION

115-1.1. This item of work shall consist of electrical manholes and junction structures (handholes and splice cans) in accordance with this Specification and as detailed on the Construction Plans. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the Resident Engineer/Resident Technician.

115-1.2 REFERENCES. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

A. ASTM A123, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

B. ASTM A283, Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.

C. ASTM A615, Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

D. AASHTO M 85, Standard Specification for Portland Cement.

E. ANSI/IEEE STD 81, IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

F. Federal Specification A-A 59544, Cable and Wire, Electrical (Power, Fixed Installation).

G. FAA AC 150/5345-7, “SPECIFICATION FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS”.

H. FAA AC 150/5345-26, “SPECIFICATION FOR L-823 PLUG AND RECEPTACLE, CABLE CONNECTORS”.

I. FAA AC 150/5345-42, “SPECIFICATION FOR AIRPORT LIGHT BASES, TRANSFORMER HOUSINGS, JUNCTION BOXES, AND ACCESSORIES”.

J. FAA AC 150/5340-30, “DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS”.

K. FAA AC 150/5345-53, “AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM”.

L. MIL-P-21035, Paint High Zinc Dust Content, Galvanizing Repair.

M. NFPA-70, National Electrical Code (NEC), most current issue in force.

N. NFPA 70E – Standard for Electrical Safety in the Workplace.

O. NFPA 2638645-1 = National Fire Protection Association IDN.

115-1.3 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for each type of electrical handhole/manhole and junction structure 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. 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.

B. Provide certification that steel products are manufactured in the USA from domestic steel to comply with the Steel Products Procurement Act (30 ILCS 565/)

C. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Engineer reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

D. 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.

E. Provide cut sheets with part number and specifications for each FAA L-867 junction structure/splice can.

F. Provide certification that the respective pre-cast handholes and manholes are manufactured in the United States of America.

MATERIALS

115-2.1. GENERAL

A. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the Engineer.

B. Manufacturer's certifications shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

C. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 CONCRETE STRUCTURES. Provide precast concrete structures where shown on the Plans. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. Openings or knockouts shall be provided in the structure as detailed on the Plans and as applicable to interface to the respective duct system. Threaded inserts and pulling eyes shall be cast in as shown.

If the Contractor chooses to propose a different structural design, signed and sealed shop drawings, design calculations, and other information requested by the Engineer shall be submitted by the Contractor to allow for a full evaluation by the Engineer.

A. 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 pounds loading. 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. Electrical handholes will be paid for under Item AR115610 Electrical Handhole per each.

115-2.3 JUNCTION BOXES**.** Junction structures for Item AR125565 Splice Can shall be FAA Type L-867 (non-load bearing) Class IA, Size D; 16-inch diameter, 24 inches deep, with minimum 3/8-inch thick galvanized steel cover and stainless steel bolts. Refer to the Plans for the number, size, and quantity of conduit hubs for each respective splice/junction can. Covers 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.

115-2.4 GROUND RODS. Ground rods for use with junction structures/splice cans shall be minimum 3/4-inch diameter by 10 feet long UL listed copper-clad steel. Ground rod for junction structures/splice cans shall be tested. Where ground resistance exceeds 25 Ohms furnish and install and second ground rod not less than one rod length apart and connect to the first ground rods at the junction structure/splice can.

CONSTRUCTION METHODS

115-3.1. 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 respective 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.

115-3.2 UNCLASSIFIED EXCAVATION. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the Resident Engineer/Resident Technician without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to the respective handhole and/or manhole structure pay item of which it is a component part. Dewatering necessary for manhole structure installation, erosion and turbidity control, in accordance with Federal, State, and Local requirements is incidental to its respective pay item. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the respective manhole structure pay item.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the Resident Engineer/Resident Technician. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the Resident Engineer/Resident Technician. Structures shall be placed after the Resident Engineer/Resident Technician has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 in of sand or a material approved by the Resident Engineer/Resident Technician as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the Plans.

115-3.2 CONCRETE STRUCTURES. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item 610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the Engineer before the concrete is placed.

115-3.3 PRECAST UNIT INSTALLATIONS. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

115-3.4 PLACEMENT AND TREATMENT OF CASTINGS, FRAMES AND FITTINGS. All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the Resident Engineer/Resident Technician and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written permission is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the Resident Engineer/Resident Technician and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-3.5 INSTALLATION OF LADDERS. [Not used]

115-3.6 REMOVAL OF SHEETING AND BRACING. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches (150 mm) of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The Resident Engineer/Resident Technician may order the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 BACKFILLING. After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches (150 mm) in thickness. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the Resident Engineer/Resident Technician.

Backfill shall not be placed against any structure until permission is given by the Resident Engineer/Resident Technician. In the case of concrete, such permission shall not be given until tests made by the laboratory under supervision of the Engineer establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the Resident Engineer/Resident Technician may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 CONNECTION OF DUCT BANKS. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 RESTORATION. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, seeding, mulching grading and restoration shall be considered incidental to the respective pay item and shall be in accordance with Item 901 Seeding and Item 908 Mulching. The Contractor shall grade around structures as required to provide positive drainage away from the structure. Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials. After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.10 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 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 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 at the Contractor's expense. The Resident Engineer 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.

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 respective duct installation.

115-3.11 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.

METHOD OF MEASUREMENT

115-4.1. Electrical manholes, handholes and junction structures shall be measured by each unit completed in place and accepted by the Resident Engineer/Technician. The following additional items are specifically included in each unit.

- All required excavation,
- Sheeting and bracing
- All required backfilling with on-site materials
- Restoration of all surfaces and finished grading, sodding
- All required connections
- Conduits, conduit nipples, conduit couplings, and other conduit fittings included with junction structures, and/or splice cans
- Slack cable required to perform cable splices outside of the respective junction structures, handholes, or manholes.
- Dewatering if required
- Temporary cables and connections
- Ground rods, grounding electrode conductors, connections, and associated grounding work included with junction structures, and/or splice cans

- Ground rod testing
- 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, site personnel, and/or FAA personnel
- All lockout/tagout procedures to ensure and maintain safety of personnel

BASIS OF PAYMENT

115-5.1. Payment will be made at the contract unit price bid for each electrical manhole, handhole, and/or junction structure completed and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling, and placing of the materials; for locating existing utilities, lines, and cables in the respective areas of work; for all coring and labor associated with conduit, duct, cable in unit duct, and/or cable entries; for all coordination with the respective Airport and/or FAA personnel; for furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item AR115610 Electrical Handhole – per EACH

END OF ITEM 115