

RETURN WITH BID

LETTING DATE August 4, 2006ITEM NUMBER 8A

Proposal Submitted By

Name

Address

City/State

Zip Code

Telephone Number

FEIN Number

FAX Number

 BIDDERS NEED NOT RETURN THE ENTIRE PROPOSAL
 (See instructions inside front cover)

NOTICE TO PROSPECTIVE BIDDERS

This proposal can be used for bidding purposes
 by only those companies that request and receive written
 AUTHORIZATION TO BID from IDOT's Central Bureau of
 Construction.
 (SEE INSTRUCTIONS ON THE INSIDE OF COVER)

PROPOSAL COVER SHEET



Illinois Department of Transportation
 DIVISION OF AERONAUTICS

AIRPORT Dixon MunicipalMUNICIPAL DESIGNATION DixonCOUNTY DESIGNATION LeeILLINOIS PROJECT NO. C73-3548FEDERAL PROJECT NO. 3-17-0036-B8

PLEASE MARK THE APPROPRIATE BOX BELOW:

- A Bid Bond is included.
- A Cashier's Check or a Certified Check is included.

INSTRUCTIONS

ABOUT IDOT PROPOSALS: All proposals issued by IDOT are potential bidding proposals. Each proposal contains all Certifications and Affidavits, a Proposal Signature Sheet and a Proposal Bid Bond required for Prime Contractors to submit a bid after written **Authorization to Bid** has been issued by IDOT’s Central Bureau of Construction.

HOW MANY PROPOSALS SHOULD PROSPECTIVE BIDDERS REQUEST?: Prospective bidders should, prior to submitting their initial request for plans and proposals, determine their needs and request the total number of plans and proposals needed for each item requested. There will be a nonrefundable charge of \$15 for each set of plans and specifications issued.

WHO CAN BID?: Bids will be accepted from only those companies that request and receive written **Authorization to Bid** from IDOT’s Central Bureau of Construction.

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?: When a prospective prime bidder submits a “Request for Proposal Forms and Plans” he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial. If a contractor has requested to bid but has not received a **Proposal Denial and/or Authorization Form**, they should contact the Central Bureau of Construction in advance of the letting date.

WHAT MUST BE INCLUDED WHEN BIDS ARE SUBMITTED?: Bidders need not return the entire proposal when bids are submitted. That portion of the proposal that must be returned includes the following:

1. All documents from the Proposal Cover Sheet through the Proposal Bid Bond
2. Other special documentation and/or information that may be required by the contract special provisions

All proposal documents, including Proposal Guaranty Checks or Proposal Bid Bonds, should be stapled together to prevent loss when bids are processed by IDOT personnel.

ABOUT SUBMITTING BIDS: It is recommended that bidders deliver bids in person to insure they arrive at the proper location prior to the time specified for the receipt of bids. Any bid received at the place of letting after the time specified will not be accepted.

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

Questions Regarding	Call
Prequalification and/or Authorization to Bid	217/782-3413
Preparation and submittal of bids	217/782-7806
Mailing of plans and proposals	217/782-7806



PROPOSAL

1. Proposal of _____

for the improvement officially known as:

- (a) Dixon Municipal Airport
- (b) The proposed improvement shown in detail on the plans issued by the Department schedule and detail sheets included herein, includes, in general, the following described work:

Construct Replacement Airfield Electrical Vault

TO THE DEPARTMENT OF TRANSPORTATION

2. The plans for the proposed work are those issued by the Department of Transportation to cover the work described above.

The specifications are those prepared by the Department of Transportation, Division of Aeronautics and designated as “Standard Specifications for Construction of Airports,” adopted January, 1985, the “Supplemental Specifications and Recurring Special Provisions,” adopted July 1, 2004 and the “Special Provisions” thereto, adopted and in effect on the date of invitation for bids.

3. **COMPLETION TIME/LIQUIDATED DAMAGES.** 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 107 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 below, 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. The following Schedule of Deductions supersedes the table given in Section 60-09 of the Division’s Standard Specifications for Construction of Airports.

Schedule of Deductions for Each Day of Overrun in Contract Time

<u>Original Contract Amount</u>		<u>Daily Charge</u>
<u>From More Than</u>	<u>To and Including</u>	<u>Calendar Day</u>
\$ 0	\$ 25,000	\$ 300
25,000	100,000	375
100,000	500,000	550
500,000	1,000,000	725
1,000,000	2,000,000	900
2,000,000	3,000,000	1,100
3,000,000	5,000,000	1,300
5,000,000	7,500,000	1,450
7,500,000	10,000,000	1,650

A daily charge shall be made for every day shown on the calendar beyond the specified contract time in calendar days.

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4. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, supplemental and applicable recurring special provisions, form of contract and contract bonds, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he/she waives all right to plead any misunderstanding regarding the same.

5. **EXECUTION OF CONTRACT AND CONTRACT BONDS.** The undersigned further agrees to execute a contract for this work and present the same to the department within fifteen (15) days after the contract has been mailed to him/her. The undersigned further agrees that he/she and his/her surety will execute and present within fifteen (15) days after the contract has been mailed to him/her contract bonds satisfactory to and in the form prescribed by the Department of Transportation, in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract and guaranteeing payment in full all bills and accounts for materials and labor used in the construction of the work.

6. **PROPOSAL GUARANTY.** Accompanying this proposal is either a bid bond on the department form, executed by a corporate surety company satisfactory to the department, or a proposal guaranty check consisting of a bank cashier's check or a properly certified check for not less than 5 per cent of the amount bid or for the amount specified in the following schedule:

<u>Amount of Bid</u>	<u>Proposal Guaranty</u>	<u>Amount of Bid</u>	<u>Proposal Guaranty</u>
Up to \$5,000	to \$5,000\$150	\$2,000,000	to \$3,000,000 \$100,000
\$5,000	to \$10,000\$300	\$3,000,000	to \$5,000,000 \$150,000
\$10,000	to \$50,000\$1,000	\$5,000,000	to \$7,500,000 \$250,000
\$50,000	to \$100,000\$3,000	\$7,500,000	to \$10,000,000 \$400,000
\$100,000	to \$150,000\$5,000	\$10,000,000	to \$15,000,000 \$500,000
\$150,000	to \$250,000\$7,500	\$15,000,000	to \$20,000,000 \$600,000
\$250,000	to \$500,000\$12,500	\$20,000,000	to \$25,000,000\$700,000
\$500,000	to \$1,000,000\$25,000	\$25,000,000	to \$30,000,000 \$800,000
\$1,000,000	to \$1,500,000\$50,000	\$30,000,000	to \$35,000,000 \$900,000
\$1,500,000	to \$2,000,000\$75,000	over	\$35,000,000 \$1,000,000

Bank cashier's checks or properly certified checks accompanying proposals shall be made payable to the Treasurer, State of Illinois, when the state is awarding authority; the county treasurer, when a county is the awarding authority; or the city, village, or town treasurer, when a city, village, or town is the awarding authority.

If a combination bid is submitted, the proposal guaranties which accompany the individual proposals making up the combination will be considered as also covering the combination bid.

The amount of the proposal guaranty check is _____ \$(_____). If this proposal is accepted and the undersigned shall fail to execute contract bonds as required herein, it is hereby agreed that the amount of the proposal guaranty shall become the property of the State of Illinois, and shall be considered as payment of damages due to delay and other causes suffered by the State because of the failure to execute said contract and contract bonds; otherwise, the bid bond shall become void or the proposal guaranty check shall be returned to the undersigned.

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(e) The plans and Special Provisions for each separate contract shall be construed separately for all requirements, except as described in paragraphs (a) through (d) listed above.

When a combination bid is submitted, the schedule below must be completed in each proposal comprising the combination.

If alternate bids are submitted for one or more of the sections comprising the combination, a combination bid must be submitted for each alternate.

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid	
		Dollars	Cents

8. **SCHEDULE OF PRICES.** The undersigned submits herewith his/her schedule of prices covering the work to be performed under this contract; he/she understands that he/she must show in the schedule the unit prices (with no more than two decimal places, i.e. \$25.35, not \$25.348) for which he/she proposes to perform each item of work, that the extensions must be made by him/her, and that if not so done his/her proposal may be rejected as irregular.

The undersigned further agrees that the unit prices submitted herewith are for the purpose of obtaining a gross sum, and for use in computing the value of additions and deductions; that if there is a discrepancy between the gross sum bid and that resulting from the summation of the quantities multiplied by their respective unit prices, the latter shall govern.

COUNTY NAME OGLE	CODE 141	DIST 02	AIRPORT NAME DIXON MUNICIPAL	FED PROJECT 3-17-0036-B8	ILL PROJECT C7-3 -3548
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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
AR108258	2/C #8 5 KV UG CABLE IN UD	L.F.	1,070.000 X				
AR108656	3/C #6 600 V UG CABLE IN UD	L.F.	1,500.000 X				
AR109100	CONSTRUCT ELECTRICAL VAULT	L.S.	1.000 X				
AR109200	INSTALL ELECTRICAL EQUIPMENT	L.S.	1.000 X				
AR109901	REMOVE ELECTRICAL VAULT	L.S.	1.000 X				
AR109924	REPLACE ELECTRIC SERVICES	L.S.	1.000 X				
AR110014	4" DIRECTIONAL BORE	L.F.	430.000 X				
AR110502	2-WAY CONCRETE ENCASED DUCT	L.F.	32.000 X				
AR110600	CONCRETE UTILITY PAD	EACH	1.000 X				
AR110610	ELECTRICAL HANDHOLE	EACH	3.000 X				
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1.000 X				
AR152410	UNCLASSIFIED EXCAVATION	C.Y.	46.000 X				
AR208606	6" AGGREGATE BASE COURSE	S.Y.	103.000 X				
AR501604	4" PCC SIDEWALK	S.F.	907.000 X				
AR501690	PCC SIDEWALK REMOVAL	S.F.	180.000 X				

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
AR800591	UPGRADE AIRPORT ROTATING BEACON	L.S.	1.000	X			
AR800990	POWER CABLES IN DUCT	L.F.	153.000	X			
AR904510	SODDING	S.Y.	206.000	X			
AR905510	TOPSOILING (FROM ON SITE)	C.Y.	16.000	X			
AR905520	TOPSOILING (FROM OFF SITE)	C.Y.	8.000	X			

TOTAL \$

- NOTE:
1. EACH PAY ITEM SHOULD HAVE A UNIT PRICE AND A TOTAL PRICE.
 2. THE UNIT PRICE SHALL GOVERN IF NO TOTAL PRICE IS SHOWN OR IF THERE IS A DISCREPANCY BETWEEN THE PRODUCT OF THE UNIT PRICE MULTIPLIED BY THE QUANTITY.
 3. IF A UNIT PRICE IS OMITTED, THE TOTAL PRICE WILL BE DIVIDED BY THE QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE.
 4. A BID MAY BE DECLARED UNACCEPTABLE IF NEITHER A UNIT PRICE NOR A TOTAL PRICE IS SHOWN.

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THE PRECEDING SCHEDULE OF PRICES MUST BE

COMPLETED AND RETURNED.

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**STATE REQUIRED ETHICAL
STANDARDS GOVERNING CONTRACT
PROCUREMENT: ASSURANCES, CERTIFICATIONS
AND DISCLOSURES**

I. GENERAL

A. Article 50 of the Illinois Procurement Code establishes the duty of all State chief procurement officers, State purchasing officers, and their designees to maximize the value of the expenditure of public moneys in procuring goods, services, and contracts for the State of Illinois and to act in a manner that maintains the integrity and public trust of State government. In discharging this duty, they are charged by law to use all available information, reasonable efforts, and reasonable actions to protect, safeguard, and maintain the procurement process of the State of Illinois.

B. In order to comply with the provisions of Article 50 and to carry out the duty established therein, all bidders are to adhere to ethical standards established for the procurement process, and to make such assurances, disclosures and certifications required by law. By execution of the Proposal Signature Sheet, the bidder indicates that each of the mandated assurances has been read and understood, that each certification is made and understood, and that each disclosure requirement has been understood and completed.

C. In addition to all other remedies provided by law, failure to comply with any assurance, failure to make any disclosure or the making of a false certification shall be grounds for termination of the contract and the suspension or debarment of the bidder.

II. ASSURANCES

A. The assurances hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous assurance, and the surety providing the performance bond shall be responsible for the completion of the contract.

B. Felons

1. The Illinois Procurement Code provides:

Section 50-10. Felons. Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any state agency from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-10.

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C. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

(a) Prohibition. It is unlawful for any person holding an elective office in this State, holding a seat in the General Assembly, or appointed to or employed in any of the offices or agencies of state government and who receives compensation for such employment in excess of 60% of the salary of the Governor of the State of Illinois, or who is an officer or employee of the Capital Development Board or the Illinois Toll Highway Authority, or who is the spouse or minor child of any such person to have or acquire any contract, or any direct pecuniary interest in any contract therein, whether for stationery, printing, paper, or any services, materials, or supplies, that will be wholly or partially satisfied by the payment of funds appropriated by the General Assembly of the State of Illinois or in any contract of the Capital Development Board or the Illinois Toll Highway authority.

(b) Interests. It is unlawful for any firm, partnership, association or corporation, in which any person listed in subsection (a) is entitled to receive (i) more than 7 1/2% of the total distributable income or (ii) an amount in excess of the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(c) Combined interests. It is unlawful for any firm, partnership, association, or corporation, in which any person listed in subsection (a) together with his or her spouse or minor children is entitled to receive (i) more than 15%, in the aggregate, of the total distributable income or (ii) an amount in excess of 2 times the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(d) Securities. Nothing in this Section invalidates the provisions of any bond or other security previously offered or to be offered for sale or sold by or for the State of Illinois.

(e) Prior interests. This Section does not affect the validity of any contract made between the State and an officer or employee of the State or member of the General Assembly, his or her spouse, minor child or any combination of those persons if that contract was in existence before his or her election or employment as an officer, member, or employee. The contract is voidable, however, if it cannot be completed within 365 days after the officer, member, or employee takes office or is employed.

The current salary of the Governor is \$145,877.00. Sixty percent of the salary is \$87,526.20.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-13, or that an effective exemption has been issued by the Board of Ethics to any individual subject to the Section 50-13 prohibitions pursuant to the provisions of Section 50-20 of the Code and Executive Order Number 3 (1998). Information concerning the exemption process is available from the Department upon request.

D. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

(a) It is unlawful for any person employed in or on a continual contractual relationship with any of the offices or agencies of State government to participate in contract negotiations on behalf of that office or agency with any firm, partnership, association, or corporation with whom that person has a contract for future employment or is negotiating concerning possible future employment.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-15, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

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E. Inducements

1. The Illinois Procurement Code provides:

Section 50-25. Inducement. Any person who offers or pays any money or other valuable thing to any person to induce him or her not to bid for a State contract or as recompense for not having bid on a State contract is guilty of a Class 4 felony. Any person who accepts any money or other valuable thing for not bidding for a State contract or who withholds a bid in consideration of the promise for the payment of money or other valuable thing is guilty of a Class 4 felony.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-25, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

F. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

Section 50-30. Revolving door prohibition. Chief procurement officers, associate procurement officers, State purchasing officers, their designees whose principal duties are directly related to State procurement, and executive officers confirmed by the Senate are expressly prohibited for a period of 2 years after terminating an affected position from engaging in any procurement activity relating to the State agency most recently employing them in an affected position for a period of at least 6 months. The prohibition includes, but is not limited to: lobbying the procurement process; specifying; bidding; proposing bid, proposal, or contract documents; on their own behalf or on behalf of any firm, partnership, association, or corporation. This Section applies only to persons who terminate an affected position on or after January 15, 1999.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-30, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

G. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

Section 50-40. Reporting anticompetitive practices. When, for any reason, any vendor, bidder, contractor, chief procurement officer, State purchasing officer, designee, elected official, or State employee suspects collusion or other anticompetitive practice among any bidders, offers, contractors, proposers, or employees of the State, a notice of the relevant facts shall be transmitted to the Attorney General and the chief procurement officer.

2. The bidder assures the Department that it has not failed to report any relevant facts concerning the practices addressed in Section 50-40 which may involve the contract for which the bid is submitted.

H. Confidentiality

1. The Illinois Procurement Code provides:

Section 50-45. Confidentiality. Any chief procurement officer, State purchasing officer, designee, or executive officer who willfully uses or allows the use of specifications, competitive bid documents, proprietary competitive information, proposals, contracts, or selection information to compromise the fairness or integrity of the procurement, bidding, or contract process shall be subject to immediate dismissal, regardless of the Personnel code, any contract, or any collective bargaining agreement, and may in addition be subject to criminal prosecution.

2. The bidder assures the Department that it has no knowledge of any fact relevant to the practices addressed in Section 50-45 which may involve the contract for which the bid is submitted.

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I. Insider Information

1. The Illinois Procurement Act provides:

Section 50-50. Insider information. It is unlawful for any current or former elected or appointed State official or State employee to knowingly use confidential information available only by virtue of that office or employment for actual or anticipated gain for themselves or another person.

2. The bidder assures the Department that it has no knowledge of any facts relevant to the practices addressed in Section 50-50 which may involve the contract for which the bid is submitted.

III. CERTIFICATIONS

A. The certifications hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous certification, and the surety providing the performance bond shall be responsible for completion of the contract.

B. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

(1) the business has been finally adjudicated not guilty; or

(2) the business demonstrates to the governmental entity with which it seeks to contract, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 1961.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State shall contain a certification by the contractor that the contractor is not barred from being awarded a contract or subcontract under this Section. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

2. The bidder certifies that it is not barred from being awarded a contract under Section 50.5.

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C. Educational Loan

1. Section 3 of the Educational Loan Default Act provides:

§ 3. No State agency shall contract with an individual for goods or services if that individual is in default, as defined in Section 2 of this Act, on an educational loan. Any contract used by any State agency shall include a statement certifying that the individual is not in default on an educational loan as provided in this Section.

2. The bidder, if an individual as opposed to a corporation, partnership or other form of business organization, certifies that the bidder is not in default on an educational loan as provided in Section 3 of the Act.

D. Bid-Rigging/Bid Rotating

1. Section 33E-11 of the Criminal Code of 1961 provides:

§ 33E-11. (a) Every bid submitted to and public contract executed pursuant to such bid by the State or a unit of local government shall contain a certification by the prime contractor that the prime contractor is not barred from contracting with any unit of State or local government as a result of a violation of either Section 33E-3 or 33E-4 of this Article. The State and units of local government shall provide the appropriate forms for such certification.

(b) A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

A violation of Section 33E-3 would be represented by a conviction of the crime of bid-rigging which, in addition to Class 3 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be barred for 5 years from the date of conviction from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

A violation of Section 33E-4 would be represented by a conviction of the crime of bid-rotating which, in addition to Class 2 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be permanently barred from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

2. The bidder certifies that it is not barred from contracting with the Department by reason of a violation of either Section 33E-3 or Section 33E-4.

E. International Anti-Boycott

1. Section 5 of the International Anti-Boycott Certification Act provides:

§ 5. State contracts. Every contract entered into by the State of Illinois for the manufacture, furnishing, or purchasing of supplies, material, or equipment or for the furnishing of work, labor, or services, in an amount exceeding the threshold for small purchases according to the purchasing laws of this State or \$10,000.00, whichever is less, shall contain certification, as a material condition of the contract, by which the contractor agrees that neither the contractor nor any substantially-owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the U.S. Export Administration Act of 1979 or the regulations of the U.S. Department of Commerce promulgated under that Act.

2. The bidder makes the certification set forth in Section 5 of the Act.

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F. Drug Free Workplace

1. The Illinois “Drug Free Workplace Act” applies to this contract and it is necessary to comply with the provisions of the “Act” if the contractor is a corporation, partnership, or other entity (including a sole proprietorship) which has 25 or more employees.

2. The bidder certifies that if awarded a contract in excess of \$5,000 it will provide a drug free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance, including cannabis, is prohibited in the contractor’s workplace; specifying the actions that will be taken against employees for violations of such prohibition; and notifying the employee that, as a condition of employment on such contract, the employee shall abide by the terms of the statement, and notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

(b) Establishing a drug free awareness program to inform employees about the dangers of drug abuse in the workplace; the contractor’s policy of maintaining a drug free workplace; any available drug counseling, rehabilitation, and employee assistance programs; and the penalties that may be imposed upon employees for drug violations.

(c) Providing a copy of the statement required by subparagraph (1) to each employee engaged in the performance of the contract and to post the statement in a prominent place in the workplace.

(d) Notifying the Department within ten (10) days after receiving notice from an employee or otherwise receiving actual notice of the conviction of an employee for a violation of any criminal drug statute occurring in the workplace.

(e) Imposing or requiring, within 30 days after receiving notice from an employee of a conviction or actual notice of such a conviction, an appropriate personnel action, up to and including termination, or the satisfactory participation in a drug abuse assistance or rehabilitation program approved by a federal, state or local health, law enforcement or other appropriate agency.

(f) Assisting employees in selecting a course of action in the event drug counseling, treatment, and rehabilitation is required and indicating that a trained referral team is in place.

(g) Making a good faith effort to continue to maintain a drug free workplace through implementation of the actions and efforts stated in this certification.

G. Debt Delinquency

1. The Illinois Procurement Code provides:

Section 50-11 and 50-12. Debt Delinquency.

The contractor or bidder certifies that it, or any affiliate, is not barred from being awarded a contract under 30 ILCS 500. Section 50-11 prohibits a person from entering into a contract with a State agency if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The contractor further acknowledges that the contracting State agency may declare the contract void if this certification is false or if the contractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

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H. Sarbanes-Oxley Act of 2002

1. The Illinois Procurement Code provides:

Section 50-60(c).

The contractor certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 for a period of five years prior to the date of the bid or contract. The contractor acknowledges that the contracting agency shall declare the contract void if this certification is false.

I. Section 42 of the Environmental Protection Act

The contractor certifies in accordance with 30 ILCS 500/50-12 that the bidder or contractor is not barred from being awarded a contract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The contractor acknowledges that the contracting agency may declare the contract void if this certification is false.

RETURN WITH BID

IV. DISCLOSURES

A. The disclosures hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous disclosure, and the surety providing the performance bond shall be responsible for completion of the contract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Illinois Procurement Code provides that all bids of more than \$10,000 shall be accompanied by disclosure of the financial interests of the bidder. This disclosed information for the successful bidder, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

In addition, all disclosures shall indicate any other current or pending contracts, proposals, leases, or other ongoing procurement relationships the bidding entity has with any other unit of state government and shall clearly identify the unit and the contract, proposal, lease, or other relationship.

2. Disclosure Forms. Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. Subject individuals should be covered each by one form. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies. **The forms must be included with each bid or incorporated by reference.**

C. Disclosure Form Instructions

Form A: For bidders that have previously submitted the information requested in Form A

The Department has retained the Form A disclosures submitted by all bidders responding to these requirements for the April 24, 1998 or any subsequent letting conducted by the Department. The bidder has the option of submitting the information again or the bidder may sign the following certification statement indicating that the information previously submitted by the bidder is, as of the date of signature, current and accurate. The Certification must be signed and dated by a person who is authorized to execute contracts for the bidding company. Before signing this certification, the bidder should carefully review its prior submissions to ensure the Certification is correct. If the Bidder signs the Certification, the Bidder should proceed to Form B instructions.

CERTIFICATION STATEMENT

I have determined that the Form A disclosure information previously submitted is current and accurate, and all forms are hereby incorporated by reference in this bid. Any necessary additional forms or amendments to previously submitted forms are attached to this bid.

(Bidding Company)

Name of Authorized Representative (type or print)

Title of Authorized Representative (type or print)

Signature of Authorized Representative

Date

Form A: For bidders who have NOT previously submitted the information requested in Form A

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is not subject to Federal 10K reporting, the bidder must determine if any individuals are required by law to complete a financial disclosure form. To do this, the bidder should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on the second page of Form A must be signed and dated by a person that is authorized to execute contracts for the bidding company. Note These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES _____ NO _____
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than \$87,526.20? YES _____ NO _____
3. Does anyone in your organization receive more than \$87,526.20 of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES _____ NO _____
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than \$87,526.20? YES _____ NO _____

(Note: Only one set of forms needs to be completed per person per bid even if a specific individual would require a yes answer to more than one question.)

A "YES" answer to any of these questions requires the completion of Form A. The bidder must determine each individual in the bidding entity or the bidding entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by a person that is authorized to execute contracts for your organization. **Photocopied or stamped signatures are not acceptable.** The person signing can be, but does not have to be, the person for which the form is being completed. The bidder is responsible for the accuracy of any information provided.

If the answer to each of the above questions is "NO", then the NOT APPLICABLE STATEMENT on page 2 of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

Form B: Identifying Other Contracts & Procurement Related Information Disclosure Form B must be completed for each bid submitted by the bidding entity. It must be signed by an individual who is authorized to execute contracts for the bidding entity. *Note: Signing the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, signed and dated or the bidder may be considered nonresponsive and the bid will not be accepted.*

The Bidder shall identify, by checking Yes or No on Form B, whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the bidder only needs to complete the signature box on the bottom of Form B. If "Yes" is checked, the bidder must do one of the following:

Option I: If the bidder did not submit an Affidavit of Availability to obtain authorization to bid, the bidder must list all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Do not include IDOT contracts. Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included. Bidders who submit Affidavits of Availability are suggested to use Option II.

Option II: If the bidder is required and has submitted an Affidavit of Availability in order to obtain authorization to bid, the bidder may write or type "See Affidavit of Availability" which indicates that the Affidavit of Availability is incorporated by reference and includes all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. For any contracts that are not covered by the Affidavit of Availability, the bidder must identify them on Form B or on an attached sheet(s). These might be such things as leases.

D. Bidders Submitting More Than One Bid

Bidders submitting multiple bids may submit one set of forms consisting of all required Form A disclosures and one Form B for use with all bids. Please indicate in the space provided below the bid item that contains the original disclosure forms and the bid items which incorporate the forms by reference.

- The bid submitted for letting item _____ contains the Form A disclosures or Certification Statement and the Form B disclosures. The following letting items incorporate the said forms by reference:

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**Form A
Financial Information &
Potential Conflicts of Interest
Disclosure**

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number		Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Code (30 ILCS 500). Vendors desiring to enter into a contract with the State of Illinois must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for bids in excess of \$10,000, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the BIDDER (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than \$87,526.20 (60% of the Governor’s salary as of 10/1/2000). **(Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)**

FOR INDIVIDUAL (type or print information)	
NAME:	_____
ADDRESS	_____
Type of ownership/distributable income share:	
stock _____	sole proprietorship _____
partnership _____	other: (explain on separate sheet): _____
% or \$ value of ownership/distributable income share: _____	

2. Disclosure of Potential Conflicts of Interest. Check “Yes” or “No” to indicate which, if any, of the following potential conflict of interest relationships apply. If the answer to any question is “Yes”, please attach additional pages and describe.

(a) State employment, currently or in the previous 3 years, including contractual employment of services.
Yes _____ No _____

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment for services in the previous 2 years.
Yes _____ No _____

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years.
Yes _____ No _____

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter
Yes _____ No _____

RETURN WITH BID/OFFER

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United States of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years.

Yes _____ No _____

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter.

Yes _____ No _____

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government.

Yes _____ No _____

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter.

Yes _____ No _____

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections.

Yes _____ No _____

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections.

Yes _____ No _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page.

Completed by:

Name of Authorized Representative (type or print)

Completed by:

Title of Authorized Representative (type or print)

Completed by:

Signature of Individual or Authorized Representative

Date

NOT APPLICABLE STATEMENT

I have determined that no individuals associated with this organization meet the criteria that would require the completion of this Form A.

This Disclosure Form A is submitted on behalf of the CONTRACTOR listed on the previous page.

Name of Authorized Representative (type or print)

Title of Authorized Representative (type or print)

Signature of Authorized Representative

Date

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**Form B
Other Contracts &
Procurement Related Information
Disclosure**

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number		Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for bids in excess of \$10,000, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The BIDDER shall identify whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes _____ No _____

If **“No”** is checked, the bidder only needs to complete the signature box on the bottom of this page.

2. If “Yes” is checked. Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

THE FOLLOWING STATEMENT MUST BE SIGNED

Name of Authorized Representative (type or print)	

Title of Authorized Representative (type or print)	
_____	_____
Signature of Authorized Representative	Date

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

The following requirements of the Illinois Department of Human Rights' Rules and Regulations are applicable to bidders on all construction contracts advertised by the Illinois Department of Transportation:

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

- (a) All bidders on construction contracts shall complete and submit, along with and as part of their bids, a Bidder's Employee Utilization Form (Form BC-1256) setting forth a projection and breakdown of the total workforce intended to be hired and/or allocated to such contract work by the bidder including a projection of minority and female employee utilization in all job classifications on the contract project.
- (b) The Department of Transportation shall review the Employee Utilization Form, and workforce projections contained therein, of the contract awardee to determine if such projections reflect an underutilization of minority persons and/or women in any job classification in accordance with the Equal Employment Opportunity Clause and Section 7.2 of the Illinois Department of Human Rights' Rules and Regulations for Public Contracts adopted as amended on September 17, 1980. If it is determined that the contract awardee's projections reflect an underutilization of minority persons and/or women in any job classification, it shall be advised in writing of the manner in which it is underutilizing and such awardee shall be considered to be in breach of the contract unless, prior to commencement of work on the contract project, it submits revised satisfactory projections or an acceptable written affirmative action plan to correct such underutilization including a specific timetable geared to the completion stages of the contract.
- (c) The Department of Transportation shall provide to the Department of Human Rights a copy of the contract awardee's Employee Utilization Form, a copy of any required written affirmative action plan, and any written correspondence related thereto. The Department of Human Rights may review and revise any action taken by the Department of Transportation with respect to these requirements.



PART I. IDENTIFICATION

Human Rights

Bid Number: _____ Duration of Project: _____

Name of Bidder: _____

PART II. WORKFORCE PROJECTION

A. The undersigned bidder has analyzed minority group and female populations, unemployment rates and availability of workers for the location in which this contract work is to be performed, and for the locations from which the bidder recruits employees, and hereby submits the following workforce projection including a projection for minority and female employee utilization in all job categories in the workforce to be allocated to this contract:

TABLE A

TOTAL Workforce Projection for Contract												
JOB CATEGORIES	TOTAL EMPLOYEES		MINORITY EMPLOYEES						TRAINEES			
	M	F	BLACK		HISPANIC		*OTHER MINOR.		APPRENTICES		ON THE JOB TRAINEES	
	M	F	M	F	M	F	M	F	M	F	M	F
OFFICIALS (MANAGERS)												
SUPERVISORS												
FOREMEN												
CLERICAL												
EQUIPMENT OPERATORS												
MECHANICS												
TRUCK DRIVERS												
IRONWORKERS												
CARPENTERS												
CEMENT MASONS												
ELECTRICIANS												
PIPEFITTERS, PLUMBERS												
PAINTERS												
LABORERS, SEMI-SKILLED												
LABORERS, UNSKILLED												
TOTAL												

TABLE B

CURRENT EMPLOYEES TO BE ASSIGNED TO CONTRACT			
TOTAL EMPLOYEES		MINORITY EMPLOYEES	
M	F	M	F

TABLE C

TOTAL Training Projection for Contract								
EMPLOYEES IN TRAINING	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.	
	M	F	M	F	M	F	M	F
APPRENTICES								
ON THE JOB TRAINEES								

FOR DEPARTMENT USE ONLY

*Other minorities are defined as Asians (A) or Native Americans (N).
Please specify race of each employee shown in Other Minorities column.
Note: See instructions on page 2

RETURN WITH BID

PART II. WORKFORCE PROJECTION - continued

- B. Included in "Total Employees" under Table A is the total number of **new hires** that would be employed in the event the undersigned bidder is awarded this contract.

The undersigned bidder projects that: (number) _____ new hires would be recruited from the area in which the contract project is located; and/or (number) _____ new hires would be recruited from the area in which the bidder's principal office or base of operation is located.

- C. Included in "Total Employees" under Table A is a projection of numbers of persons to be employed directly by the undersigned bidder as well as a projection of numbers of persons to be employed by subcontractors.

The undersigned bidder estimates that (number) _____ persons will be directly employed by the prime contractor and that (number) _____ persons will be employed by subcontractors.

PART III. AFFIRMATIVE ACTION PLAN

- A. The undersigned bidder understands and agrees that in the event the foregoing minority and female employee utilization projection included under **PART II** is determined to be an underutilization of minority persons or women in any job category, and in the event that the undersigned bidder is awarded this contract, he/she will, prior to commencement of work, develop and submit a written Affirmative Action Plan including a specific timetable (geared to the completion stages of the contract) whereby deficiencies in minority and/or female employee utilization are corrected. Such Affirmative Action Plan will be subject to approval by the contracting agency and the **Department of Human Rights**.
- B. The undersigned bidder understands and agrees that the minority and female employee utilization projection submitted herein, and the goals and timetable included under an Affirmative Action Plan if required, are deemed to be part of the contract specifications.

Company _____ Telephone Number _____

 Address _____

NOTICE REGARDING SIGNATURE

<p>The Bidder's signature on the Proposal Signature Sheet will constitute the signing of this form. The following signature block needs to be completed only if revisions are required.</p> <p>Signature: _____ Title: _____ Date: _____</p>
--

Instructions: All tables must include subcontractor personnel in addition to prime contractor personnel.

Table A - Include both the number of employees that would be hired to perform the contract work and the total number currently employed (Table B) that will be allocated to contract work, and include all apprentices and on-the-job trainees. The "Total Employees" column should include all employees including all minorities, apprentices and on-the-job trainees to be employed on the contract work.

Table B - Include all employees currently employed that will be allocated to the contract work including any apprentices and on-the-job trainees currently employed.

Table C - Indicate the racial breakdown of the total apprentices and on-the-job trainees shown in Table A.

RETURN WITH BID

CERTIFICATIONS REQUIRED BY STATE AND/OR FEDERAL LAW. The bidder is required by State and/or Federal law to make the below certifications and assurances as a part of the proposal and contract upon award. It is understood by the bidder that the certifications and assurances made herein are a part of the contract.

By signing the Proposal Signature Sheet, the bidder certifies that he/she has read and completed each of the following certifications and assurances, that required responses are true and correct and that the certified signature of the Proposal Signature Sheet constitutes an endorsement and execution of each certification and assurance as though each was individually signed:

A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.

B. **CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY:**

1. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause.
YES _____ NO _____

2. If answer to #1 is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations? YES _____ NO _____

C. **BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS (JAN 1991)**

(a) The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program. The following terms apply:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1) steel produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States. Components of foreign origin of the same class or kind as the products referred to in subparagraphs (b)(1) or (2) shall be treated as domestic.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of Components. This means the costs for production of the components, exclusive of final assembly labor costs.

(b) The successful bidder will be required to assure that only domestic steel and manufactured products will be used by the Contractor, subcontractors, materialmen, and suppliers in the performance of this contract, except those-

(1) that the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, are not produced in the United States in sufficient and reasonably available quantities of a satisfactory quality;

(2) that the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest; or

(3) that inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent.

(End of Clause)

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D. BUY AMERICAN CERTIFICATE (JAN 1991)

By submitting a bid/proposal under this solicitation, except for those items listed by the offeror below or on a separate and clearly identified attachment to this bid/proposal, the offeror certifies that steel and each manufactured product, is produced in the United States (as defined in the clause Buy American - Steel and Manufactured Products or Buy American - Steel and Manufactured Products For Construction Contracts) and that components of unknown origin are considered to have been produced or manufactured outside the United States.

Offerors may obtain from (IDOT, Division of Aeronautics) lists of articles, materials, and supplies excepted from this provision.

PRODUCT

COUNTRY OF ORIGIN

E. 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 five or more acres total land area.

The undersigned 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).

F. NON-APPROPRIATION CLAUSE

By submitting a bid/proposal under this solicitation the offeror certifies that he/she understands that obligations of the State will cease immediately without penalty or further payment being required in any fiscal year the Illinois General Assembly fails to appropriate or otherwise make available sufficient funds for this contract.

G. Contractor is not delinquent in the payment of any debt to the State (or if delinquent has entered into a deferred payment plan to pay the debt), and Contractor acknowledges the contracting state agency may declare the contract void if this certification is false (30 ILCS 500/50-11, effective July 1, 2002).

RETURN WITH BID

NOTICE TO BIDDERS

- 1. TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway in Springfield, Illinois until 10:00 o'clock a.m., August 4, 2006. All bids will be gathered, sorted, publicly opened and read in the auditorium at the Department of Transportation's Harry R. Hanley Building shortly after the 10:00 a.m. cut off time.
- 2. DESCRIPTION OF WORK.** The proposed improvement, shown in detail on the plans issued by the Department includes, in general, the following described work:

Construct Replacement Airfield Electrical Vault

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and award shall, together with all other documents in accordance with Article 10-15 of the Illinois Standard Specifications for Construction of Airports, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the proposal 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.** There will be a pre-bid conference held at N/A at the Dixon Municipal Airport administration building. For engineering information, contact Ron Hudson of Hanson Professional Services, Inc at (630) 990-3800.
- 6. DISADVANTAGED BUSINESS POLICY.** The DBE goal for this contract is 4.0%.
- 7. SPECIFICATIONS AND DRAWINGS.** The work shall be done in accordance with the Illinois Standard Specifications for Construction of Airports, the Illinois Division of Aeronautics Supplemental Specifications and Recurring Special Provisions, the Special Provisions dated June 23, 2006 and the Construction Plans dated June 23, 2006 as approved by the Department of Transportation, Division of Aeronautics.

RETURN WITH BID

- 8. INSPECTION OF RECORDS.** The Contractor shall maintain an acceptable cost accounting system. The Sponsor, the FAA, and the Comptroller General of the United States shall have access to any books, documents, paper, and records of the Contractor which are directly pertinent to the specific contract for the purposes of making an audit, examination, excerpts, and transcriptions. The Contractor shall maintain all required records for three years after the Sponsor makes final payment and all other pending matters are closed.
- 9. RIGHTS TO INVENTIONS.** All rights to inventions and materials generated under this contract are subject to Illinois law and to regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed. Information regarding these rights is available from the FAA and the Sponsor.
- 10. TERMINATION OF CONTRACT.**
1. The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services shall be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Sponsor.
 2. If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed services.
 3. If the termination is due to failure to fulfill the Contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the Contractor shall be liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.
 4. If, after notice of termination for failure to fulfill contract obligations, it is determined that the Contractor had not so failed, the termination shall be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price shall be made as provided in paragraph 2 of this clause.
 5. The rights and remedies of the sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

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11. 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.

12. 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 107 calendar days and is based on anticipated notice-to-proceed date of May 1, 2007.

13. 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.

14. 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.

RETURN WITH BID

PROPOSAL SIGNATURE SHEET

The undersigned bidder hereby makes and submits this bid on the subject Proposal, thereby assuring the Department that all requirements of the Invitation for Bids and rules of the Department have been met, that there is no misunderstanding of the requirements of paragraph 4 of this Proposal, and that the contract will be executed in accordance with the rules of the Department if an award is made on this bid.

Firm Name _____

(IF AN INDIVIDUAL)

Signature of Owner _____

Business Address _____

Firm Name _____

By _____

(IF A CO-PARTNERSHIP)

Business Address _____

Name and Address of All Members of the Firm:

Corporate Name _____

By _____

Corporate Seal

Attest _____

President

(IF A CORPORATION)

Business Address _____

Corporate Secretary

Name of Corporate Officers:

President Corporate Secretary Treasurer

NOTARY CERTIFICATION

STATE OF ILLINOIS,

ALL SIGNATURES MUST BE NOTARIZED

COUNTY OF _____

I, _____, a Notary Public in and for said county, do hereby certify that _____

_____ AND _____

(Insert names of individual(s) signing on behalf of bidder)

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

Given under my hand and notarial seal this _____ day of _____, A.D. _____

My commission expires _____ (Seal)

Notary Public



Return with Bid

Division of Aeronautics
Proposal Bid Bond
(Effective January 1, 2002)

Item No. 8A
Letting Date: August 4, 2006

Airport: Dixon Municipal Airport
Ill. Proj. No. C73-3548
Fed. Proj. No. 3-17-0036-B8

KNOW ALL MEN BY THESE PRESENTS. that we, _____, as PRINCIPAL, and _____, as SURETY are held and firmly bound unto the, hereinafter called the SPONSOR, in the penal sum of 5 percent of the total bid price or of the amount specified in Section 6, PROPOSAL GUARANTEE of the Proposal Document, whichever is the lesser sum, well and truly to be paid unto the said SPONSOR, for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns.

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

NOW, THEREFORE, if the SPONSOR through its AGENT shall accept the Bid Proposal of the PRINCIPAL; and if PRINCIPAL shall within the time and as specified in the Bidding and Contract Documents, submit the DBE Utilization Plan that is acceptable and approved by the AGENT, and if after the award, the PRINCIPAL shall enter into a contract in accordance with the terms of the Bidding and Contract Documents including evidence of insurance coverage's and providing such bond as specified with good and sufficient surety for the faithful performance of such contract and for prompt payment of labor and material furnished in the prosecution thereof; or if, in the event of the failure of the PRINCIPAL to make the required DBE submission or to enter into such contract and to give the specified bond, the PRINCIPAL pays to the SPONSOR the difference not to exceed the penalty hereof between the amount in the Bid Proposal and such larger amount for which the SPONSOR may contract with another party to perform the work covered by said Proposal Document, then, this obligation to be void; otherwise to remain in full force and effect.

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

IN WITNESS WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by

their respective officers this _____ day of _____ A.D., 20 ____.

PRINCIPAL

SURETY

(Company Name)

(Company Name)

By: _____ (Signature & Title)

By: _____ (Signature of Attorney-in-Fact)

Notary Certification for Principal and Surety

State of Illinois)
) ss:
County of _____)

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

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

Given under my hand and notary seal this _____ day of _____ A.D., 20 ____

My commission expires _____ (Notary Public)

In lieu of completing the above section of the Proposal Bid Form, the PRINCIPAL may file an Electronic Bid Bond. By signing below, the PRINCIPAL is ensuring the identified electronic bid bond has been executed and the PRINCIPAL and SURETY are firmly bound to the SPONSOR through its AGENT under the conditions of the Bid Bond as shown above.

Electronic Bid Bond ID#

Company/Bidder Name

Signature and Title
Form D.E. (Rev. 12-2001)



PROPOSALS

for construction work advertised for bids by the
Illinois Department of Transportation

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

Bidders should affix this form to the front of a 10" x 13" envelope and use that envelope for the submittal of bids. If proposals are mailed, they should be enclosed in a second or outer envelope addressed to:

Engineer of Design and Environment - Room 323
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

None of the following material needs to be returned with the bid package unless the special provisions require documentation and/or other information to be submitted.



Illinois Department of Transportation

CONTRACT REQUIREMENTS

(1) Airport Improvement Program projects. The work in this contract is included in the federal Airport Improvement Program and is being undertaken and accomplished by the Illinois Department of Transportation, Division of Aeronautics and the Municipality, hereinafter called the Co-Sponsors, in accordance with the terms and conditions of a Grant Agreement between the Co-Sponsors and the United States, under the Airport and Airway Improvement Act of 1982 (Public Law 97-248; Title V, Section 501 et seq., September 3, 1982; 96 Stat. 671; codified at 49 U.S.C Section 2201 et seq.) and Part 152 of the Federal Aviation Regulations (14 CFR Part 152), pursuant to which the United States has agreed to pay a certain percentage of the costs of the Project that are determined to be allowable Project costs under the Act. The United States is not a party to this contract and no reference in this contract to FAA or representative thereof, or to any rights granted to the FAA or any representative thereof, or the United States, by the contract, makes the United States a party to this contract.

(2) Consent of Assignment. The Contractor shall obtain the prior written consent of the Co-Sponsors to any proposed assignment of any interest in or part of this contract.

(3) Convict Labor. No convict labor may be employed under this contract.

(4) Veterans Preference. In the employment of labor, except in executive, administrative, and supervisory positions, preference shall be given to veterans of the Vietnam era and disabled veterans as defined in Section 515(c) of the Airport and Airway Improvement Act of 1982. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

(5) Withholding: Sponsor from Contractor. Whether or not payments or advances to the Co-Sponsors are withheld or suspended by the FAA, the Co-Sponsors may withhold or cause to be withheld from the Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the Contractor or any subcontractor on the work the full amount of wages required by this contract.

(6) Nonpayment of Wages. If the Contractor or subcontractor fails to pay any laborer or mechanic employed or working on the site of the work any of the wages required by this contract the Co-Sponsors may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment or advance of funds until the violations cease.

(7) FAA Inspection and Review. The Contractor shall allow any authorized representative of the FAA to inspect and review any work or materials used in the performance of this contract.

(8) Subcontracts. The Contractor shall insert in each of his subcontracts the provisions contained in Paragraphs (1), (3), (4), (5), (6), and (7) above and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

(9) Contract Termination. A breach of Paragraph (6), (7), and (8) above may be grounds for termination of the contract.

PROVISIONS REQUIRED BY THE REGULATIONS OF THE SECRETARY OF LABOR 29 CFR 5.5

(a) Contract Provisions and Related Matters.

(1) Minimum Wages.

Revised 1/92

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provision of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraph 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

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

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

(ii)(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140).

(ii)(C) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140).

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

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

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB control number 1215-0140).

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

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such work, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office Management and Budget under OMB control numbers 1215-0140 and 1215-0017).

(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form desired.

Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB control number 1215-0149).

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

(1) That the payroll for the payroll period contains the information required to be maintained under paragraph 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;

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

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

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

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

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

(4) Apprentices and Trainees

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

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

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

(5) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

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

(7) Contract determination: debarment. A breach of these contract clauses paragraphs (a)(1) through (10) and the 2nd clause (b)(1) through (5) below may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by referenced in this contract.

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

(10) Certification of Eligibility.

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

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

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

(b) Contract Work Hours and Safety Standards Act. The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), (4) and (5) of this section in full in AIP construction contracts in excess of \$2,000. These clauses shall be inserted in addition to the clauses required by paragraph 5.5(a) or paragraph 4.6 of Part 4 of this title. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements: No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen or guards (including apprentices and trainees described in paragraphs 5 and 6 above) shall require or permit any laborer, mechanic, watchman or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman or guard receives compensation at a rate not less than one and one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violations: Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the Contractor and any subcontractor responsible therefore shall be liable to any affected employee for his/her unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman or guard employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10.00 for each calendar day on which such employee was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

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

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

(5) Working Conditions. No Contractor or subcontractor may require any laborer or mechanic employed in the performance of any contract to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards (29 CFR 1926) issued by Department of Labor.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in paragraph 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that the Contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the Contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the Contractor or subcontractor will permit such representatives to interview employees during working hours on the job. (Approved by the Office of Management and Budget under OMB control numbers 1215-0140 and 1215-0017).

FEDERAL REGULATIONS VOL. 40, #74,
WEDNESDAY, APRIL 16, 1975, PAGE 17124,
ADMINISTRATION OF THE CLEAR AIR ACT
& WATER POLLUTION CONTROL ACT
(with respect to Federal Grants)

In connection with the administration of the Clean Air Act and the Water Pollution Control Act with respect to Federal Grants, specific requirements have been imposed of any contract which is not exempt under the provisions of 40 CFR 15.5.

(1) Any facility listed on the EPA List of Violating Facilities pursuant to Paragraph 15.20 of 40 CFR as of the date of the contract award will not be utilized in the performance of any non-exempt contract or subcontract.

(2) The Contractor shall comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 USC 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq. relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in Section 114 and Section 308 of the Air Act and Water Act, respectively, and all regulations and guidelines issued thereunder after the award of the contract.

(3) Prompt notification shall be required prior to contract award to the awarding official by the Contractor who will receive the award of the receipt of any communication from the Director, Office of Federal Activities, U.S. Environmental Protection Agency, indicating that a facility to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

(4) The Contractor shall include or cause to be included the criteria and requirements in paragraphs 1 through 4 in any non-exempt subcontract and will take such action as the Government may direct as a means of enforcing such provisions.

Attachment No. 1

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

- (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on the behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- (3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or worker's representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (6) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of 24 September 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of 24 September 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of 24 September 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

ATTACHMENT NO. 2

EACH PRIME CONTRACTOR SHALL INSERT IN EACH SUBCONTRACT THE CERTIFICATION IN APPENDIX B, AND FURTHER, SHALL REQUIRE ITS INCLUSION IN ANY LOWER TIER SUBCONTRACT, PURCHASE ORDER, OR TRANSACTION THAT MAY IN TURN BE MADE.

- Appendix B of 49 CFR Part 29 -

This certification applies to subcontractors, material suppliers, vendors and other lower tier participants.

Appendix B--Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions

Instructions for Certification

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

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

3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

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

6. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

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

9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

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

STATE REQUIRED CONTRACT PROVISIONS
ALL FEDERAL-AID CONSTRUCTION CONTRACTS

Effective February 1, 1969
Revised January 2, 1973

The following provisions are State of Illinois requirements and are in addition to the Federal requirements.

"EQUAL EMPLOYMENT OPPORTUNITY"

In the event of the Contractor's noncompliance with any provisions of this Equal Employment Opportunity Clause, the Illinois Fair Employment Practices Act or the Fair Employment Practices Commission's Rules and Regulations for Public Contracts, the Contractor may be declared nonresponsible and therefore ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be canceled or avoided 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, national origin or ancestry; 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 Commission's Rules and Regulations for Public Contracts) 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, national origin or ancestry.
- (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 Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts. If any such 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 Fair Employment Practices Commission and the contracting agency 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 Fair Employment Practices Commission's Rules and Regulations for Public Contracts, furnish all relevant information as may from time to time be requested by the Commission or the contracting agency, and in all respects comply with the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts.
- (6) That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Illinois Fair Employment Practices Commission for purposes of investigation to ascertain compliance with the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts.
- (7) That it will include verbatim or by reference the provisions of paragraphs 1 through 7 of this clause in every performance subcontract as defined in Section 2.10(b) of the Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every subcontractor; and that it will also so include the provisions or paragraphs 1, 5, 6 and 7 in every supply subcontract as defined in Section 2.10(a) of the Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every such 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 all its subcontractors; and further it will promptly notify the contracting agency and the Illinois Fair Employment Practices Commission in the event any subcontractor fails or refuses to comply therewith. In addition, no Contractor will utilize any subcontractor declared by the Commission to be nonresponsible and therefore ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

CONSTRUCTION CONTRACT PROCUREMENT POLICIES

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SECTION 1

PROPOSAL REQUIREMENTS AND CONDITIONS

1-01 ADVERTISEMENT (Notice to Bidders). The State of Illinois shall publish the advertisement at such places and at such times as are required by local law or ordinances. The published advertisement shall state the time and place for submitting sealed proposals; a description of the proposed work; instructions to bidders as to obtaining proposal forms, plans, and specifications; proposal guaranty required; and the Owner's right to reject any and all bids.

For Federally assisted contracts the advertisement shall conform to the requirements of local laws and ordinances pertaining to letting of contracts and, in addition, shall conform to the requirements of the appropriate parts of the Federal Aviation Regulations applicable to the particular contract being advertised.

1-02 PREQUALIFICATION OF BIDDERS.

- (a) When the awarding authority is the State of Illinois, each prospective bidder, prior to being considered for issuance of any proposal forms will be required to file, on forms furnished by the Department, an experience questionnaire and a confidential financial statement in accordance with the Department's Instructions for Prequalification of Contractors. The Statement shall include a complete report of the prospective bidder's financial resources and liabilities, equipment, past record and personnel, and must be submitted at least thirty (30) days prior to the scheduled opening of bids in which the Contractor is interested.

After the Department has analyzed the submitted "Contractor's Statement of Experience and Financial Condition" and related information and has determined appropriate ratings, the Department will issue to the Contractor a "Certificate of Eligibility". The Certificate will permit the Contractor to obtain proposal forms and plans for any Department of Transportation letting on work which is within the limits of the Contractor's potential as indicated on his "Certificate of Eligibility", subject to any limitations due to present work under contract or pending award as determined from the Contractor's submitted "Affidavit of Availability". Bidders intending to consistently submit proposals shall submit a "Contractor's Statement of Experience and Financial Condition" at least once a year. However, prequalification may be changed during that period upon the submission of additional favorable reports or upon reports of unsatisfactory performance.

Before a proposal is issued, the prospective bidder will be required to furnish an "Affidavit of Availability" indicating the location and amount of all uncompleted work under contract, or pending award, either as principal or subcontractor, as well as a listing of all subcontractors and value of work sublet to others. The prospective bidder may be requested to file a statement showing the amount and condition of equipment which will be available.

Before an award is made, the bidder may be required to furnish an outline of his plans for conducting the work.

- (b) When the awarding authority for contract construction work is the County Board of a county; the Council, the City Council, or the President and Board of Trustees of a city, village or town, each prospective bidder, in evidence of his competence, shall furnish the awarding authority as a prerequisite to the release of proposal forms by the awarding authority, a certified or photostatic copy of a "Certificate of Eligibility" issued by the Department of Transportation, in accordance with Section 1-02(a).

The two low bidders must file within 24 hours after the letting a sworn affidavit, in triplicate, showing all uncompleted contracts awarded to them and all low bids pending award for Federal, State, County, Municipal and private work, using the blank form made available for this affidavit. One copy shall be filed with the awarding authority and two copies with the District Highway Office.

1-03 CONTENTS OF PROPOSAL FORMS. Upon request, the Department will furnish the prequalified bidders a proposal form. This form will state the location and description of the contemplated construction and will show the estimate of the various quantities and kinds of work to be performed or materials to be furnished, and will have a schedule of items for which unit bid prices are invited. The proposal form will state the time in which work must be completed, the amount of the proposal guaranty, labor requirements, and date, time and place of the opening of proposals. The form will also include any special provisions or requirements which vary from or are not contained in these specifications.

All papers bound with or attached to the proposal form are considered a part thereof and must not be detached or altered when the proposal is submitted. Any addenda officially issued by the Department, will be considered a part of the proposal whether attached or not.

For Federally assisted contracts, the proposal shall conform to the requirements of local laws and ordinances pertaining to letting of contracts and, in addition, shall conform to the requirements of the appropriate parts of the Federal Aviation Regulations pertaining to the particular contract being let.

1-04 ISSUANCE OF PROPOSAL FORMS. The Department shall refuse to issue a proposal form for any of the following reasons:

- (a) Lack of competency and adequate machinery, plant and other equipment, as revealed by the financial statement and experience questionnaires required under Section 1-02(a).
- (b) Uncompleted work which, in the judgment of the Department, might hinder or prevent the prompt completion of additional work if awarded.
- (c) False information provided on a bidder's "Affidavit of Availability".
- (d) Failure to pay, or satisfactorily settle, all bills due for labor and material on former contracts in force at the time of issuance of proposal forms.
- (e) Failure to comply with any prequalification regulations of the Department.
- (f) Default under previous contracts.
- (g) Unsatisfactory performance record as shown by past work for the Department, judged from the standpoint of workmanship and progress.
- (h) When the Contractor is suspended from eligibility to bid at a public letting where the contract is awarded by, or require approval of, the Department.
- (i) When any agent, servant, or employee of the prospective bidder currently serves as a member, employee, or agent of a governmental body that is financially involved in the proposed work.
- (j) When any agent, servant, or employee of the prospective bidder has participated in the preparation of plans or specifications for the proposed work.

1-05 INTERPRETATION OF QUANTITIES IN BID SCHEDULE. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly or by implication agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 20 of the Illinois Standard Specifications for Construction of Airports without in any way invalidating the unit bid prices.

1-06 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. He shall satisfy himself as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans, and specifications.

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

1-07 PREPARATION OF THE PROPOSAL. The bidder shall submit his proposal on the form furnished by the Department. The proposal shall be executed property, and bids shall be made for all items indicated in the proposal form, except that when alternate bids are asked, a bid on more than one alternate for each item is not required, unless otherwise provided. The bidder shall indicate, in figures, a unit price for each of the separate items called for in the proposal; he shall show the products of the respective quantities and unit prices in the column provided for that purpose, and the gross sum shown in the place indicated in the proposal shall be the summation of said products. All writing shall be with ink or typewriter, except the signature of the bidder which shall be written with ink.

If the proposal is made by an individual, his name and business address shall be shown. If made by a firm or partnership, the name and business address of each member of the firm or partnership shall be shown. If made by a corporation, the proposal shall show the names, titles, and business address of the president, secretary, and treasurer, and the seal of the corporation shall be affixed and attested by the secretary.

The proposal shall be issued to a prequalified bidder in the same name and style as the financial statement used for prequalification and shall be submitted in like manner.

1-08 REJECTION OF PROPOSALS. The Department reserves the right to reject proposals for any of the conditions in Article 1-04 or for any of the following reasons:

- (a) More than one proposal for the same work from an individual, firm, partnership, or corporation under the same or different names.
- (b) Evidence of collusion among bidders.
- (c) Unbalanced proposals in which the prices for some items are obviously out of proportion to the prices for other items.
- (d) If the proposal does not contain a unit price for each pay item listed except in the case of authorized alternate pay items or lump sum pay items.
- (e) If the proposal is other than that furnished by the Department; or if the form is altered or any part thereof is detached.
- (f) If there are omissions, erasures, alterations, unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
- (g) If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
- (h) If the proposal is not accompanied by the proper proposal guaranty.
- (i) If the proposal is prepared with other than ink or typewriter.
- (j) If the proposal is submitted in any other name other than that to whom it was issued by the Department.

1-09 PROPOSAL GUARANTY. Each Proposal shall be accompanied by either a bid bond on the Department of Transportation, Division of Aeronautics form contained in the proposal, executed by a corporate surety company satisfactory to the Department or by a bank cashier's check or a properly certified check for not less than 5 percent of the amount bid.

Bank cashier's checks, or properly certified checks accompanying proposals shall be made payable to the Treasurer, State of Illinois.

1-10 DELIVERY OF PROPOSALS. Each proposal should be submitted in a special envelope furnished by the Department. The blank spaces on the envelope shall be filled in correctly to clearly indicate its contents. When an envelope other than the special one furnished by the Department is used, it shall be of the same general size and shape and be similarly marked to clearly indicate its contents. When sent by mail, the sealed proposal shall be addressed to the Department at the address and in care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and place specified in the Notice to Bidders. Proposals received after the time for opening of bids will be returned to the bidder unopened.

1-11 WITHDRAWAL OF PROPOSALS. Permission will be given a bidder to withdraw a proposal if he makes his request in writing or by telegram before the time for opening proposals. If a proposal is withdrawn, the bidder will not be permitted to resubmit this proposal at the same letting. With the approval of the Engineer, a bidder may withdraw a proposal and substitute a new proposal prior to the time of opening bids.

1-12 PUBLIC OPENING OF PROPOSALS. Proposals will be opened and read publicly at the time and place specified in the Notice to Bidders. Bidders, their authorized agents, and other interested parties are invited to be present.

1-13 DISQUALIFICATION OF BIDDERS. A bidder shall be considered disqualified for any of the following reasons:

- (a) Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.
- (b) Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner.
- (c) If the bidder is considered to be in "default" for any reason specified in the Subsection 1-04 titled ISSUANCE OF PROPOSAL FORMS of this section.

1-14 WORKER'S COMPENSATION INSURANCE. Prior to the approval of his contract by the Division, the Contractor shall furnish to the Division certificates of insurance covering Worker's Compensation, or satisfactory evidence that this liability is otherwise taken care of in accordance with Section 4.(a) of the "Worker's Compensation Act of the State of Illinois" as amended.

SECTION 2

AWARD AND EXECUTION OF CONTRACT

2-01 CONSIDERATION OF PROPOSALS. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. In the event of a discrepancy between unit bid prices and extensions, the unit bid price shall govern.

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

- (a) If the proposal is irregular as specified in the subsection titled REJECTION OF PROPOSALS of Section 1.
- (b) If the bidder is disqualified for any of the reasons specified in the subsection titled DISQUALIFICATION OF BIDDERS of Section 1.

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

2-02 AWARD OF CONTRACT. The award of contract will be made within 75 calendar days after the opening of proposals to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified by letter, that his bid has been accepted, and that he has been awarded the contract.

If a contract is not awarded within 75 days after the opening of proposals, a bidder may file a written request with the Division for the withdrawal of his bid and the Division will permit such withdrawal.

The award period for this project is 75 days and expires on October 18, 2006. At that point, the contractor may request, in writing, an award extension of 86 days, which will expire on January 12, 2007. At this point, the contractor may request a second and final award extension, in writing, of 131 days which will expire on May 23, 2007. There is no guarantee that this project will be awarded.

For Federally assisted contracts, unless otherwise specified in this subsection, no award shall be made until the FAA has concurred in the Owner's recommendation to make such award and has approved the Owner's proposal contract to the extent that such concurrence and approval are required by Federal Regulations.

2-03 CANCELLATION OF AWARD. The Division reserves the right to cancel the award without liability to the bidder at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the subsection titled APPROVAL OF CONTRACT of this section. The Division at the time of cancellation will return the proposal guaranty.

2-04 RETURN OF PROPOSAL GUARANTY. The proposal guaranties of all except the two lowest bidders will be returned promptly after the proposals have been checked, tabulated, and the relation of the proposals established. Proposal guaranties of the two lowest bidders will be returned as soon as the Construction Contract, Performance Bonds, and Payment Bonds of the successful bidder have been properly executed and approved.

If any other form of proposal guaranty is used, other than a bid bond, a bid bond may be substituted at the Contractor's option.

2-05 REQUIREMENT OF PERFORMANCE AND PAYMENT BONDS. The successful bidder for a contract, at the time of the execution of the contract, shall deposit with the Division separate performance and payment bonds each for the full amount of the contract. The form of the bonds shall be that furnished by the Division, and the sureties shall be acceptable to the Division.

2-06 EXECUTION OF CONTRACT. The successful bidder shall sign (execute) the Contract and shall return the signed Contract to the Owner (Sponsor) for signature (execution) and subsequently return all copies to the Division. The fully executed surety bonds specified in the subsection title REQUIREMENTS OF PERFORMANCE AND PAYMENT BONDS of this section will be forwarded to the Division within 15 days of the date mailed or otherwise delivered to the successful bidder. If the Contract and Bonds are mailed, special handling is recommended.

If the bidder to whom award is to be made is a corporation organized under the laws of a State other than Illinois, the bidder shall furnish the Division a copy of the corporation's certificate of authority to do business in the State of Illinois with the return of the executed contract and bond. Failure to furnish such evidence of a certificate of authority within the time required will be considered as just cause for the annulment of the award and the forfeiture of the proposal guaranty to the State, not as a penalty, but in payment of liquidated damages sustained as a result of such failure.

2-07 APPROVAL OF CONTRACT. Upon receipt of the contract and bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the contract to the Division for approval and execution by the Division. Delivery of the fully executed contract to the Contractor shall constitute the Department's approval to be bound by the successful bidder's proposal and the terms of the contract.

2-08 FAILURE TO EXECUTE CONTRACT. If the contract is not executed by the Division within 15 days following receipt from the bidder of the properly executed contracts and bonds, the bidder shall have the right to withdraw his bid without penalty.

Failure of the successful bidder to execute the contract and file acceptable bonds within 15 days after the contract has been mailed to him shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty which shall become the property of the State, not as a penalty, but as liquidation of damages sustained.

ILLINOIS DEPARTMENT OF TRANSPORTATION

DIVISION OF AERONAUTICS

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 contract 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.

<u>Economic Area</u>	<u>Goal (percent)</u>
056 Paducah, KY:	
Non-SMSA Counties -	5.2
IL - Hardin, Massac, Pope	
KY - Ballard, Caldwell, Calloway, Carlisle, Crittenden,	
Fulton, Graves, Hickman, Livingston, Lyon, McCracken, Marshall	

Revised 08-31-83

<u>Economic Area</u>	<u>Goal (percent)</u>
080 Evansville, IN:	
Non-SMSA Counties -	3.5
IL - Edwards, Gallatin, Hamilton, Lawrence, Saline, Wabash, White	
IN - Dubois, Knox, Perry, Pike, Spencer	
KY - Hancock, Hopkins, McLean, Mublenberg, Ohio, Union, Webster	
081 Terre Haute, IN:	
Non-SMSA Counties -	2.5
IL - Clark, Crawford	
IN - Parke	
083 Chicago, IL:	
SMSA Counties:	19.6
1600 Chicago, IL -	
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 - Mendard, 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	

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APPENDIX B (CONTINUED)

<u>Economic Area</u>	<u>Goal (percent)</u>
6120 Peoria, IL - IL - Peoria, Tazewell, Woodford	4.4
Non-SMSA Counties - IL - Fulton, Knox, McDonough, Marshall, Mason, Schuyler, Stark, Warren	3.3
088 Rockford, IL: SMSA Counties: 6880 Rockford, IL - IL - Boone, Winnebago	6.3
Non-SMSA Counties - IL - Lee, Ogle, Stephenson	4.6
098 Dubuque, IA: Non-SMSA Counties - IL - JoDaviess IA - Atlamakee, Clayton, Delaware, Jackson, Winnesheik WI - Crawford, Grant, Lafayette	0.5
099 Davenport, Rock Island, Moline, IA - IL: SMSA Counties: 1960 Davenport, Rock Island, Moline, IA - IL - IL - Henry, Rock Island IA - Scott	4.6
Non-SMSA Counties - IL - Carroll, Hancock, Henderson, Mercer, Whiteside IA - Clinton, DesMoines, Henry, Lee, Louisa, Muscatine MO - Clark	3.4
107 St. Louis, MO: SMSA Counties: 7040 St. Louis, MO - IL - IL - Clinton, Madison, Monroe, St. Clair MO - Franklin, Jefferson, St. Charles, St. Louis, St. Louis City	14.7
Non-SMSA Counties - IL - Alexander, Bond, Calhoun, Clay, Effingham, Fayette, Franklin, Greene, 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	11.4

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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 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 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 Division of Aeronautics will provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 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.

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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.

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- 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 or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
- k) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n) Ensure that all facilities and company activities are 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.

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- 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).

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ANNUAL EEO-1 REPORT TO JOINT REPORTING COMMITTEE AS REQUIRED AT

41 CFR 60-1.7(a)

Any Contractor having a Federal contract of \$50,000 or more and 50 or more employees is required to file annual compliance reports on Standard Form 100 (EEO-1) with the Joint Reporting Committee in accordance with the instructions provided with the form. The Contractor will provide a copy of such a report to the contracting agency within 30 days after the award of a contract.

The Contractor shall require its subcontractors to file an SF 100 within 30 days after award of the subcontract if (1) it is not exempt from the provisions of these regulations in accordance with 60-1.5, (2) has 50 or more employees, (3) first tier subcontractor, and (4) has a subcontract amounting to \$50,000 or more.

Subcontractors below the first tier which perform construction work at the site of construction shall be required to file such a report if (1) it is not exempt from the provisions of these regulations in accordance with 60-1.5, (2) has 50 or more employees and has a subcontract amounting to \$50,000 or more.

The SF 100 is available at the following address:

Joint Reports Committee
EEOC - Survey Division
1801 "L" Street N.W.
Washington, D.C. 20750

Phone (202) 663-4968

DISADVANTAGED BUSINESS POLICY

I. NOTICE

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

II. POLICY

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

III. OBLIGATION

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

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

IV. DBE/WBE CONTRACTOR FINANCE PROGRAM

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

V. BREACH OF CONTRACT

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

(Rev. 9/21/92)

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

- I. 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. 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. 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 DBE Directory or most recent addendum.
- II. CONTRACTOR ASSURANCE: The Contractor makes the following assurance and agrees to include the assurance in each subcontract that 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 federally-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.
- III. 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 is 22.77% of 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 this goal. The dollar amount paid to all approved DBE firms performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.
- IV. 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 that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This 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 that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 4.0% 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 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 forth in this Special Provision:
- A. The bidder documents that firmly committed DBE participation has been obtained to meet the goal; or
- B. The bidder documents that 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.

- V. DBE LOCATOR REFERENCES: Bidders may consult the DBE Directory as a reference source for DBE companies certified by the Department. 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 web site at www.dot.state.il.us.
- VI. BIDDING PROCEDURES: Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid nonresponsive.
- A. In order to assure the timely award of the contract, the as-read low bidder must submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement, the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the as-read low bidder to ensure that the postmark or receipt date is affixed within the seven (7) working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217) 785-1524). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven (7) day submittal requirement, and the bid will be declared nonresponsive. In the event the bid is declared nonresponsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, 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. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.
- B. The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.
- C. The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. The signatures on these forms must be original signatures. All elements of information indicated on the said form shall be provided, including but not limited to the following:
1. The name and address of each DBE to be used;
 2. A description, including pay item numbers, of the commercially useful work to be done by each DBE;
 3. The price to be paid to each DBE for the identified work specifically stating the quantity, unit price and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
 4. A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and
 5. If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).

D. The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five (5) working day period in order to cure the deficiency.

VII. 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% 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 firm does not count toward the DBE goals.

B. DBE as a joint venture Contractor: 100% 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% goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontractor in turn subcontracts to a non-DBE firm does not count toward the DBE goal.

D. DBE as a trucker: 100% 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 full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.

E. DBE as a material supplier:

1. 60% goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
2. 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
3. 100% credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

VIII. GOOD FAITH EFFORT PROCEDURES: If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those 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 prime 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 prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.
 5. Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor'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 contractor'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 that the Contractor 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 that it is otherwise eligible for award. If the Department determines that a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will

designate a five (5) working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.

- C. The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five (5) working days after the notification date of the determination by delivering the request to the Department of Transportation, Division of Aeronautics, 1 Langhorne Bond Drive, Capital Airport, Springfield, IL 62707-8415 (Telefax: 217-785-4533). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of 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 (10) 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 nonresponsive.

IX. 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 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.

- A. No amendment to the Utilization Plan may be made without prior written approval from the Division of Aeronautics. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Division of Aeronautics, 1 Langhorne Bond Drive, Capital Airport, Springfield, IL 62707-8415. Telephone number (217) 785-8514. Telefax number (217) 785-4533.
- B. All work indicated for performance by an approved DBE shall be performed, managed and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete its work on the contract for any reason, the Contractor shall make good faith efforts to find another DBE to substitute for the terminated DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Division of Aeronautics of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Division and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Division will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.

- C. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefor to the DBE by the Contractor, but not later than thirty (30) calendar days after payment has been made by the Department to the Contractor for such work or material without regard to any retainage withheld by the Department, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the Division's Chief Engineer. If full and final payment has not been made to the DBE, the Report shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that 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 Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.

- D. 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.

Certification of Nonsegregated Facilities - as Required by 41 CFR 60-1.8

(Applicable to (1) contracts, (2) subcontracts, and (3) agreements with applicants who are themselves performing federally assisted construction contracts, exceeding \$10,000.00 which are not exempt from the provisions of the Equal Opportunity clause).

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments and that that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of his 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, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000.00 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

**NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR
CERTIFICATIONS OF NONSEGREGATED FACILITIES**

A certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding \$10,000.00 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C 1001.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS
Instructions for Certification

1. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.
3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.
4. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. The terms "covered transaction" "debarred" "suspended" "ineligible" "lower tier covered transaction" "participant" "person" "primary covered transaction" "principal" "proposal" and "voluntarily excluded" as used in this clause have the meaning set out in the Definitions and Coverage sections of the rules implementing Executive Order 12540. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.
6. The prospective primary participant agrees by submitting this proposal that should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the department or agency entering into this transaction.
7. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Transaction", provided by the department or agency entering into this covered transaction without modification in all lower covered transactions and in all solicitations for lower covered transactions.
8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to check the Nonprocurement List (Tel. #).
9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
10. Except for transactions authorized under paragraph 8 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

Certification Regarding Debarment, Suspension, and
Other Responsibility Matters - Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief that it and its principals:
 - a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by an Federal department or agency;
 - b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, State or Local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction or destruction of records, making false statements, or receiving stolen property;
 - c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - d. Have not within a three-period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

CERTIFICATION REGARDING LOBBYING (Applicable to contracts in excess of \$100,000):

Certification for Contracts, Grants, Loans and Cooperative Agreements.

The undersigned bidder certifies, to the best of his or her knowledge and belief, that:

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

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

WORKERS' COMPENSATION INSURANCE

Prior to the execution of his construction contract by the Illinois Department of Transportation, Division of Aeronautics, hereinafter referred to as "Division", the Contractor shall furnish to the Division certificates of insurance covering Workers' Compensation, or satisfactory evidence that this liability is otherwise taken care of in accordance with Section 4.(a) of the "Workers' Compensation Act of the State of Illinois" as amended.

Such insurance, or other means of protection as herein provided, shall be kept in force until all work to be performed under the terms of the contract has been completed and accepted in accordance with the specifications, and it is hereby understood and agreed that the maintenance of such insurance or other protection, until acceptance of the work by the Division is a part of the contract. Failure to maintain such insurance, cancellation by the Industrial Commission of its approval of such other means of protection as might have been elected, or any other act which results in lack of protection under the said "Workers' Compensation Act" may be considered as a breach of the contract.

SPECIAL PROVISION FOR DOMESTIC SOURCE FOR STEEL

Control of Materials: All steel products, as defined by the Illinois Steel Products Procurement Act, incorporated into this project shall be manufactured or produced in the United States and, in addition, shall be domestically fabricated. The Contractor shall obtain from the steel producer and/or fabricator, in addition to the mill analysis, a certification that all steel products meet these domestic source requirements.

CLAUSE TO BE INCLUDED IN ALL SOLICITATIONS,
CONTRACTS, AND SUBCONTRACTS RESULTING FROM PROJECTS FUNDED UNDER THE AIP

The Contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

- a. is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);
- b. has not knowingly entered into any contract or subcontract for this project with a Contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list.
- c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a Contractor or subcontractor who is unable to certify to the above. If the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract at no cost to the Government.

Further, the Contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The Contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The Contractor shall provide immediate written notice to the sponsor if the Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide immediate written notice to the Contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

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

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

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

**MINIMUM WAGES FOR FEDERAL AND FEDERALLY
ASSISTED CONSTRUCTION CONTRACTS**

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision shall be the minimum paid by contractors and subcontractors to laborers and mechanics.

NOTICE

The most current **General Wage Determination Decisions** (wage rates) are available on the IDOT web site. They are located on the Letting and Bidding page at <http://www.dot.state.il.us/desenv/delett.html>.

In addition, ten (10) days prior to the letting, the applicable Federal wage rates will be e-mailed to subscribers. It is recommended that all contractors subscribe to the Federal Wage Rates List or the Contractor's Packet through IDOT's subscription service.

PLEASE NOTE: if you have already subscribed to the Contractor's Packet you will automatically receive the Federal Wage Rates.

The instructions for subscribing are at <http://www.dot.state.il.us/desenv/subsc.html>.

If you have any questions concerning the wage rates, please contact IDOT's Chief Contract Official at 217-782-7806.

SECTION III

SPECIAL PROVISIONS

**DIXON MUNICIPAL AIRPORT - CHARLES R. WALGREEN FIELD
DIXON, LEE COUNTY, ILLINOIS**

CONSTRUCT REPLACEMENT AIRFIELD ELECTRICAL VAULT

AIP PROJECT NO. 3-17-0036-B8
ILLINOIS PROJECT NO. C73-3548

JUNE 23, 2006



Hanson Professional Services Inc.
815 Commerce Drive, Suite 200
Oak Brook, Illinois 60538
630.990.3800

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7	Section 30 Control of Work
8	Section 40 Control of Materials
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GENERAL

These Special Provisions, together with applicable Standard Specifications, Supplemental Specifications, Recurring Special Provisions, Policy Memorandums, 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 Dixon Municipal Airport - Charles R. Walgreen Field, Dixon, Lee County, Illinois:

☐ **Construct Replacement Airfield Electrical Vault**

including, among other incidental work, the following items:

- ❖ Topsoil removal (unclassified excavation) for sidewalk and building construction.
- ❖ Construct new electrical vault building.
- ❖ Install new electrical equipment in new building.
- ❖ Replace existing electric services to existing vault and aircraft maintenance building.
- ❖ Upgrade electrical equipment at existing rotating beacon.
- ❖ Remove existing electrical vault structure.
- ❖ Construct new concrete encased duct and place directional bore duct.
- ❖ Construct new electrical handholes and concrete utility pad.
- ❖ Install new cable in unit duct and directional bore duct.
- ❖ Construct new and remove and replace existing PCC sidewalk.
- ❖ Place topsoil and sod.

The new vault building and equipment shall be operational before the existing airfield lighting circuits and vault/equipment are interrupted/removed.

GOVERNING SPECIFICATIONS AND RULES AND REGULATIONS

The Standard Specifications for Construction of Airports, Illinois Department of Transportation, Division of Aeronautics, adopted January, 1985, as revised, (Standard Specifications) shall govern the Project except as otherwise revised or noted (1) in the Supplemental Specifications and Recurring Special Provisions, Illinois Department of Transportation, Division of Aeronautics, adopted July 1, 2004 (Supplemental Specifications and Recurring Special Provisions), and (2) in these Special Provisions dated June 23, 2006. All references to IDOT Specifications refer to Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, adopted January 1, 2002, as revised. Resolution of conflicts with any part or parts of said Specifications shall be in accordance with these Special Provisions, Section 30-03.

ILLINOIS DEPARTMENT OF TRANSPORTATION, DIVISION OF AERONAUTICS
SUPPLEMENTAL SPECIFICATIONS, RECURRING SPECIAL PROVISIONS & POLICY MEMORANDUMS

The Illinois Department of Transportation, Division of Aeronautics has implemented Supplemental Specifications and Recurring Special Provisions, adopted July 1, 2004, and Policy Memorandums that govern all or a part of this Project. The Supplemental Specifications, Recurring Special Provisions and Policy Memorandums 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 Supplemental Specification, Recurring Special Provision or Policy Memorandum has been modified by these Special Provisions, dated June 23, 2006.

Supplemental Specifications

<u>Section/Item</u>	<u>Title</u>	<u>Modified by Special Provisions</u>
10	Definition of Terms	No
20	Scope of Work	Yes
30	Control of Work	Yes
40	Control of Materials	Yes
50	Legal Relations and Responsibility to Public	No
60	Prosecution and Progress	No
70	Measurement and Payment	No
108	Installation of Underground Cable for Airports	Yes
109	Installation of Airport Transformer Vault and Vault Equipment	Yes
110	Installation of Airport Underground Electrical Duct	Yes
152	Excavation and Embankment	Yes
208	Aggregate Base Course	Yes
610	Structural Portland Cement Concrete	No
904	Sodding	Yes

Recurring Special Provisions

<u>Section/Item</u>	<u>Title</u>	<u>Modified by Special Provisions</u>
None	None	None

Policy Memorandums

<u>No.</u>	<u>Title</u>	<u>Modified by Special Provisions</u>
04-3	Acceptance Procedure for Finely Divided Minerals Used in Portland Cement Concrete and Other Applications	No
96-1	Item 610, Structural Portland Cement Concrete: Job Mix Formula Approval and Production Testing	No
2001-1	Requirements for Cold Weather Concreting	No

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DIVISION I - GENERAL PROVISIONS

SECTION 10

DEFINITION OF TERMS

The work shall be provided in accordance with Section 10 of the Standard Specifications and Supplemental Specifications.

SECTION 20

SCOPE OF WORK

Revise Section 20 of the Standard Specifications and Supplemental Specifications as follows:

20-05 MAINTENANCE OF TRAFFIC. Add the following paragraphs:

“A Construction Staging Plan detailing the sequencing of the Contractor’s Work throughout the Project is included in the Plans. The Contractor shall provide his written acceptance of the Project Construction Staging Plan at the Pre-construction Conference. Any and all changes to the Construction Staging Plan that may be requested by the Contractor must be approved by the Project Engineer and the Airport Owner. It shall be the Contractor’s responsibility to provide sufficient advance notice of any proposed staging change to permit consideration and approval by the Project Engineer and the Airport Owner. The Contractor shall not be entitled to any extra compensation nor extension to the Contract time because of a staging change request nor for any time necessary in receiving the required approvals.

“At the Pre-construction Conference, the Contractor shall provide a Construction Coordination Plan that coordinates his Work in each sequence with the work of his Subcontractors and the work of other contractors of other Airport projects.

“The Contractor shall not have access to any part of the active airfield (runways, taxiways or aprons) for any equipment or personnel without the approval of the Resident Engineer and the Airport Owner. All Contractor activities shall remain more than 125 feet from runway centerlines and 700 feet from runway ends (500 feet if staged construction displacement is implemented). Contractor’s personnel and equipment must remain at least 50 feet from the centerline of active taxiways and 10 feet from the edge of active aprons. When construction operations must be conducted within these limits, the pavement must be closed to aircraft activity by the Contractor by providing temporary barricades as shown in the Plans, and in the case of runway pavements, closed runway markers as shown in the Plans.

“Contractor’s equipment shall extend no higher than 25 feet.

“The Contractor shall keep all of his equipment and personnel at least 15 feet from the edge of any active roadway or auto parking pavement. When his activities require working within 15 feet of the road/pavement edge, the Contractor shall close the roadway or auto parking area to traffic by providing temporary barricades and cones and traffic control signs as directed by the Resident Engineer.

“The Contractor must notify the Resident Engineer and the Airport Owner 72 hours in advance of any required partial or complete closing of any public road, Airport road, runway, taxiway or apron, or lighting circuit, utility, or other Airport operational facility.”

SECTION 30

CONTROL OF WORK

Revise Section 30 of the Standard Specifications and Supplemental Specifications as follows:

30-12 LOAD RESTRICTIONS. Add the following:

“Contractor’s use of the existing airfield and roadway pavements by equipment and loaded trucks shall be minimized. The Contractor shall utilize the access ways shown on the Plans or as approved by the Airport Owner and the Resident Engineer. The Contractor shall erect and maintain, at no cost to the Contract, directional and informational signs at the Contractor’s access routes as noted on the Plans. 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.”

SECTION 40

CONTROL OF MATERIALS

Revise Section 40 of the Standard Specifications and Supplemental Specifications as follows:

40-05 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 150 AR150510 ENGINEER’S FIELD OFFICE.”

SECTION 50

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

The work shall be provided in accordance with Section 50 of the Standard Specifications and Supplemental Specifications.

SECTION 60

PROSECUTION AND PROGRESS

The work shall be provided in accordance with Section 60 of the Standard Specifications and Supplemental Specifications.

SECTION 70

MEASUREMENT AND PAYMENT

The work shall be provided in accordance with Section 70 of the Standard Specifications and Supplemental Specifications.

ITEM 108

INSTALLATION OF UNDERGROUND CABLE FOR AIRPORTS

Revise Item 108 of the Standard Specifications and Supplemental Specifications as follows:

108-1.1 DESCRIPTION. Delete the last sentence of the Standard Specifications and insert the following:

"This item of work shall consist of the installation (plowing, trenching, directional boring, or pulling through ducts, manholes, handholes, or other raceways) of cable for homerun lighting circuits on Runway 8-26 and Runway 12-30 and for the homerun feeder and/or branch circuits to the airport entrance sign, airport rotating beacon, and wind-tee to the vault at the locations shown on the Plans and in accordance with these Specifications. This item shall also include Power Cables in Duct from the existing utility transformer located at the Administration Building to the new service meter for the Shop Hangar. This item shall include "cable in unit duct" where noted on the Plans and specified herein."

MATERIALS

108-2.1 GENERAL. Add the following.

"All cable shall be FAA approved and/or UL-listed as suitable for installed application."

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 150/5345-7E, (or latest edition) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS". Only L-824 cable that is listed in Addendum to Appendix 3, of AC150/5345-53C Airport Lighting Equipment Certification Program shall be approved. Circuits for use with constant current regulator outputs shall use 5000-Volt rated cable.

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

XHHW Wire – Cable shall comply with UL Standard 44, 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-Volts. Insulation shall be cross-linked polyethylene complying with the physical and electrical requirements of UL Standard 44 for Type XHHW-2. Cable shall be UL-listed and marked XHHW-2. Service conductors shall be Service Wire Company or Southwire Company, Type XHHW-2, or approved equal.

“Item AR108258, 2/C #8 5KV UG Cable in UD shall consist of 2-1/C No. 8, 5000-Volt, FAA L-824, Type C, stranded, in unit duct (1 inch).”

“Item AR108656, 3/C #6 600-Volt UG Cable in UD shall consist of 3-1/C #6 AWG, XLP-USE, 600-Volt cable in unit duct (1 inch or sized larger, as required per NEC). Conductor insulation shall be color coded black (Phase A) or red (Phase B), white (Neutral), and green (Ground) for 120 VAC, 2-wire with ground circuits.

“Item AR800990, Power Cables in Duct shall consist of 3-1/C #4/0 AWG, XHHW, 600-Volt cable in 3” Schedule 40 PVC Conduit or 3” Schedule 40 HDPE Conduit. This item shall be used for the replacement electrical service to the Shop Hangar. Elbows shall be long radius galvanized rigid steel conduit. Duct shall be installed by directional boring method and/or trench and backfill. The cost for the directional bore and/or trench and backfill of Item AR800990, Power Cables in Duct, shall not be paid separately but shall be included in the Contract unit price for Item AR800990, Power Cables in Duct.

“The wiring associated with the new electric service for the vault shall be paid for under Item AR109200 Install Electrical Equipment - per lump sum.”

108-2.3 BARE COPPER WIRE (Counterpoise). Revise this section to read:

“Bare copper counterpoise wire will not be required on this Project under Item 108.”

108-2.4 CABLE CONNECTIONS. Delete paragraphs (b) and (e). Add the following to this section after the first paragraph:

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

“All below grade splices shall be installed in splice cans or handholes. Splice cans shall be L-867, Class IA, Size B (12 inch diameter), 24 inch deep with ½ inch thick steel cover and stainless steel bolts. Larger size splice cans shall be provided, as applicable, for specific equipment applications or manufacturer’s recommendations, and/or where detailed on the Plans. Splice cans located in areas subject to heavy aircraft or vehicle loading shall be L-868 type. The Resident Engineer 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.”

108-2.6 UNIT DUCT. Add the following:

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

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

* Dimensions include allowance for duct eccentricity.

CONSTRUCTION REQUIREMENTS

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

“At base-mounted lights or splice cans, the unit duct will be inserted at least 3 inch inside each of the respective base/splice can conduit extensions, and then the end of the conduit will be sealed using a heat shrink connection.

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

“The Contractor will core holes into the respective existing electrical manhole or handhole to provide cable entry and access to the existing duct bank and raceway system to the vault. Once inside the electrical manhole or handhole the Contractor will use the existing electrical ducts to access the existing electrical vault. The cored holes will be filled with a mortar mix after the proposed electrical cables have been installed into the manholes. Cable in unit duct shall be pulled through the existing ducts and manholes/handholes. High voltage cable shall maintain separation from low voltage cable. The Contractor will identify all existing underground utilities located within the area where the proposed cables are being installed and will take all precautions to protect these utilities from damage. Any underground utility damaged will be repaired or replaced at the Contractor’s own expense.”

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

“The unit duct will be run continuous through all ducts and conduits unless noted otherwise on the Plans for a specific application.”

108-3.4 INSTALLATION IN TRENCHES. . Add the following to this section:

“Any and all trenches will be backfilled to a smooth grade to the satisfaction of the Resident Engineer. Areas disturbed during the installation of the proposed cable, which are not completed before the contract seeding operations, will be fertilized and seeded. The fertilizing and seeding will be completed in accordance with Items 901 and 908, but will be incidental to this pay item.”

108-3.7 CABLE MARKERS. Add the following:

“The Contractor shall provide and install cable markers along the cable runs as described in this section. Markers shall be furnished and installed every 400 feet along the cable run with an additional marker and at each change of direction of the cable run.”

108-3.8 SPLICING. Add the following:

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

“There shall be no splices between runway and taxiway series lighting circuit isolation transformers. In the event that a runway or taxiway series lighting circuit cable is cut between isolation transformers, the entire length of cable between these isolation transformers shall be replaced.”

108-3.9 BARE COUNTERPOISE WIRE INSTALLATION AND GROUNDING FOR LIGHTNING PROTECTION. Revise this section to read as follows:

“Bare copper counterpoise wire will not be required on this Project under Item 108.”

108-3.12 LOCATING OF EXISTING CABLES. Add the following:

“The location, size, and type of material of existing underground 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 Engineer shall also be immediately notified. Any 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 Excavation) for utility information, Telephone: 1-800-892-0123. Also contact the Resident Engineer and Airport Manager for assistance in locating underground airport cables and/or utilities.

“Payment for locating and marking underground cables will not be paid for separately but shall be considered incidental to the directional boring/plowing/trenching of cable and duct.”

METHOD OF MEASUREMENT

108-4.1 METHOD OF MEASUREMENT. Add the following:

“Cable in unit duct shall be measured for payment up to the vault. Cable or cable in unit duct installed inside or below the vault shall be incidental to Item AR109200 - Install Electrical Equipment, and no additional measurement for payment will be made. Slack cable, required to perform cable splices outside of the respective splice cans, handholes, or manholes, shall be incidental to the respective cable pay item and no additional measurement for payment will be made.”

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price per linear foot of cable completed and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials; for all plowing, trenching, directional boring, coring of manholes or handholes, installation in existing duct banks, and for all excavation and backfilling; and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item AR108258	2/C #8 5KV UG Cable in UD - per linear foot.
Item AR108656	3/C #6 600-Volt UG Cable in UD - per linear foot.
Item AR800990	Power Cables in Duct - per linear foot.

ITEM 109

INSTALLATION OF AIRPORT TRANSFORMER VAULT AND VAULT EQUIPMENT

Revise Item 109 of the Standard Specifications and Supplemental Specifications as follows:

DESCRIPTION

109-1.1 Revise this section to read as follows:

“Item AR109100 “Construct Electrical Vault” shall consist of an airport transformer vault building constructed and installed in accordance with this specification at the location and in accordance with the design and dimensions shown in the Plans. This item shall include all labor, equipment, materials, coordination, installation, testing and the furnishing and installation of all incidentals necessary to produce a completed vault building and place it in operating condition.

“Provision of this item shall also be completed in accordance with Exhibit A, Supplement to Item 109, Construct Electrical Vault, attached therefore to the Special Provisions and incorporated herein by reference.”

“Included under this item shall be the following:

- (a) Furnishing and installation of a concrete foundation and floor slab for the vault building as detailed on the Plans and specified herein.
- (b) Furnishing and installation of concrete masonry bearing walls for the vault building as detailed on the Plans and specified herein.
- (c) Furnishing and installation of steel bar joists and other steel structural components for the vault building as detailed on the Plans and specified herein.
- (d) Furnishing and installation of hollow metal doors and frames and all door hardware for the vault building as detailed on the Plans and specified herein. Include door sweeps, thresholds, weather stripping, and all associated items for finishing each door installation. Door locks shall be keyed the same for all doors and shall be based upon a key system approved by the Owner.
- (e) Furnishing and installation of a complete roof system for the vault building as detailed on the Plans and specified herein. The roof system components include but are not necessarily limited to metal roof deck, tapered insulation board, EPDM roof membrane, flashings, copings, roof drains, leaders and downspouts.
- (f) Painting of exterior and interior components of the vault building as detailed on the Plans and specified herein. Painting work will include field painting and/or touch-up of exterior metal trim, exterior and interior doors and frames and interior concrete masonry walls.”

Add:

109-1.2 Item AR109200 "Install Electrical Equipment" shall consist of furnishing and installing electrical equipment inside the new vault as detailed on the Plans and specified herein. This item shall include furnishing and installing electric unit heaters, exhaust/ventilation fan, louvers, dampers, and associated controls for the mechanical system inside the new vault as detailed on the Plans and specified herein. This item shall include all labor, materials, transportation, equipment, wiring, raceways, grounding, warranties, tools, utility coordination, relocations, operational instructions, labeling, testing, and all incidentals required to place the vault and associated equipment into proper working order as a completed unit to the satisfaction of the Owner and Engineer.

Included under this item shall be the following:

- (a) Furnishing and installing the heating and ventilation system and associated controls in the new vault.
- (b) Furnishing and installing all electrical equipment and support hardware in the new vault as detailed on the Plans and specified herein.
- (c) Furnishing and installing all raceways, conduits, and ducts in, beneath, and adjacent to the vault. The 4" galvanized rigid steel conduit and elbows from the vault to the respective handholes or duct banks, as detailed on the Plans, shall also be included under this item.
- (d) Furnishing and installing all necessary cable and wiring within the vault.
- (e) Furnishing and installing new electric service to the vault, as detailed on the Plans and specified herein.
- (f) Furnishing and installing all grounding and surge protection, as detailed on the Plans and specified herein.
- (g) Locating, identifying, and relocating all existing airfield lighting cables and existing airfield equipment cables (including existing cables associated with the runway lighting, PAPI's, airport rotating beacon, wind-tee, L-821 control panel wiring, and any other airfield electrical systems), as necessary to disconnect these respective cables from the existing vault and reconnect and/or interface these respective cables and/or replacement cables to the new vault, as applicable. This shall include all splices, cable, interfacing work to handholes (including rerouting cables, duct entrances, sleeves, patching, etc.), splice cans, identification, and labeling cables at each respective handhole and at the respective vault, maintaining separation of low-voltage cables from high-voltage cables, any temporary connections to maintain operation of the respective airfield lighting systems, and any other work required to restore proper operation of the existing airfield lighting systems when reconnected to the new vault. All existing airfield circuits shall be operable during nightfall. Contractor shall provide all temporary work, as necessary, to maintain operation of the airfield lighting systems at nightfall. All work shall be coordinated with the Airport Manager and shall be coordinated to minimize down time to the respective lighting systems.

- (h) Testing, adjusting, and retesting, where applicable, all new equipment and modifications to existing systems for proper operation.
- (i) Labeling all mechanical and electrical equipment and incidentals necessary to place all of the equipment in operation as a complete unit acceptable to the Owner and Engineer.
- (j) Furnishing operation, maintenance, and installation manuals for all equipment.
- (k) Electrical handholes associated with the vault and with cable relocations and interfacing to existing duct systems shall be paid for separately under Item AR110610 Electrical Handhole. 2-way concrete-encased duct between the utility transformer and the vault will be paid for separately under Item 110. The electric utility transformer pad will be paid for under Item AR110600 Concrete Utility Pad.
- (l) Fire Detection System for the Vault Building.

Add:

109-1.3 Item AR109901 "Remove Electrical Vault" shall consist of removal of existing vault transclosure, slab, and all equipment located in the existing vault. All existing constant current regulators shall be retained by the Airport and shall be relocated to a designated storage area on the Airport property as directed by the Airport Manager. All equipment to be removed shall be turned over to the Owner. In the event that the Owner does not want the respective equipment, the Contractor shall dispose of that respective equipment in a legal manner, off of the airport site. Removal of vault equipment shall include the removal of the associated wiring and raceway for the respective equipment that is to be removed. Removal of vault equipment shall also include removal of the existing slab, backfill, seeding, mulching and grading. The existing service conductors, meter pedestal and service disconnect for vault shall also be removed. This item shall also include removal of the service panelboard, associated control equipment, support structure, and electric service for the PAPI system that is located near the existing vault transclosure. Contractor shall coordinate removal of the existing electric services for the vault and PAPI system with the serving electric utility company; Com Ed, 919 West First Street, Dixon, Illinois 61021, Attn. Mr. Mark Applequist, Telephone: 815-284-5871, Facsimile; 815-284-5840.

Add:

109-1.4 Item AR109924 "Replace Electric Services" shall consist of removing, relocating, replacing and/or adjusting existing electric utility service to the shop hangar and the respective service conductors, conduits and ducts from the respective utility transformer to the respective service metering and/or disconnect equipment as required for the removal of the existing vault transclosure as detailed on the Plans and specified herein. This item shall include all labor, equipment, wiring, raceways, grounding, materials, tools, utility coordination, labeling, testing and all incidentals required to remove, relocate, replace and/or adjust the respective electric service installation to the satisfaction of the serving electric utility, Owner and Engineer.

Included under this Item shall be the following:

- (a) Coordinating with the serving electric utility (Commonwealth Edison Company, 919 West First Street, Dixon, Illinois 61021, Attn. Mr. Mark Applequist, Telephone: 815-284-5871, Facsimile; 815-284-5840) the removal and replacement of the existing service to the shop hangar.
- (b) Furnishing and installing meter base, service panelboard, support hardware, grounding, and all associated equipment for the shop hangar service as detailed on the Plans and specified herein.
- (c) Furnishing and installing all feeder and branch circuit raceways, conduits, conductors, and splices from the new service panel to the existing shop hangar main disconnect, and the respective fuel farm circuits as detailed on the Plans and specified herein.
- (d) Furnishing and installing a fusible safety switch for the festival power along with the associated feeder conductors and conduits from the new service panelboard as detailed on the Plans and specified herein.
- (e) Removing the existing service conductors from the existing utility transformer to the existing shop hangar service equipment located at the vault transclosure and on the exterior wall of the shop hangar.
- (f) Service conductors and duct from the utility transformer to the service panel at the shop hangar will be paid for separately under Item 108.

EQUIPMENT AND MATERIALS

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

- “(c) FAA approval of airport lighting equipment and subsequent inclusion in Advisory Circular 150/5345-1 "Approved Airport Equipment", and/or Advisory Circular 150/5345-53 "Airport Lighting Equipment Certification Program" only means that the test data satisfied the applicable Specification requirements. This does not insure that the approved equipment will satisfactorily operate when connected power-wise and/or control-wise to other approved airport lighting equipment or "off the shelf" equipment not requiring FAA approval.
- “(d) The Contractor shall ascertain that all lighting system components furnished by him (including FAA-approved equipment) are compatible in all respects with each other and the remainder of the new system. Any non-compatible components furnished by the Contractor shall be replaced by him, at no additional cost to the Airport Sponsor, with a similar unit approved by the Engineer (different model or different manufacturer) that is compatible with the remainder of the airport lighting system.
- “(e) Except as specified otherwise, all new equipment shall be provided by the Contractor and shall be tested for Specification conformance as part of the Aviation Lighting Equipment Certification Program. Certification of conformance, as tested by the respective testing laboratory, shall be provided by the manufacturer for all items submitted for approval.

(f) Contractor shall provide Shop Drawings for the vault and associated equipment and all electrical equipment. Shop Drawings shall clearly indicate proposed items, capacities, characteristics, and details in conformance with the Plans and Specifications. The respective manufacturer shall certify capacities, dimensions, special features, etc. Shop Drawings for all items shall be prepared immediately upon award of contract. The Contractor shall submit a minimum of four copies to be retained by the Engineer, plus the number of copies for which the Contractor requires distribution. No materials shown thereon shall be ordered until Shop Drawings are reviewed and approved by the Engineer. When a submittal is marked "See Notations; Resubmit" and/or "Does Not Conform; Resubmit", do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations, resubmit, and repeat if necessary to obtain a different action mark such as "No Exceptions" or "See Notations; Resubmittal Not Required". Contractor is responsible for compliance with the specified characteristics. Contractor's responsibility for error and omissions in submittals is not relieved by the Engineer's review of submittals. Accompany each submittal with a transmittal letter that includes the date, project title and number, Contractor's name and address, the number of Shop Drawings, product data and/or samples submitted, notification of any deviations from the Contract, and any other pertinent data. Shop drawing submittals shall include the following:

1. Date and revision dates.
2. Project title and number(s).
3. Name of Architect/Engineer.
4. Identification of product or material.
5. Relation to adjacent structure or material.
6. Field dimensions, clearly identified as such.
7. Specification section and page number.
8. Specified standards, such as ASTM numbers, ANSI numbers, UL listing/standard, NEMA ratings, etc.
9. A blank space, 3 inch x 5 inch, for Architect/Engineer's stamp.
10. Identification of previously approved deviation(s) from contract documents.
11. Contractor's stamp, initialed or signed, certifying the review of submittal, verification of field measurements, and compliance with contract documents.
12. Space for Prime Contractor's approval stamp."

VAULT AND PREFABRICATED METAL HOUSING

109-2.2 CONCRETE. Add the following to this section:

"All CONCRETE work conducted at the site for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 03300. Excavation work for foundations, including coarse aggregate under slab, of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 02300."

109-2.3 REINFORCING STEEL. Add the following to this section:

"All REINFORCING STEEL used at the site for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 03300, 04200."

109-2.4 BRICK. Add the following to this section:

“All MASONRY work conducted at the site for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 04200.”

109-2.5 ASBESTOS CEMENT DUCT. Delete this section.

109-2.6 FIBER CONDUIT. Delete this section.

109-2.7 RIGID STEEL CONDUIT. Add the following:

“Galvanized rigid steel conduit (GRSC) shall heavy wall, hot dipped, galvanized steel pipe bearing the UL label and conforming to Federal Specification UL-6, and ANSI Specification C80.1. Couplings, connectors, and fittings for rigid steel conduit shall be threaded galvanized steel or galvanized malleable iron specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4.”

109-2.8 LIGHTING. Add the following to this section:

“Lighting Components & Materials

“(a) Lighting Fixtures: Types as designated in "Lighting Fixture Schedule" on the Plans. Provide fixtures complete with all required accessories.

“(b) Lamps: Types and ratings as shown in "Lighting Fixture Schedule".

1. Fluorescent: T8 lamp shall be rapid start; 32-Watts 2800 initial lumens, 48 inch long; T8 lamp, medium bi-pin base; 4100 deg. K., CRI of 75, 20,000 hours rated life.
2. Compact Fluorescent: T4 triple twin tube, rated 42-Watts 3200 initial lumens (minimum), 4100 deg. K., 10,000 hours average rated life.
3. Acceptable Manufacturers:
 - a. General Electric.
 - b. North American Phillips.
 - c. Osram-Sylvania.

“(c) Ballasts:

1. Fluorescent (electronic type for linear lamps): High-power factor (99 percent minimum), UL-listed, Class P, Sound Rating A, and meet CSA Standard 654 for ballast efficiency. Ballasts shall be instant start, less than 1.5 lamp crest factor, with less than 10 percent total harmonic distortion and less than 6 percent third harmonic distortion. Ballasts shall operate at input voltage of 120 ± 10 percent at 60 HZ. Light output shall remain constant for line voltage fluctuations within 5 percent. Ballasts shall operate lamps at a frequency of 25 kHz or higher with less than 2 percent lamp flicker. Ballasts shall comply with EMI and RFI limits set by the FCC (CFR 47 PART 18) for non-residential applications, and shall not interfere with normal electrical equipment and withstand transients, as specified by ANSI C.62.41 for location Category A3 in the normal mode and Location A1 in the common mode. Ballasts shall contain no polychlorinated biphenyls (PCBs). Ballasts shall have a 5-year warranty, which specifies both ballast replacement and an in-fixture labor allowance of \$12.00 each.
 - a. Input wattage when tested per ANSI C82.2:
 - (1) 92-Watts (maximum) when operating three F32T8 lamps.
 - (2) 62-Watts (maximum) when operating two F32T8 lamps.
 - (3) 32-Watts (maximum) when operating one F32T8 lamp.
2. Compact Lamp Ballasts in Wall-Mounted Fixture: Unless otherwise indicated, additional features include the following: Ballasts shall be electronic type, with 90 percent minimum power factor, operating frequency of 20 kHz or higher, flicker less than 5 percent, and lamp current Crest Factor less than 1.7. Ballasts shall be capable of operating in temperatures down to 0° F. Ballasts shall include transient protection complying with IEEE C62.41 for Category A1 locations. Interference shall comply with 47 CFR, Chapter 1, Part 18, Subpart C for limitations on electromagnetic and radio interference for consumer products. Ballasts shall be individually fused.
3. Acceptable Manufacturers:
 - a. Advance (EBT).
 - b. Universal (Magnetek).
 - c. Osram-Sylvania (Motorola).

“(d) Wiring: Provide conduit and conductor per Drawings. Fixture wiring shall comply with fixture manufacturer's recommendations and the NEC requirements.

“(e) Mounting Hardware: Provide steel needed to supplement building structure for support of fixtures. Supports shall be capable of supporting 300 percent fixture and lamp weight.

“Emergency Lighting System

“(a) Emergency lighting system consists of selected fixtures as indicated on Plans.

“(b) Fixtures: As designated in "Lighting Fixture Schedule" on Plans.

1. Internal Fluorescent Type: Self-contained, modular, battery-inverter unit factory-mounted within fixture body. Comply with UL 924.
 - a. Test Switch and Light-Emitting Diode Indicator Light: Visible and accessible without opening fixture or entering ceiling space.
 - b. Battery: Sealed, maintenance-free, nickel-cadmium type with minimum 10-year nominal life.
 - c. Charger: Fully automatic, solid-state, constant-current type.
- d. Operation: Relay automatically energizes lamp from unit when normal supply circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay disconnects lamp, and battery is automatically recharged and floated on charger.”

109-2.9 OUTLETS. Add the following to this section:

- “(a) General Purpose Receptacles. General purpose receptacles for all wall-type convenience outlets in non-hazardous areas shall be of the 20-Amp, 125-volt, 3-wire grounding type, NEMA 5-20R, heavy-duty specification-grade **white** in color, Arrow Hart Part Number 5362, Bryant Part Number 5362, Hubbell Part Number 5362, Pass & Seymour Part Number 5362, or approved equal. Cover plates for flush-mounted, general purpose receptacles shall be of the stainless steel type as manufactured by Arrow Hart, Bryant, Hubbell, Pass & Seymour, or equal.
- “(b) Ground Fault Circuit Interrupter (GFCI) Receptacles. Receptacles with ground-fault circuit interrupters shall be provided and installed where noted on the Plans. Ground-fault circuit interrupter receptacles shall be rated 120 VAC, 60 HZ, 20 Amps, specification-grade with NEMA 5-20R receptacle configuration and a trip threshold of 5±1 milliamps. GFCI receptacles shall be UL Class “A” GFCI receptacle units complying with and tested in accordance with UL Standard No. 943. GFCI receptacles shall be Arrow Hart Part Number GF5342, Bryant Part Number GFR53FT, Hubbell Part Number GF5362, Pass & Seymour Part Number 2091-S, or approved equal.
- “(c) Device Boxes. Device boxes for flush-mounted, non-hazardous receptacles and switches shall be sheet steel construction. Cover plates shall be stainless steel, as manufactured by Arrow Hart, Bryant, Hubbell, Pass & Seymour, or equal. Surface-mount device boxes shall be of cast aluminum or malleable iron FS design with cover plates of surface-mount FS design, as manufactured by Appleton, Crouse Hinds, or equal. Weatherproof covers shall be industrial grade, rain-tight NEMA 3R (while outlet is in use, as well as when not in use), UL-listed, FS box-mountable, weatherproof covers, TayMac Corporation Catalog No. 20550, or equal.”

109-2.10 SWITCHES. Revise to read as follows:

- “(a) Toggle Switches. Single-pole toggle switches shall be 20-Amp, 120/277-volt, specification-grade, as manufactured by Arrow Hart, Bryant, Hubbell, Pass & Seymour, or approved equal. Single-pole, 20-Amp, 120/277-Volt toggle switches shall be Arrow Hart Part Number 1991, Bryant Part Number 4901, Hubbell Part Number 1220, Pass & Seymour Part Number 20AC1, or approved equal.

“(b) Device Boxes. Device boxes for flush-mounted, non-hazardous receptacles and switches shall be sheet steel construction. Cover plates shall be stainless steel, as manufactured by Arrow Hart, Bryant, Hubbell, Pass & Seymour, or equal. Surface-mount device boxes shall be of cast aluminum or malleable iron FS design with cover plates of surface-mount FS design, as manufactured by Appleton, Crouse Hinds, or approved equal.”

109-2.11 FLOOR DRAINS. Delete this section.

109-2.12 PAINT. Add the following to this section:

“All PAINT work conducted inside and around structure as indicated on the Plans for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 09900.”

109-2.13 HIGH VOLTAGE BUS. Delete this Section.

109-2.14 BUS CONNECTORS. Delete this Section.

109-2.15 BUS SUPPORTS. Delete this Section.

109-2.16 GROUND BUS. Revise to read as follows:

“Ground bus for the vault interior shall be 1/4 inch thick by 2 inch wide copper bus bar, as manufactured by Harger Lightning Protection Inc., Gus Berthold Electric Company, or approved equivalent. Ground bus shall include standoffs, insulators, splices, bonding jumpers, mounting hardware, etc., as required for the respective application.”

109-2.17 SQUARE DUCT Revise the last sentence to read:

“Square duct shall be sized, as detailed on the Plans.”

Add the following:

“Wireway shall be installed, as indicated on the Plans, including, but not limited to, straight lengths, elbows, tees, offsets, panel adaptors, closing plates, wire retainers, and supports, as required for a complete installation. Wireways shall be constructed of 16-gauge steel before finishes are applied. All straight lengths of wireway shall have hinged or bolt-on covers. Lengths shall be provided with cover latches, a minimum of every 3 feet, which shall hold the cover securely in-place when closed. Sealing ears shall be provided on both the wireway lengths and connector covers so that the entire run can be sealed.

“Wireways shall be 6 inch by 6 inch, as detailed on the Plans. Wireways shall be furnished without knockouts. Connectors shall be slip-in type with self-retained mounting screws. They shall also have the feature to allow “lay-in” of all conductors. Wireways shall be provided with a gray epoxy-painted finish applied over a corrosion-resistant phosphate primer. All wireway lengths and accessories shall be Underwriter’s Laboratories listed and labeled in conformance with UL 870 Standards for Wireways, Auxiliary Gutters, and Associated Fittings and conform to NEMA 1 enclosure rating.”

109-2.18 GROUND RODS. Revise to read as follows:

“Ground rods shall be minimum of ¾-inch diameter by 10-foot long UL listed copper clad, with 10-mil minimum copper coating.”

109-2.19 POTHEADS. Delete this section.

109-2.20 PREFABRICATED METAL HOUSING. Delete this section.

109-2.21 FAA-APPROVED EQUIPMENT. Add the following:

❖ Constant Current Regulator for Runway 8-26. Constant current regulator for Runway 8-26 shall be a **7.5 KW**, L-828 constant current regulator, 240 VAC, single-phase, 60 Hertz input, 6.6-Amps output, with three output brightness steps (4.8, 5.5, and 6.6-Amps). Constant current regulator shall comply with FAA AC 150/5345-10 (latest issue in force) for Type L-828 regulator. Constant current regulator shall be dry-type, Ferro-resonant regulator. Constant current regulator shall not have solid state controls in the series circuit and shall be designed for no radio communication interference. Constant current regulator shall be magnetic design. Solid state electronic designs are not acceptable. Constant current regulator shall include open circuit protection, over current protection, output current ammeter, elapsed time meter, output voltage meter, and lightning and transient protection on input and output lines. Constant current regulators shall also include a remote/local control feature with selections for “Remote, Off, 10% Brightness, 30% Brightness, and 100% Brightness”. Control voltage shall be 120 VAC (external). Constant current regulators shall be as manufactured by Flight Light/Hevi-Duty or Manairco. All constant current regulators furnished on this project shall be from the same manufacturer.

❖ Spare Constant Current Regulator for Runway 8-26 or Runway 12-30. Spare constant current regulator for Runway 8-26 or Runway 12-30 shall be a **7.5 KW**, L-828 constant current regulator, 240 VAC, single-phase, 60 Hertz input, 6.6-Amps output, with three output brightness steps (4.8, 5.5, and 6.6-Amps). Constant current regulator shall comply with FAA AC 150/5345-10 (latest issue in force) for Type L-828 regulator. Constant current regulator shall be dry-type, Ferro-resonant regulator. Constant current regulator shall not have solid state controls in the series circuit and shall be designed for no radio communication interference. Constant current regulator shall be magnetic design. Solid state electronic designs are not acceptable. Constant current regulator shall include open circuit protection, over current protection, output current ammeter, elapsed time meter, output voltage meter, and lightning and transient protection on input and output lines. Constant current regulators shall also include a remote/local control feature with selections for “Remote, Off, 10% Brightness, 30% Brightness, and 100% Brightness”. Control voltage shall be 120 VAC (external). Constant current regulators shall be as manufactured by Flight Light/Hevi-Duty or Manairco. All constant current regulators furnished on this project shall be from the same manufacturer.

- “❖ Constant Current Regulator for Runway 12-30. Constant current regulator for Runway 12-30 shall be a **7.5 KW**, L-828 constant current regulator, 240 VAC, single-phase, 60 Hertz input, 6.6-Amps output, with three output brightness steps (4.8, 5.5, and 6.6-Amps). Constant current regulator shall comply with FAA AC 150/5345-10 (latest issue in force) for Type L-828 regulator. Constant current regulator shall be dry-type, Ferro-resonant regulator. Constant current regulator shall not have solid state controls in the series circuit and shall be designed for no radio communication interference. Constant current regulator shall be magnetic design. Solid state electronic designs are not acceptable. Constant current regulator shall include open circuit protection, over current protection, output current ammeter, elapsed time meter, output voltage meter, and lightning and transient protection on input and output lines. Constant current regulators shall also include a remote/local control feature with selections for “Remote, Off, 10% Brightness, 30% Brightness, and 100% Brightness”. Control voltage shall be 120 VAC (external). Constant current regulators shall be as manufactured by Flight Light/Hevi-Duty or Manairco. All constant current regulators furnished on this project shall be from the same manufacturer.

- “❖ L-854 Radio Controller. L-854 radio controller shall be FAA-approved and comply with FAA AC 150/5345-49 (latest issue), and FCC Rules and Regulations: Part 15. The radio controller shall be a Type I classification (air-to-ground) unit consisting of an AM receiver and Type A decoder mounted in a metal weatherproof enclosure, painted international orange per FAA Standard 595A. Input voltage shall be 120 VAC, 60 Hz. Frequency range shall be 118 to 136 MHz. Unit shall have solid-state circuitry other than the relays. Include a remote antenna with 50 feet of coaxial cable. Frequency shall be 123.05 MHz. Confirm frequency with Airport Manager prior to ordering.

- “❖ Relay Interface Control Panel. A relay interface control panel shall be provided for the constant current regulators to interface the photocell control and L-854 radio controller, to each respective constant current regulator. Relay interface panel shall be as detailed on the Plans and as specified herein. Relay interface panel shall be installed in NEMA 12 enclosure sized as required to house components. Relay interface control panel shall be manufactured by Universe Inc., 1833 West Hovey Avenue, Normal, Illinois 61761, Telephone: 309-454-5665, Facsimile: 309-452-2521, or an equivalent FAA-approved control panel manufacturer.”

109-2.22 OTHER ELECTRICAL EQUIPMENT. Add the following:

“Contractor shall confirm quantity for all electrical equipment with the Plans. Proposed electrical equipment for the vault shall be as follows:

- “❖ Type S-1 Series Plug Cutouts. Provide series plug cutouts for constant current regulators as detailed on the Plans. Series plug cutouts shall be Type S-1, rated 5KV, 20-Amp, and shall comply with FAA AC 150/5340-4C and/or FAA AC 150/5340-30A. Series plug cutouts shall be Crouse-Hinds, Type S-1, Model 2, Catalog Number 30775, or an approved equal. Note Crouse-Hinds Type S-1, Model 3, Catalog Number 30771 series plug cutouts are not acceptable because the handle is not removable. Note Siemens SCO series plug cutouts are not acceptable because they do not function the same as the Crouse-Hinds, Type S-1, Model 2, Catalog Number 30775 series plug cutout. Install series plug cutouts in a NEMA 12 enclosure adequately sized to house all cutouts as detailed on the Plans, with a hinged cover and back panel to mount the respective cutouts. Include identification for each cutout.

- “❖ Service Panel. Service panel shall be a 600 Amp, 120/240 VAC, 1-phase, 3 wire with solid neutral with 600 Amp, 2 pole main breaker, copper bus braced for 42,000 Amperes symmetrical (minimum) at 240 VAC, 36 inch of breaker mounting space, suitable for 250 Amp frame max branch breakers, in a NEMA 1 enclosure UL listed suitable for service entrance, sized in accordance with UL 67, Square D, I-line, Type HCM Series, or approved equal. All bussing shall be copper. Neutral buss shall be copper. Include separate copper equipment ground bars adequately sized for all ground wires and grounding electrode conductors to and from the panel. Main breaker and all branch and feeder breakers shall have an interrupting rating of 42,000 Amps minimum at 240 VAC and shall be constructed in accordance with NEMA AB1 and UL 489. Circuit breakers shall be equipped with individually insulated braced and protected connectors. The front faces of all circuit breakers shall be flush with each other. Large, permanent, individual circuit numbers shall be affixed to each breaker in a uniform position (or equip each breaker with a circuit card holder and neatly printed card identifying the circuit). Tripped indication shall be clearly shown by the breaker handle taking a position between ON and OFF. Provisions for additional breakers shall be such that no additional connectors will be required to add breakers.

“See Plans for details on size and quantity of branch and feeder breakers. Panel shall be UL-listed and bear the UL label. Provide legend plates as detailed on the Plans. Also identify the main service breaker per the requirements of NEC 230.70 (B). Coordinate selection of two pole breakers with the manufacturer to confirm proper bus connections.

- “❖ Transient Voltage Surge Suppressor for Vault Service Panelboard. AC power surge arrester/transient voltage surge suppressor shall be UL-listed per UL 1449, Second Edition, and shall conform to the applicable requirements of FAA-STD-019d dated August 9, 2002, “LIGHTNING AND SURGE PROTECTION, GROUNDING, BONDING, AND SHIELDING REQUIREMENTS FOR FACILITIES AND ELECTRONIC EQUIPMENT”. AC power surge arrester/transient voltage surge suppressor for the main distribution panel shall be suitable for a 120/240 VAC, 1-phase, 3-wire, plus ground system with a surge current rating of 240,000-Amps, 8 x 20 microsecond wave per mode (L-L, L-N, L-G, N-G), and status indication lights in a NEMA 12-rated enclosure, Lightning Protection Corporation Model LPC 2020-8U-G, or approved equal.
- “❖ Panelboard “B”. Circuit breaker panelboard shall be rated 120/240 VAC, 1 phase, 3-wire and shall have copper bus structure braced for 35,000 RMS Amperes fault current minimum at 120/240 VAC. All copper parts shall be plated to prevent corrosion. Panelboards shall bear the UL label. All panelboards shall be dead-front safety-type, equipped with thermal magnetic-molded case breakers and solid neutral bus. Bus bar connections to the branch circuit breakers shall be the “Distributed Phase” or “Phase Sequence” type. 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 per the NEC. Fronts shall have doors with matching one-piece trim, be code-gauge, and be finished with rust-inhibiting primer and baked enamel. Fronts shall have adjustable indicating trim clamps completely concealed when door is closed. Provide a circuit directory frame and card with a clear plastic covering on the inside of the doors. Fronts shall have flush locks, and be furnished with two keys per lock.

SPECIAL PROVISIONS

DIXON MUNICIPAL AIRPORT (C73)

CONSTRUCT REPLACEMENT AIRFIELD ELECTRICAL VAULT

AIP PROJECT NO. 3-17-0036-B8

IDA PROJECT NO. C73-3548

“Provide circuit breakers, quick-make, quick-break, thermal-magnetic, trip indicating, and common trip on all multi-pole breakers. Handles shall have “ON”, “OFF” and “TRIPPED” positions. Circuit breakers shall be UL-listed in accordance with UL Standard 489. Breakers shall have bolt-on connections to the bus. Amperage trip ratings, voltage ratings, interrupting current ratings, and number of poles shall be as shown on the panelboard schedules. Contractor shall confirm and adjust circuit breaker sizes, as required for the respective equipment or device being fed, in accordance with the respective equipment manufacturer’s recommendation and the NEC. Panelboards shall be furnished with copper-ground bus and separate insulated copper neutral bus.

“❖ Lighting Contactor Panel for Airport Lighting/Equipment. The lighting contactor panel for use with the airfield lighting equipment (including the Wind Tee, PAPI, Airport Rotating Beacon, and Airport Entrance Sign) shall be as detailed on the Plans.

“❖ Fractional Horsepower Manual Motor Starters. Fractional horsepower manual motor starters shall be toggle-operated type with thermal overload protection in each phase conductor sized for the respective motor. Fractional horsepower manual motor starters shall be installed in NEMA 1 surface enclosures where located indoors in a dry, non-corrosive, non-hazardous location.

“Fractional horsepower manual motor starters shall be installed in NEMA 4/4X enclosures where located outdoors or in wet locations. Starters shall include handle guard/lock off feature to permit pad locking the device in the off position. Acceptable Fractional horsepower manual motor starter products are General Electric - CR101, Square D - Class 2510, Cutler-Hammer - MS, or approved equal.

“❖ Contactors for Fractional Horsepower, Single-Phase Motors. Contactors for fractional horsepower, single-phase motors shall be NEMA-rated contactors sized, as detailed on the Plans, and shall in no case be smaller than NEMA size 0. Enclosures shall be NEMA 1, where located indoors in a dry, non-corrosive, non-hazardous area. Enclosures shall be NEMA 4, stainless steel where located outdoors or in wet areas. Include operators, as detailed in the schematics on the Plans. Operators shall be water-tight and oil-tight (NEMA 4/13). Include ground bar or ground lugs for each contactor to accommodate all respective ground conductors to and from the respective enclosure.

“❖ Photocells. Photocells shall be rated 2000-Watts at 120 VAC, with off delay, -40°C to 60°C operating temperature range, Tork Model No. 2101, or approved equal. Contractor shall confirm the selected photocell is suitable for the respective application.

“❖ Safety Switches. Furnish and install a safety switches 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 indoors in dry, non-corrosive, non-hazardous areas shall be in NEMA 1 or NEMA 12 enclosures. Safety switches located outdoors or in damp areas shall be in NEMA 3R and 12 or NEMA 4X enclosures without knockouts. Safety switches located in hazardous areas shall be suitable for the respective location. Safety switches shall be manufactured by Square D, or approved equivalent.

- “❖ Pull Boxes for Vault Interface to Exterior Handholes and Ducts. Pull boxes for transitions between underground ducts/handholes and the vault interior raceway systems shall be NEMA 12 with hinged cover adequately sized in conformance with 2005 NEC 314 to accommodate conduits, wireway interface, splices (where applicable) and cables, and shall not be smaller than 36 inches high by 36 inches wide, by 12 inches deep. Pull boxes shall be manufactured by Hoffman or approved equal.
- “❖ Junction and Pull Boxes. Junction and pull boxes shall be sized, as required for conductors and splices and per 2005 NEC Article 314. Boxes shall be UL-listed. Special boxes made to suit conditions shall be used to accommodate the respective application, or where required by the NEC, even though they might not be indicated on the Drawings. Surface-mounted exterior junction and pull boxes located in non-hazardous, non-classified areas shall be NEMA 4X stainless steel or aluminum, Crouse-Hinds, Killark, Hoffman, Hennessy, or equal. All junction and pull boxes installed in classified hazardous areas (Class 1, Division 1 or 2, Group D) shall be NEMA 7 and NEMA 4 and shall comply with applicable provisions of the NEC, including, but not limited to, Articles 500 and 501.
- “❖ Schedule 40 PVC Conduit. Schedule 40 PVC conduit shall comply with Item 110 and the following: Conduit shall be Schedule 40 PVC, 90°C, UL-rated, or approved equal. Material shall comply with NEMA Specification TC-2 (Conduit), (Fittings UL-514), and UL-651 (Standard for Rigid Non-metallic Conduit). The conduit and fittings shall carry a UL label (on each 10 foot length of conduit and stamped or molded on every fitting). Conduit and fittings shall be identified for type and manufacturer and shall be traceable to location of plant and date manufactured. The markings shall be legible and permanent. The conduit shall be made from polyvinyl chloride C-300 compound that includes inert modifiers to improve weather-ability and heat distortion. Clean, reworked material generated by the manufacturer’s own conduit production may be used by the same manufacturer, provided the end products meet the requirements of this Specification. The conduit and fittings shall be homogenous plastic material free from visible cracks, holes, or foreign inclusions. The conduit bore shall be smooth and free of blisters, nicks, or other imperfections which could mar conductors or cables. Conduit fittings and cement shall be produced by the same manufacturer to assure system integrity and shall be Carlon Plus 40 conduit, or equal.
- “❖ 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., 1000 Broadway Avenue East, Mattoon, Illinois 61938-0039, (Telephone: 217-234-8844), Liguatite Type LA as manufactured by Electri-Flex Company, 222 W. Central Ave., Roselle, Illinois 60172, (Telephone: 630-529-2920 or 1-800-323-6174), or approved equal.”

109-2.23 WIRING. Delete paragraphs 1, 2, and 3 under section (b) Power Circuits.

Add the following:

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

“L-824 Cable. L-824 cable shall be FAA-L-824, Type C cable complying with Item 108. Circuits for use with constant current regulator outputs (runway or taxiway lighting circuits) shall use 5000-Volt rated cable. Circuits for voltage applications of 600-Volts or less shall use 600-Volt or 5000-Volt rated cable.

“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-Volts. 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. Power and control wiring shall be Superior Essex or Southwire Company Type THWN, or approved equal.

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

“XHHW Wire. Cable shall comply with UL Standard 44, 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-Volts. Insulation shall be cross-linked polyethylene complying with the physical and electrical requirements of UL Standard 44 for Type XHHW-2. Cable shall be UL-listed and marked XHHW-2. Service conductors shall be Service Wire Company or Southwire Company, Type XHHW-2, or approved equal.”

Add:

109-2.24 ELECTRICAL VAULT BUILDING. The Airport Electrical Vault building shall be constructed as one item as shown in the Plans and details and shall conform to each section of Exhibit A, Supplement to Item 109, Construct Electrical Vault, including Section 02300, 03300, 04200, 05210, 05310, 05500, 06100, 07190, 07530, 07920, 08111, 08710, 09900, 10520.

Add:

109-2.25 MECHANICAL EQUIPMENT.

Ventilation System. Ventilation system shall be as detailed on the Plans. Input power for fan and damper motors shall be 120 VAC.

Electric Unit Heaters. Electric unit heaters shall be as detailed on the Plans. Input voltage shall be 240 VAC, 1 phase, 60 Hz.

Add:

109-2.26 FIRE DETECTION SYSTEM. Contractor shall furnish and install a complete, electrically supervised, closed circuit fire alarm system as detailed on the Plans and specified herein. Components of the system shall be listed, labeled, or approved for its application as fire alarm equipment by Underwriters Laboratories Inc. The work described in this specification consists of all labor, materials, equipment and services necessary and required to complete and test the automatic fire detection and alarm system. Any material not specifically mentioned in this specification or not shown on Plans but required for proper performance and operation shall be furnished and installed.

(a) QUALITY ASSURANCE

1. This installation shall be made in accordance with the drawings, specification and the following:
 - a. National Electrical Code, Article 760, NFPA 70, (most current issue in force)
 - b. NFPA 72 National Fire Alarm Code.
 - c. NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems.
 - d. NFPA 101 Life Safety Code.
 - e. BOCA - National Fire Prevention Code
2. The system, including all components, shall be listed by Underwriters Laboratories Inc. for use as a fire protective signaling system.
3. The fire alarm installer shall be registered with the State of Illinois Department of Registration and Education as a Private Alarm Contracting Agency. Proof of registration shall be submitted with the shop drawings.

(b) SPECIAL CONDITIONS

1. The manufacturer or his authorized distributor shall confirm that within reasonable distance of the job site, within 3 hours of travel time, there is an established agency which stocks a full complement of parts and offers service during normal working hours on all equipment to be furnished, and that the agency will supply parts without delay.
2. All material and equipment shall be new and unused.
3. All hardware and software furnished shall be the manufacturer's latest revision or product version, at the time of final acceptance.
4. All individual components and composite systems shall be designed for continuous operation without undue heating or change in rated values, and shall be properly fused or protected.

(c) DEFINITIONS

1. Alarm-Initiating Device: A manual station or a heat detector.

2. Alarm Signal: Signifies a state of emergency requiring immediate action. Pertains to signals such as the operation of a manual station.
3. Class B Wiring: Circuits electrically supervised such that a single break or a single ground fault condition will be indicated by a trouble signal at the FACP no matter where the break or ground fault condition occurs.
4. Hard-Wired System: Alarm, supervisory, and initiating devices directly connected, through individual dedicated conductors, to a central control panel.
5. Supervisory Signal: Indicates abnormal status or need for action regarding fire suppression or other protective system.
6. Trouble signal: Indicates that a fault, such as an open circuit or ground, has occurred in the system.
7. Zone: Initiating device or combination of devices connected to a single alarm-initiating device circuit.

(d) SYSTEM DESCRIPTION

1. General: Complete, zoned, non-coded, microprocessor-based fire-detection and alarm system with manual and automatic alarm initiation.
2. Signal Transmission: Hard wired, using separate individual circuits for each zone of alarm initiation and alarm device operation.
3. Audible Alarm Indication: By sounding of horns.
4. System connections for alarm-initiating and alarm-indicating circuits. Class B wiring.
5. Functional Description: The following are required system functions and operating features:
 - a. Signal Initiation: The manual or automatic operation of an alarm-initiating or supervisory-operating device causes the FACP to transmit an appropriate signal including:
 - (1) General alarm.
 - (2) Smoke detector alarm
 - (3) Heat detector alarm.
 - (4) System trouble.
 - b. Transmission to Remote Central Station: Automatically route alarm, supervisory, and trouble signals to a remote central station panel using listed and approved equipment. **(Note telephone connection will not be required under this Contract, however the fire detection system shall have this capability for future connection to a telephone line.)**

- c. Silencing at FACP: Switches provide capability for acknowledgment of alarm; supervisory, trouble, and other specified signals at the FACP; and capability to silence the local audible signal and light a light-emitting diode (LED). Subsequent zone alarms cause the audible signal to sound again until silenced in turn by switch operation. Restoration to normal of alarm, supervisory, and trouble conditions extinguish the associated LED and cause the audible signal to sound again until the restoration is acknowledged by switch operation.
 - d. Loss of primary power at the FACP sounds trouble signal at the FACP and indicates at the FACP when the system is operating on an alternate power supply.
 - e. Annunciation: Manual and automatic operation of alarm and supervisory initiating devices is annunciated on the FACP indicating the location and type device.
 - f. General Alarm: A system general alarm includes:
 - (1) Indicating the general alarm condition at the FACP.
 - (2) Identifying the device that is the sound of the alarm (or its zone) at the FACP.
 - (3) Initiating audible and visible alarm signals throughout the building.
 - (4) Initiating transmission of alarm signal to remote central station.
 - g. Manual station alarm operation initiates a general alarm.
 - h. Smoke and/or Heat detection initiates a general alarm.
- (e) SUBMITTALS
- 1. General: Submit the following:
 - a. Product Data for system components. Include dimensions showing minimum clearances and installed features for devices. Include list of materials for control panel, detectors, pull stations and signals including (NRTL)-listing data.
 - b. Wiring diagrams from manufacturer differentiating between factory and field installed wiring. Include diagrams for equipment and for the system with all terminals and interconnections identified. Indicate components for both field and factory wiring.
 - c. System operation description covering this specific Project, including method of operation and supervision of each type of circuit and sequence of operations for all manually and automatically initiated system inputs and outputs. Manufacturer's standard descriptions for generic systems are unacceptable.
 - d. Operating instructions for mounting at the FACP.

- e. Operation and maintenance data for inclusion in Operating and Maintenance Manual. Include data for each type product, including all features and operating sequences, both automatic and manual. Include recommendations for spare parts to be stocked at the site. Provide the names, addresses, and telephone numbers of service organizations that carry stock of repair parts for the system to be furnished.
 - f. Product certification signed by manufacturers of fire alarm system components certifying that their products comply with indicated requirements.
 - g. Record of field tests of system.
- (f) MANUFACTURERS
- 1. Manufacturers: Subject to compliance with requirements, provide products by:
 - a. Simplex Time Recorder Company.
 - b. Edwards System Technology.
 - c. Or approved equal.
- (g) MANUAL PULL STATIONS
- 1. Description: Double-action-type, non-coded fabricated of metal or plastic, and finished in red with molded, raised-letter operating instructions of contrasting color. Stations requiring the breaking of a glass panel are unacceptable. Stations requiring the breaking of a concealed glass rod may be provided. Stations suitable for semi-flush mounting.
 - 2. Station Reset: Key or wrench operated, double pole, double throw, switch rated for the voltage and current at which it operates. Stations have screw terminals for connections.
- (h) SMOKE DETECTORS
- 1. General: Comply with UL 268. "Smoke Detectors for Fire Protective Signaling Systems." Include the following features:
 - a. Factory Nameplate: Serial number and type identification.
 - b. Operating Voltage: 24-V dc, nominal.
 - c. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
 - d. Plug-in Arrangement: Detector and associated encapsulated electronic components are mounted in a module that connects to a fixed base with a twist-locking plug connection. The plug connection requires no springs for secure mounting and contact maintenance. Terminals in the fixed base accept building wiring.
 - e. Visual Indicator: Connected to indicate detector has operated.
 - 2. Photoelectric Smoke Detectors: Include the following features and characteristics:
 - a. Detector Sensitivity: Between 2.5- and 3.5-percent-per-foot (0.008- and 0.011-percent-per-mm) smoke obstruction when tested according to UL 268.

- b. Sensor: An infrared detector light source with matching silicon-cell receiver.
- (i) HEAT DETECTORS
 - 1. Thermal Detector: Combination fixed-temperature and rate-of-rise unit with mounting plate arranged for outlet box mounting; 135 deg F fixed-temperature setting, except as indicated. Rate of rise shall be approximately 15 degrees F per minute. Provide 200 degree F units in high temperature spaces. Provide low profile white type units.
- (j) ALARM-INDICATING DEVICES
 - 1. General: Equip alarm-indicating devices for mounting as indicated. Provide terminal blocks for system connections.
 - 2. Fire Alarm Horns: Electric-vibrating-polarized type, operating on 24-V dc, with provision for housing the operating mechanism behind a grille flush in wall mounting. Horns produce a sound-pressure level of 90 dB, measured 10 feet from the source. Provide weatherproof housing for exterior horns.
 - 3. Visual Alarm Devices: Polarized 24 V d.c. strobe lights with clear polycarbonate lens and xenon flash tube. Mount lenses on an aluminum faceplate. The word "FIRE" shall be engraved in minimum 1-inch high letters on the lens. Lamps shall have a minimum peak intensity of 8,000 candlepower. Strobe leads are factory-connected to screw terminals. Combination devices shall consist of factory-combined, audible and visual alarm units in a single mounting assembly. Visual alarms shall comply with ADA requirements. Provide weatherproof housing for exterior strobe lights.
- (k) FIRE ALARM CONTROL PANEL (FACP)
 - 1. General: Comply with UL 864, "Control Units for Fire-Protective Signaling Systems."
 - 2. Cabinet: Lockable steel surface mount type enclosure with red finish. Arrange panel so all operations required for testing or for normal care and maintenance of the system are performed from the front of the enclosure. If more than a single unit is required to form a complete control panel, provide exactly matching modular unit enclosures. Accommodate all components and allow ample gutter space for interconnection of panels and field wiring. Identify each enclosure by an engraved, red, laminated, phenolic-resin nameplate. Lettering on the enclosure's nameplate shall not be less than 1 inch high. Identify individual components and modules within the cabinets with permanent labels.
 - 3. Systems: Alarm and supervisory systems shall be separate and independent in the FACP. The alarm-initiating zone boards in the FACP consist of plug-in cards. Construction requiring removal of field wiring for module replacement is unacceptable.
 - 4. Control Modules: Types and capacities required to perform all functions of the fire alarm systems. Local, visible, and audible signals announce alarm, supervisory, and trouble conditions. Each type of audible alarm has a different sound.

5. Zones: Provide for all alarm and supervisory zones indicated.
 6. Indicating Lights: Provide individual LED devices for each zone. An LED test switch for each FACP section illuminates all LED devices on that section of the control panel. Manual toggle test switches or push test-buttons do not require a key to operate. Alarm and supervisory signals light a red LED of the associated zone. Trouble signals light an amber LED for the associated zone.
 7. Resetting: Provide the necessary controls to prevent the resetting of any alarm, supervisory, or trouble signal while the alarm or trouble condition still exists.
 8. Instructions: Printed or typewritten instruction card mounted behind a lexan plastic or glass cover in a stainless-steel or aluminum frame. Install the frame in a location observable from the FACP. Include interpretation and appropriate response for displays and signals, and briefly describe the functional operation of the system under normal, alarm, and trouble conditions.
- (l) EMERGENCY POWER SUPPLY
1. General: Components shall include lead acid battery, charger, and an automatic transfer switch. Battery nominal life expectancy shall be 10 years, minimum.
 2. Battery capacity shall be adequate to operate the complete alarm system in normal or supervisory (non-alarm) mode for a period of 24 hours. At the end of this period, the battery shall be sufficient capacity to operate the system, including alarm-indicating devices in either alarm or supervisory mode, for a period of 15 minutes.
 3. Battery Charger: Solid-state, fully automatic, variable-charging-rate type. Provide capacity for 150 percent of the connected system load while maintaining the batteries at full charge. In the event batteries are fully discharged, the charger shall recharge them completely within 4 hours. Charger output shall be supervised as part of system power supply supervision.
 4. Automatic transfer switch transfers the load to the battery without loss of signals or status indications when normal power fails.
- (m) DIGITAL COMMUNICATOR
1. Digital Communicator shall be dual digital type unit with low battery sensing, alarm reporting, test channel, line seizure, lightning protection and kiss-off signal transmission. Unit shall operate from 120 VAC power source and standby 12 volt gel-cell battery with charger. Cabinet shall be standard surface mount type with key lock. Unit shall include tamper switch with reporting.

CONSTRUCTION METHODS

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-3.1 GENERAL. Revise this section to read as follows:

“The Contractor shall construct the Airport Electrical Vault building at the location shown in the Plans. Building construction shall be as shown in the Plans. Construction of the Airport Electrical Vault building shall be completed in accordance with Exhibit A, Supplement to Item 109, Construct Electrical Vault. The Contractor shall coordinate the installation of mechanical and electrical equipment with the building construction.

“The construction of PCC sidewalk, topsoiling, and sodding shall be provided as shown and in accordance with their respective items.”

109-3.2 FOUNDATION AND WALLS. Revise this section to read as follows:

“All FOUNDATION work conducted inside and around the structure as indicated on the Plans for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 02300, 03300, 04200, 06100, 07190, 07920, 09900, 10520.”

109-3.3 ROOF. Revise this section to read as follows:

“All ROOF enclosure conducted inside and around the structure as indicated on the Plans for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 03300, 04200, 05210, 05310, 05500, 07190, 07530, 07920, 09900, 10520.”

109-3.4 FLOOR. Revise this section to read as follows:

“All FLOOR enclosure conducted inside and around the structure as indicated on the Plans for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 03300, 07190, 07920.”

109-3.5 FLOOR DRAIN. Delete this section.

109-3.7 DOORS. Add the following to this section:

“All DOORS enclosure conducted inside and around the structure as indicated on the Plans for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 08111, 08710.”

109-3.8 PAINTING. Revise this section to read as follows:

“All PAINT work conducted inside and around structure as indicated on the Plans for construction of the Airport Electrical Vault building shall conform to Exhibit A, Supplement to Item 109, Construct Electrical Vault, Section 09900.”

109-3.9 LIGHTS AND SWITCHES. Revise this section to read as follows:

- “(a) Furnish and install receptacles, toggle switches, and control stations, as detailed on the Plans. Receptacles, toggle switches, and control stations shall be located at 4 feet–0 inches above finished floor elevation or finished grade at all structures. Adjust locations and/or mounting heights, where necessary, to avoid interferences.
- “(b) All receptacles shall be grounded with an equipment ground wire connected to the grounding terminal or screw on the receptacle.
- “(c) All toggle switches shall be grounded with an equipment ground wire connected to the grounding terminal or screw on the switch.
- “(d) Testing:
1. Test all GFCI receptacles and receptacles protected by GFCI's for proper operation.
 2. Verify all receptacles and switches are wired for the correct voltage.”

INSTALLATION OF EQUIPMENT IN VAULT OR PREFABRICATED METAL HOUSING

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

“The Contractor shall furnish and install all materials necessary for complete and operational installation of all vault equipment, as specified herein and as shown on the Plans. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NEC (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, ETL listing (or other third party listing) and/or the manufacturer's warranty of a device, shall not be permitted.

“Contractor shall keep a copy of the latest NEC in force on site at all times during construction for use as a reference.

“Contractor shall coordinate work and any power outages with the Airport Manager and the Resident Engineer. Any shutdown of existing systems shall be scheduled with and approved by the Airport Manager prior to shutdown.

“Locate Existing Underground Utilities and Cables. The location, size, and type of material of existing underground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. 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 Engineer shall also be immediately notified. Any such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract. Contact JULIE for utility information, Telephone: 1-800-892-0123. Also contact the Airport Manager and/or respective airport personnel for assistance in locating underground airport cables and/or utilities.”

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

“Electric Service Entrance for New Airport Vault. Contractor shall furnish and install electric service entrance for the new airport vault, as detailed on the Plans and specified herein. As part of the service entrance work, the Contractor shall coordinate with the serving utility; Com Ed, 919 West First Street, Dixon, Illinois 61021, Attn. Mr. Mark Applequist, Telephone: 815-284-5871, Facsimile; 815-284-5840, the installation of a 120/240 VAC, single-phase, 3-wire service sufficient to handle a 600-Amp service for the new airport vault and associated equipment. **The respective Airport Owner/IDOT Division of Aeronautics shall pay for all associated electric utility company charges required to provide electric service to the new vault. The Contractor is not responsible for electric utility company charges associated with the proposed electric service to the new vault.** The Contractor shall coordinate the new electric service with the serving electric utility company and the Airport Manager. The service entrance shall include, but not be limited to, all service entrance equipment, labor, and materials, as detailed on the Plans and specified herein, in order to provide a complete and operational electrical system.

“(a) Electric Utility Company: Major work items to be performed by the serving electric utility company shall be as follows:

1. The furnishing of power (new utility transformer) for a 120/240 VAC, single-phase, 3-wire secondary service sufficient to handle the loads for a 600-Amp service.
2. Furnishing and installing the meter.
3. Furnishing and installing primary service conductors to their transformer.
4. The serving electric utility company shall retain the right to review and approve Drawings prior to installation.

“(b) Contractor: Major work items to be performed by the Contractor shall be as follows: (all work, labor, equipment, and materials shall be as detailed on the Plans specified herein and per the serving electric utility’s requirements, where applicable).

1. Furnishing and installing the utility transformer pad per the requirements of the serving electric utility company. Concrete shall conform to Item 610 Structural Portland Cement Concrete of the Standard Specifications. The electric utility transformer pad will be paid for under Item AR110600 Concrete Utility Pad.
2. Furnishing and installing service entrance conduits. Note the 2-way 4" Schedule 40 PVC concrete encased duct between the utility transformer and the vault building will be paid for under Item 110.
3. Furnishing and installing secondary service entrance conductors.
4. Furnishing and installing stainless steel current transformer cabinet and/or meter base per the serving electric utility company's requirements.
5. Furnishing and installing the service entrance panelboard with main breaker.
6. Furnishing and installing ground conductors, connections to the building ground ring, and grounding electrode conductor conduits.
7. Coordinating work and verifying all requirements with serving electric utility.
8. Coordinating billing arrangements with the Airport Manager and the serving electric utility.
9. Additional work as required by the serving electric utility and as required to provide a complete and operational electric service entrance system.

"Replacement Electric Service for Shop Hangar. Contractor shall furnish and install replacement electric service entrance for the shop hangar, as detailed on the Plans and specified herein. As part of the service entrance work, the Contractor shall coordinate with the serving utility; Com Ed, 919 West First Street, Dixon, Illinois 61021, Attn. Mr. Mark Applequist, Telephone: 815-284-5871, Facsimile; 815-284-5840, the removal of the existing service and installation of a 200 Amp, 120/240 VAC, single-phase, 3-wire replacement service for the Shop Hangar and associated equipment. **The respective Airport Authority/IDOT Division of Aeronautics shall pay for all associated electric utility company charges required to provide electric service to the new vault. The Contractor is not responsible for electric utility company charges associated with the proposed electric service to the new vault.** The Contractor shall coordinate the removal of the existing service and installation of the new electric service with the serving electric utility company and the Airport Manager. The service entrance shall include, but not be limited to, all service entrance equipment, labor, and materials, as detailed on the Plans and specified herein, in order to provide a complete and operational electrical system.

"(a) Electric Utility Company: Major work items to be performed by the serving electric utility company shall be as follows:

1. Cable terminations and work at the existing utility transformer located at the Administration Building.
2. Removing existing utility meter for the existing shop hangar service.

3. Furnishing and installing the meter for the replacement service.
 4. The serving electric utility company shall retain the right to review and approve Drawings prior to installation.
- “(b) Contractor: Major work items to be performed by the Contractor shall be as follows: (all work, labor, equipment, and materials shall be as detailed on the Plans specified herein and per the serving electric utility’s requirements, where applicable).
1. Furnishing and installing secondary service entrance conductors and conduits from the existing utility transformer to the new service panelboard for the shop hangar. Note the service conductors and duct from the existing utility transformer to the new meter base will be paid for under Item 108.
 2. Furnishing and installing meter base per the serving electric utility company’s requirements.
 3. Furnishing and installing the service entrance panelboard with main breaker.
 4. Furnishing and installing ground conductors, ground rods, and grounding electrode conductor conduits.
 5. Coordinating work and verifying all requirements with serving electric utility.
 6. Coordinating billing arrangements with the Airport Manager and the serving electric utility.
 7. Additional work as required by the serving electric utility and as required to provide a complete and operational electric service entrance system.
 8. Removal of existing service conductors from the existing utility transformer to the existing main service disconnect for the shop hangar. Removal of the existing meter pedestal and associated service conduits to the existing main service disconnect for the shop hangar.
 9. Furnishing and installing a new feeder from the new service panelboard to the existing main disconnect for the shop hangar.
 10. Furnishing and installing a festival power safety switch and associated feeder from the new service panelboard.
 11. Furnishing and installing fuel farm branch circuits from the new service panelboard to the respective electrical handhole and splicing the new conductors to the existing conductors.

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

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

“Installation of S-1-Type Cutouts. Install plug cutouts in conformance with the manufacturer’s recommendations, as detailed on the Plans and as specified herein. Provide NEMA 12 painted steel enclosures adequately sized for the cutouts and cables with hinged cover and back panel to mount respective plug cutouts. Maintain working clearances in front of the cutout enclosure per the requirements of NEC 110.26 and 110.34.

“Installation of Panelboards. Panelboards shall be thoroughly inspected for physical damage, proper alignment, anchorage, and grounding. The exterior finish shall be inspected for blemishes, nicks, and bare spots and touched up, as required, using matching touch-up paint. Inspections shall be made for proper installation and tightness of connections for circuit breakers. Install panelboards, as shown on the Plans and in accordance with NEMA PB1.1. Maximum distance from floor to highest breaker shall not exceed 6 feet-6 inches. Install panelboards plumb. Install circuit breakers in panelboards in conformance with the respective manufacturer’s directions. Connect only one wire/cable to each breaker terminal. Provide filler plates for unused spaces in panelboards. Provide typed circuit directory for each branch circuit panelboard to identify the respective device fed by each circuit breaker. Revise directory to reflect circuiting changes, as required. Provide legend plates for all panelboards to identify the panelboard designation, the power source, and the voltage system. Legend plates shall be weatherproof and abrasion-resistant, phenolic material. Lettering shall be black on white background. Panelboards shall be thoroughly tested after installation and connection to respective loads.

“Surge Arrester Installation. Install Surge Protector Devices (SPD)/Transient Voltage Surge Suppressor (TVSS) devices in conformance with of FAA-STD-019d, dated August 9, 2002, “LIGHTNING AND SURGE PROTECTION, GROUNDING, BONDING AND SHIELDING REQUIREMENTS FOR FACILITIES AND ELECTRONIC EQUIPMENT” and the respective manufacturer’s directions and recommendations. Contractor shall confirm all connections to the surge arrester (phases, neutral, and ground) are completed and secure. Connection leads to the surge arrester shall be sized per the respective manufacturer’s recommendation and as detailed herein, and shall be maintained as short and as straight as possible, maximum 2 feet in length, and laced together for mutual coupling. The conduit or conduit nipple connecting the SPD/TVSS 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 SPD/TVSS device failure.

“Installation of Control Panels. Install control panels, as detailed on the Plans and in conformance with the respective panel manufacturer’s requirements and/or recommendations.”

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

“(a) Conduit shall be installed in accordance with the following:

1. Service conduits between the respective utility transformer and the vault shall be Schedule 40 PVC concrete encased with long radius galvanized rigid steel conduit elbows, as detailed on the Plans, and in conformance with item 110. Service conduits between the respective utility transformer and the shop hangar shall be Schedule 40 PVC with long radius galvanized rigid steel conduit elbows, as detailed on the Plans, and in conformance with Item 108.
2. All feeder, branch circuit, and control circuit conduits shall be galvanized, rigid steel. Conduits used with the fire detection system shall also be galvanized, rigid steel.
3. Schedule 40 PVC conduits shall be used for individual grounding electrode conductors and/or bonding jumpers.
4. Liquid-tight, flexible metal conduit shall be used as specified herein. Do not install liquid-tight, flexible metal conduit that is not UL-listed.

“(b) Conduit Runs:

1. All conduits shall be sized, as indicated on the Drawings, or if conduit sizes not shown shall be in accordance with the NEC. All conduit systems shall be mechanically and electrically continuous from source of current to all outlets and grounded in accordance with the NEC.
2. Run all exposed conduit parallel to building walls using right angle bends. Exposed diagonal runs of conduit will not be permitted. Do not install conduit on roof surfaces unless specifically indicated on the Drawings.
3. Ream conduit after threads are cut. Cut ends square and butt solidly into couplings.
4. Prevent the accumulation of water, foreign matter, or concrete in the conduits during the execution of the work. Temporarily plug conduit, blowout, and swab before wires are pulled.

5. Fasten conduits to all sheet metal boxes and cabinets and two locknuts in accord with the NEC where insulated bushings are used and where bushings cannot be brought into firm contact with the metal enclosures; otherwise, use at least a single locknut and bushing.
6. Seal each underground joint and make water-tight.
7. Where building construction or other conditions make it impossible to use standard threaded couplings, install water-tight, threaded unions.
8. Make changes in direction of runs with symmetrical bends or cast-metal fittings. Make field-made bends and offsets with conduit bending machine to avoid changing the internal diameter of the conduit and not damage its protective coating either inside or outside. Individual bends shall not exceed 90 degrees, and not more than 270 degrees total bends will be allowed in any one conduit run. Where more bends are necessary, and conduit runs exceed 150 linear feet, install a suitable pull box or junction box.
9. Provide empty conduits installed with a pull wire. Pull wire shall be No. 14 AWG, zinc-coated steel or of plastic having not less than 200 lb. tensile strength. Leave not less than 12 inches of slack at each end of the pull wire.
10. Use liquid-tight, flexible metal conduit for final connection to motors, constant current regulators, transformers, portable equipment, and for equipment subject to vibration and noise transmission. For each conduit size up to 1-in. trade size, flexible conduit shall be minimum length of 12 inches and a maximum length of 36 inches and for conduit sizes above 1-in. trade size, flexible conduit shall be minimum length of 20 inches and maximum length of 48 inches. Liquid-tight, flexible metal conduit shall be UL-listed and suitable for grounding. Liquid-tight, flexible metal conduit that is used for flexibility (including connections to motors, constant current regulators, and transformers) shall require an external bonding jumper or internal equipment grounding conductor per NEC 350.60. Do not install liquid-tight, flexible metal conduit that is not UL-listed.

“(c) Raceway Support and Hangers:

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

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

2. Support rigid conduits within 3 feet of every outlet box, junction box, pull box, cabinet, or termination. Support flexible conduit within 12 inches on each side of every outlet box or fitting.
3. Support conduits by pipe straps, wall brackets, hangers, or ceiling trapeze. The use of perforated iron or wire for supporting conduits is prohibited. Fasten with wood screws or screw nails to

wood; by toggle bolts on hollow masonry units, by concrete inserts, or expansion bolts on concrete or spring-tension or threaded C-clamps for rigid steel conduits on steel. Do not weld conduits or pipe straps to steel structures unless specifically indicated.

4. The load applied to fasteners shall not exceed one-third the proof test load of the fasteners.
5. Fasteners attached to concrete shall be vibration and shock-resistant.
6. All screws, bolts, washers, and miscellaneous hardware used for conduit supports shall be fabricated from rust-resisting metal. Trapeze hangers shall have hanger assemblies protected with galvanized finish."

109-3.15 Wiring and Connections. Add the following to this section:

"Low-voltage wiring shall maintain separation from high-voltage wiring. Low-voltage and high-voltage wiring shall not be installed in the same raceway. Low-voltage and high-voltage wiring shall not be installed in the same handhole or junction box."

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

"(c) Legend plates shall be provided for all equipment. Legend plates shall be provided to identify the equipment controlled, the power source, and the function of each device. Legend plates shall be weatherproof and abrasion-resistant phenolic/plastic engraved material and fastened with contact type permanent adhesive, screws, or rivets. Installation shall not break, crack, or deform the legend plate. Lettering shall be 1/4-in. high, black on a white background, unless noted otherwise.

"(d) All mechanical equipment shall be labeled to identify the respective equipment designation.

"(e) Each panelboard shall be furnished with a phenolic engraved legend plate that identifies the panel designation, the power source, and the respective voltage, phase, and wire.

"(f) Each constant current regulator shall be furnished with a phenolic-engraved legend plate that identifies the regulator number designation and the runway or taxiway served.

"(g) Each plug cutout cabinet shall be furnished with a phenolic-engraved legend plate that identifies the respective circuit or regulator.

"(h) Each individual circuit breaker, control panel, terminal panel, safety switch, etc. shall be furnished with a phenolic-engraved legend plate that identifies the respective device, the power source, and the respective voltage, phase, and wire. Furnish additional phenolic-engraved legend plates as detailed on the Plans and/or where required by code.

"(i) Provide legend plates to identify the vault ground bus in each room of the vault. Lettering shall be 1/2 inches high, white on a green background. Legend plate shall be labeled "VAULT GROUND BUS".

"(j) At electrical handholes, identify each cable originating in the vault with respect to the system or device served.

- “(k) Color code phase and neutral conductor insulation for No. 6 AWG or smaller. Provide colored marking tape for phase and neutral conductors for No. 4 AWG and larger. Insulated ground conductors shall have green colored insulation for all conductor AWG and/or KCMIL. Standard colors for power wiring and branch circuits shall be as follows:

120/240 VAC, 1 PHASE, 3 Wire

Phase A	Black
Phase B	Red
Neutral	White
Ground	Green

- “(l) Furnish and install weatherproof warning label for each meter socket, enclosed circuit breaker, disconnect switch, switchboard, panelboard, load center, motor control center, and control panel to warn persons of potential electric arc flash hazards, per the requirements of NEC 110.16 “Flash Protection”. Labels shall also conform to ANSI Z535.4-2002 “American National Standard for Product Safety Signs and Labels”. NEC 110.16 requires that switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn qualified persons of potential arc flash hazards. The markings shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment. This new requirement is intended to help reduce the occurrence of serious injury or death due to arcing faults to those working on or near energized electrical equipment. The warning labels are to indicate to a qualified worker who intends to open the equipment for analysis of work that a serious hazard exists and that the worker should follow appropriate work practices and wear appropriate personal protective equipment (PPE) for the specific hazard. Labels shall be as detailed on the Plans or shall include at least the following information: “Warning - Potential Arc-Flash Hazards exist while working on this energized equipment. Appropriate PPE Required.”

109-3.18 TESTING. Replace this Section with the following:

- “109-3.18 ELECTRICAL TESTING. The installation shall be tested in operation and as a completed unit prior to acceptance. Contractor shall furnish all equipment, meters, instruments, cable connections, tools, manpower, and labor to perform the respective tests. Test all new equipment and all existing equipment where modifications take place and confirm proper operation. Coordinate tests with the respective airport personnel and the Resident Engineer. Tests shall include resistance, voltage, and current reading, as applicable for the respective equipment. When tests disclose any unsatisfactory workmanship or equipment furnished under this contract, correct defects and retest. Repeat tests until satisfactory results are obtained. When any wiring or equipment is damaged by tests, the wiring or equipment shall be repaired or replaced at no additional cost to the contract. Test repaired or replaced items to ensure satisfactory operation. Submit three copies of all test reports to the Engineer.

All test reports shall be assembled and bound in a folder or binder. Each test report shall include the following information:

- ❖ Project number,
- ❖ Project title and location,

- ❖ Device or system tested,
- ❖ Test performed,
- ❖ Date performed,
- ❖ Test equipment used,
- ❖ Respective Contractor's name, address, and telephone number,
- ❖ Testing firm's name, address, and telephone number if other than the Contractor,
- ❖ Names of individuals performing tests,
- ❖ Names of individuals observing tests,
- ❖ Statement verifying each test,
- ❖ Nameplate data from respective equipment tested,
- ❖ Test results, and
- ❖ Retest results after correction of defective components or systems (where applicable).

Add:

109-3.19 GROUNDING REQUIREMENTS. Grounding shall conform to the following as applicable: The Contractor shall furnish and install all grounding shown on the Plans and/or as may be necessary or required to make a complete grounding system, as required by the latest NEC (NFPA 70) in force. The reliability of the grounding system is dependent on careful, proper installation, and choice of materials. Improper preparation of surfaces to be joined to make an electrical path, loose joints, or corrosion can introduce impedance that will seriously impair the ability of the ground path to protect personnel and equipment and to absorb transients that can cause noise in communications circuits. The following functions are particularly important to ensure a reliable ground system:

- (a) All products associated with the grounding system shall be UL-listed and labeled.
- (b) All bolted or mechanical connections shall be coated with a corrosion preventative compound before joining, Sanchem Inc. "NO-OX-ID "A-Special" compound or equal.
- (c) Metallic surfaces to be joined shall be prepared by the removal of all non-conductive material, per 2005 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 rings, ground fields, and/or ground rods at all locations where shown on the Plans or specified herein. Ground rods shall be 3/4-in. diameter, 10 feet long, UL-listed, copper-clad with 10 mil. minimum copper coating. Top of ground rods shall be a minimum of 30 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., Solon, Ohio, (Telephone 1-800-248-9353), Thermoweld by Continental Industries, Inc., Tulsa, Oklahoma (Telephone 918-663-1440) or Ultraweld by Harger, Grayslake, Illinois (Telephone 1-800-842-7437). 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 field/ground ring with an instrument specifically designed for testing ground field systems. If ground resistance exceeds **10 Ohms**, contact the Resident Engineer for further direction. Copies of ground field test results shall be furnished to the Resident Engineer, upon request, for review and record purposes.

- (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, Thomas and Betts, or equal. Tighten connections to comply with tightening torques in UL Standard 486A to assure permanent and effective grounding.
- (g) All metal equipment enclosures, conduits, cabinets, boxes, receptacles, etc. shall be bonded to the respective grounding system. Provide grounding bushings at all conduits entering service entrance equipment (meter bases, service disconnects, service panelboards, etc.) and distribution panels or load centers and ground wire from bushing to ground bus in the respective service entrance equipment or distribution panel.
- (h) Each feeder circuit and/or branch circuit shall include an equipment ground wire. Metal raceway or conduit shall not meet this requirement. The equipment ground wire from equipment shall not be smaller than allowed by 2005 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 2005 NEC 250-24. Neutral conductors shall not be used as equipment ground conductors. Equipment ground conductors shall not be used as neutral conductors. Where the Contractor has questions in regard to neutral and/or ground terminations, contact the Resident Engineer for assistance and/or clarification from the Project Engineer.

- (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 2005 NEC Article 250-66 and Table 250-66 unless shown larger on the Drawings. A bond shall be provided between the neutral and transformer case, or other metal that is part of the AC equipment grounding system, so as to complete a circuit for fault current to the transformer winding from the AC equipment grounding system. Size of the neutral bonding conductor shall be in accordance with 2005 NEC Article 250-102.
- (l) All exterior metal conduits, where not electrically continuous because of manholes, handholes, non-metallic junction boxes, etc., shall be bonded to all other metal conduit in the respective duct run, and at each end, with a copper-bonding jumper sized in conformance with 2005 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 2005 NEC 250-102.
- (m) Install lightning protection down conductors, grounding electrode conductors, and/or individual ground conductors in Schedule 40 or Schedule 80 PVC conduit or exposed where acceptable to local codes. Where lightning protection down conductors, 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. This is required to avoid girdling of ground conductors. Girdling of a ground conductor is the result of placing the conductor in a ring of magnetic material. This ring could be a metallic conduit, u-bolt or strut-support pipe clamp, or other support hardware. The result of girdling ground conductors significantly increases the inductive impedance of the ground conductor. Inductive and capacitive impedance is a type of resistance that opposes the flow of alternating current. Any increase in the impedance of a ground conductor reduces its ability to effectively mitigate radio frequency noise in the ground system. The condition where a ground conductor is girdled during a lightning strike results in phenomena known as Surge Impedance Loading. Surge impedance loading is a result of voltage and current reaching 500,000 volts and 10,000 amps for a short duration. Girdling further increases the impedance at lightning frequencies of 100 kilohertz to 100 megahertz. At these power and frequency levels any increase in the impedance of the ground conductor must be controlled. During lightning discharge conditions a low inductive impedance path is more important than a low DC resistance path.
- (n) Furnish and install # 1/0 bonding jumpers between the respective building steel skids and the vault ground ring for pre-engineered equipment enclosure building with concrete floor and steel skid structure. Connections to the ground ring and to the steel skids shall be exothermic weld-type connections. Provide one connection to each skid member associated with the respective building.

Add:

109-3.20 INSTALLATION OF MECHANICAL EQUIPMENT. Installation of mechanical equipment shall be in accordance with the applicable sections of National Electrical Code (most current issue in force), the respective equipment manufacturer's instructions, requirements, and recommendations and as detailed on the Plans. Any installations that void the UL listing, ETL listing, (or other third party listing) and/or the manufacturer's warranty of a device will not be permitted. Include disconnecting means for all motors in accordance with NEC Article 430. Include disconnecting means for all space heating equipment in accordance with NEC Article 422. Provide UL listed liquid tight flexible metal conduit at the final connections to unit heaters, fans, damper motors, and other equipment subject to vibration. Coordinate mechanical work with other trades. Seal all wall penetrations for fans, louvers, etc. to make water tight.

METHOD OF MEASUREMENT

109-4.1 METHOD OF MEASUREMENT. Revise this Section as follows:

"The quantity of Construct Electrical Vault to be paid under Item AR109100 shall consist of one (1) vault building, constructed in place as detailed on the Plans and specified herein and accepted as a complete and operational unit in proper working order."

109-4.2 METHOD OF MEASUREMENT. Delete this paragraph.

109-4.3 METHOD OF MEASUREMENT. Revise this Section as follows:

"The quantity of Install Vault Equipment to be paid for under Item AR109200 shall consist of furnishing and installing all mechanical and electrical equipment inside the vault to provide the airfield lighting power and control and heating and ventilation installation as detailed on the Plans and specified herein. This item shall include all labor, equipment, surge protection, grounding, materials, tools, operational instructions, coordination, and testing required to place the vault and airfield lighting system and modifications, upgrades, and additions into proper working order. Cables, conduits, equipment, and utility coordination associated with the new electric service to the vault shall be considered incidental to this item, and no additional compensation will be allowed. Conduits between the vault and the high voltage and low voltage handholes located near the vault shall be considered incidental to Item AR109200. Conduit entries, elbows, and fittings located at, adjacent to, or beneath the vault shall be considered incidental to this item, and no additional compensation will be allowed.

"The electric utility transformer pad will be paid for separately under Item AR110600 Concrete Utility Pad. Electrical Handholes will be paid for separately under Item AR110610 Electrical Handhole. 2-way concrete-encased duct between the utility transformer and the vault will be paid for separately under Item 110. Upgrades to the existing airport rotating beacon will be paid for separately under Item AR800591 Upgrade Airport Rotating Beacon - per lump sum."

Add:

109-4.4 The quantity of Remove Electrical Vault to be paid for under Item AR109901 "Remove Electrical Vault" shall consist of removal of existing vault transclosure, slab, all equipment and associated wire and raceway located in the existing vault, existing vault electric service equipment, conductors and conduit, and feeder conductors to the existing vault transclosure as detailed on the Plans and specified herein. This item shall include removal of the service panelboard, associated control equipment, support structure, and electric service for the PAPI system that is located near the existing vault transclosure. This item shall also include relocating the existing constant current regulators to a designated storage area on the Airport property as directed by the Airport Manager. This item shall include all labor, equipment, tools, excavating, disposal, utility coordination, and incidentals required to complete this item of work. Removal of vault equipment shall also include backfill, furnishing earth material, seeding, mulching and grading to restore the respective areas affected by the removal work.

Add:

109-4.5 The quantity of Replace Electric Services to be paid for under Item AR109924 "Replace Electric Services" shall consist of removing, relocating, replacing and/or adjusting the existing electric utility service to the shop hangar and the respective service conductors, conduits and ducts from the respective utility transformers to the respective service metering and/or disconnect equipment as required for the removal of the existing vault transclosure as detailed on the Plans and specified herein. This item shall also include replacement of the feeder circuit to the shop hangar main disconnect, the festival power safety switch and associated feeder, and the fuel farm branch circuits. This item shall include all labor, equipment, wiring, raceways, grounding, materials, tools, utility coordination, labeling, testing and all incidentals required to remove, relocate, replace and/or adjust the respective electric service installation to the satisfaction of the serving electric utility, Owner and Engineer."

BASIS OF PAYMENT

109-5.1 BASIS OF PAYMENT. Revise this section to read as follows:

"Payment will be made at the lump sum Contract unit price for Construct Electrical Vault, including construction of the building, installation of electrical, including switchgear and related items, the installation of conduits, painting and lighting of the building, and the furnishing of all incidentals necessary to produce a completed unit. This price shall be full compensation for all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the electrical vault.

"Payment will be made at the lump sum Contract unit price for Install Electrical Equipment, including furnishing all vault electrical and mechanical equipment, wiring, electrical buses, cable, conduit, and grounding systems, the painting of equipment and conduit, the marking and labeling of equipment, the labeling or tagging of wires, the testing of the installation; and the furnishing of all incidentals necessary to place the airfield lighting power and control system in operation.. This price shall be full compensation for all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the electrical equipment installation.

"Payment will be made at the lump sum Contract unit price for Remove Electrical Vault, including the demolition, removal, haul of and disposal off-site at a proper, legal disposal facility, in accordance with these specifications, including Section 109-4.4, complete and to the satisfaction of the Engineer. This price shall be full compensation for all materials and for all preparation, disassembly, and removal of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the vault enclosure removal and disposal.

"Payment will be made at the lump sum Contract unit price for Replace Electric Services, including furnishing all equipment, meter bases, wiring, electrical buses, cable, conduit, and grounding systems, the marking and labeling of equipment, the labeling or tagging of wires, the testing of the installation; and the furnishing of all incidentals necessary to place the replacement electric services in operation.. This price shall be full compensation for all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the electric services replacement.

"If, upon delivery and incorporation of any materials, the Contractor has failed to provide the necessary submittals as required by Sections 30-18, 40-01, 40-03 and 40-11 of the Standard Specifications, Supplemental Specifications and Special Provisions, the pay item shall not be included on the Contractor Progress Payment report until such submittals have been furnished.

"Payment will be made under:

Item AR109100	Construct Electrical Vault - per lump sum.
Item AR109200	Install Electrical Equipment - per lump sum.
Item AR109901	Remove Electrical Vault - per lump sum.
Item AR109924	Replace Electric Services - per lump sum."

ITEM 110

INSTALLATION OF AIRPORT UNDERGROUND ELECTRICAL DUCT

Revise Item 110 of the Standard Specifications and Supplemental Specifications as follows:

110-1.1 DESCRIPTION. Add the following:

"This item shall consist of the construction of 2-way concrete encased duct, concrete utility pad and electrical handhole at the locations shown on the Plans. This item shall also include the installation of duct using the directional-bore method. Directional-bored duct and cables associated with the new (replacement) service from the transformer handhole to the shop hangar, although installed in accordance with this Item 110, the work shall not be measured separately for payment, but shall be paid under Item AR 800990."

EQUIPMENT AND MATERIALS

110-2.1 GENERAL. Add the following:

"Conduit for constructing 2-way concrete-encased duct shall be 3-inch, Schedule 40 PVC. The duct to be directional bored shall be either: 4-inch Galvanized Rigid Steel Conduit (GRSC) duct; 4-inch Schedule 40 PVC conduit, or; 4-inch High-Density Polyethylene (HDPE) duct."

110-2.5 STEEL CONDUIT. Revise this Section to read:

"Rigid steel conduit shall be heavy-wall, hot-dipped, galvanized steel pipe bearing the UL-label and conforming to UL-6 and ANSI Specification C80.1. Couplings, connectors, and fittings for rigid steel conduit shall be threaded galvanized steel or galvanized malleable iron specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4.

"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, Group D locations. Fittings shall be as manufactured by Appleton, Crouse-Hinds, Hubbell-Killark, O-Z/Gedney, or approved equal."

110-2.7 PLASTIC CONDUIT. Add the following:

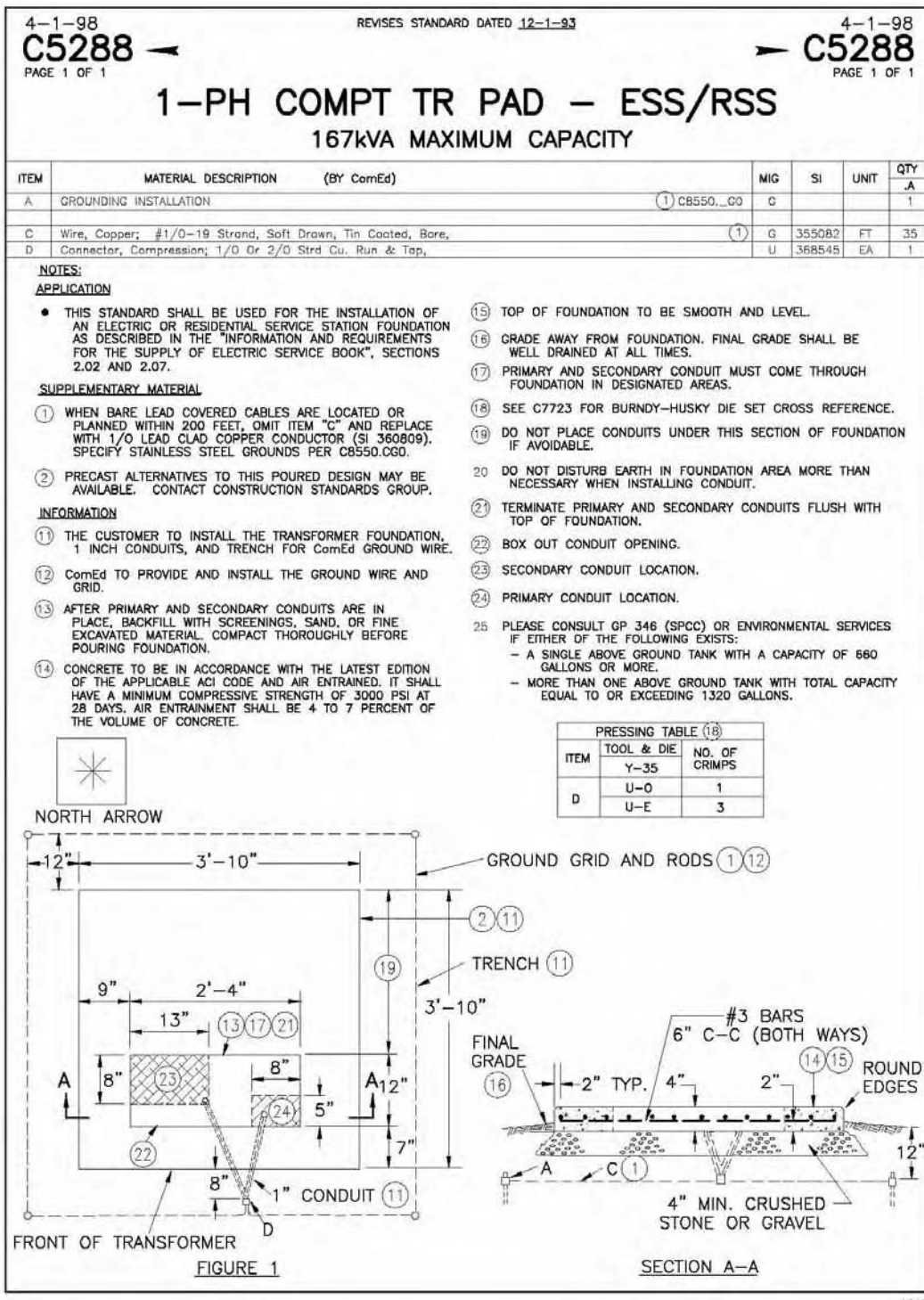
"Conduits for concrete encasement shall be Schedule 40 PVC, UL-listed, rated for 90°C cable-conforming to NEMA Standard TC-2 and UL 651, listed suitable for concrete encasement. Conduits for directional boring shall be Schedule 40 PVC, UL-listed, rated for 90°C cable conforming to NEMA Standard TC-2 and UL 651 and suitable for directional boring installation or HDPE, UL-listed, conforming to NEMA Standard TC-7 and UL 651B 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."

Add:

110-2.8 ELECTRICAL HANDHOLE. The electrical handhole shall be constructed in accordance with the Plan and details. Concrete materials shall meet Item 610 and shall be manufactured by IDOT approved sources. The frame and cover shall be of the heavy-duty square slab type suitable for H-20 loading, Neenah Foundry Company R-6662-pp, or approved equal. Frame covers shall include cast lettering with the wording noted in the Plans. The bottom sump pipe/tile, stone and/or sand bedding and all incidentals used in furnishing a complete manhole shall be as detailed and as specified in the Plans and Contract documents. Information on a pre-cast structure is available from Utility Concrete Products, LLC, 2495 West Bungalow Road, Morris, Illinois 60450, Telephone: 815.416.1000, Facsimile: 815.416.1100.

Add:

110-2.9 CONCRETE UTILITY PAD. The concrete utility pad shall be constructed in accordance with the Plan and details and the requirements of the owning electric utility (ComEd), ComEd Standard C5288 attached herein. Materials shall meet the requirements of the owning electric utility and as appropriate, IDOT specifications, and shall be manufactured by IDOT approved sources. Primary and secondary rigid steel conduits shall be constructed as shown. The concrete pad, conduits, grounding rods and cables and all incidentals required in the detail and as required by the owning electric utility (ComEd) specifications, and used in furnishing a complete pad acceptable to the resident Engineer and ComEd shall be as specified in the Plans and Contract documents. Information on a pre-cast structure is available from Utility Concrete Products, LLC, 2495 West Bungalow Road, Morris, Illinois 60450, Telephone: 815.416.1000, Facsimile: 815.416.1100.



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ComEd SYSTEM STANDARD

CONSTRUCTION METHODS

110-3.1 GENERAL. Add the following:

"The 2-way concrete-encased duct shall be constructed at the locations and in accordance with the details shown on the Construction Plans.

"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 inches below the bottom of the pavement it is being bored under. Ducts installed under paved areas and roadways shall extend a minimum of 5 feet beyond the respective pavement or roadway surface. A pull wire will be left in the conduit if it is to be left vacant. The ends of the conduit will be sealed with approved plugs.

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

110-3.4 DUCT MARKERS. Delete this Section and replace with the following:

"110-3.4 DUCT MARKERS. The location of all ducts shall be marked by installing a concrete duct marker (2 foot by 2 foot), at each end of each duct and at bends, as shown in the Plans. Also, each bituminous pavement edge shall be marked with a brass marker installed in the finished pavement, as shown in the Plans. Ducts under concrete pavement shall be marked with a "D" impressed into the fresh pavement, as shown on the Plans. The cost of furnishing and installing the markers shall be included in the unit price of the duct."

110-3.5 BACKFILLING. Add the following to the first paragraph:

"Duct located under paved areas shall be backfilled with the FA-6 material."

Add:

110-3.8 CONCRETE UTILITY PAD. The concrete utility pad shall be constructed in accordance with the owning electric utility (ComEd), Standard C5285, attached herein.

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ESS INSTALLATION REQUIREMENTS USING COMPARTMENTAL TRANSFORMERS

1. APPLICATION

- 1.1 THE INFORMATION IN THIS STANDARD COVERS GENERAL CONDITIONS AND REQUIREMENTS FOR THE INSTALLATION OF 1-PHASE AND 3-PHASE COMPARTMENTAL TRANSFORMERS FOR AN ELECTRIC SERVICE STATION.

2. GENERAL

- 2.1 THE SERVICE FACILITIES FURNISHED AND INSTALLED BY THE CUSTOMER AND ComEd SHALL BE IN ACCORDANCE WITH ComEd's REQUIREMENTS AND STANDARDS CONTAINED HEREIN, IN OTHER APPROPRIATE STANDARDS, AND IN THE "INFORMATION AND REQUIREMENTS FOR THE SUPPLY OF ELECTRIC SERVICE" (THE RULE BOOK), IN ADDITION TO A SERVICE ENTRANCE LOCATION SKETCH.
- 2.2 THIS INFORMATION IS RELEVANT TO A TRANSFORMER LOCATION WHICH IS ACCEPTABLE TO ComEd. THE SIZE AND LOCATION OF THE UNDERGROUND PRIMARY SERVICE CONNECTION ON THE CUSTOMER'S PROPERTY IS FURNISHED ON A SEPARATE SERVICE STATION SKETCH.

3. ComEd WILL FURNISH, INSTALL, OWN AND MAINTAIN

- 3.1 IN ACCORDANCE WITH THE PROVISIONS FOR FURNISHING "OPTIONAL FACILITIES":
- (A) COMPARTMENTAL TRANSFORMER, APPROPRIATE PROTECTIVE EQUIPMENT, GROUND CONNECTION INCLUDING GROUNDING CONDUCTOR, GROUND RODS, AND LUGS FOR TERMINATING SECONDARY CABLE AT TRANSFORMER.
 - (B) THAT PORTION OF THE PRIMARY SERVICE CONNECTION IN EXCESS OF A STANDARD PRIMARY SERVICE CONNECTION.
 - (C) PRIMARY SERVICE CONNECTION CABLES FOR THE ENTIRE SERVICE CONNECTION, EITHER DIRECT-BURIED (INCLUDING TRENCH) OR IN CONDUIT. IF THE CUSTOMER PREFERS DIRECT-BURIAL OF THE CABLES, ComEd SHALL HAVE CONTINUED ACCESS TO THE INSTALLATIONS, WITHOUT IMPEDIMENTS FROM OVER-BUILDING OR OBSTRUCTIONS, FOR OPERATION AND MAINTENANCE OF CABLE.
 - (D) CONNECTORS TO CONNECT THE PRIMARY CABLES TO THE TRANSFORMER.
 - (E) SECONDARY CABLE AND CONNECTORS TO CONNECT BETWEEN TRANSFORMER TERMINALS AND JUNCTION CABINET, IF USED.
 - (F) LOCKING PROVISION FOR JUNCTION CABINET, IF USED.

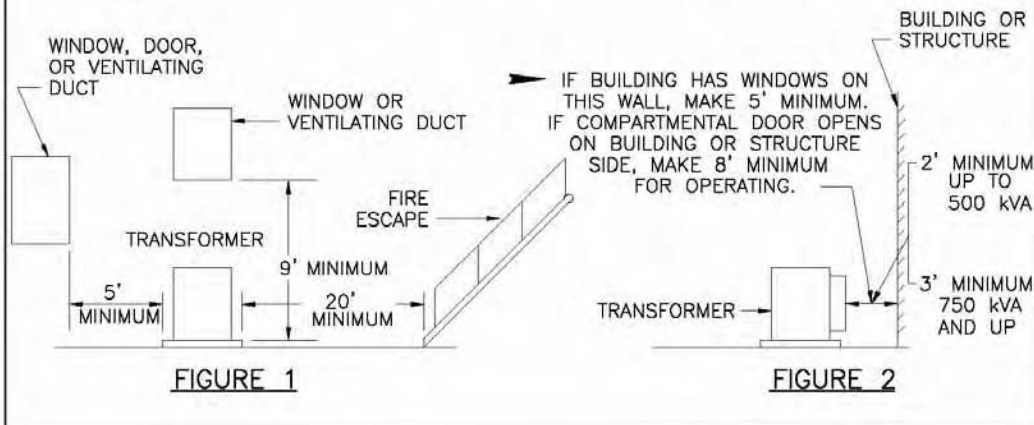
4. ComEd WILL CONNECT

- 4.1 THE PRIMARY AND SECONDARY SERVICE CONNECTION CABLES TO THE COMPARTMENTAL TRANSFORMER TERMINALS.

5. CUSTOMER SHALL FURNISH, INSTALL, OWN AND MAINTAIN

- 5.1 FOUNDATION FOR COMPARTMENTAL TRANSFORMER, CONDUIT AND TRENCH FOR GROUND WIRE PER ComEd's STANDARDS (C5288 FOR 1-PHASE TRANSFORMER, C5289 FOR OPEN DELTA TRANSFORMER BANK, AND C5286 OR C5293 FOR 3-PHASE TRANSFORMER).

THE FOUNDATION SHALL BE LOCATED AS FAR AS PRACTICAL FROM WINDOWS, DOORS, FIRE ESCAPES, ENTRANCES, AND VENTILATING DUCTS SO AS NOT TO PRESENT A PHYSICAL OBSTRUCTION. IT SHALL BE THE CUSTOMER'S RESPONSIBILITY TO COMPLY WITH ANY INSURANCE REGULATIONS AFFECTING THE INSTALLATION. FIGURES 1 AND 2 SHOW THE RECOMMENDED MINIMUM CLEARANCES BETWEEN THE TRANSFORMER FOUNDATION AND WINDOWS, DOORS, FIRE ESCAPES, ENTRANCES, AND VENTILATING DUCTS. CLEARANCES ARE MEASURED TO THE TRANSFORMER RADIATORS IF THEY ARE WITHIN THESE DIMENSIONS.



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5. CUSTOMER SHALL FURNISH, INSTALL, OWN AND MAINTAIN (CONT'D)

- 5.2 A VEHICULAR BARRIER SHALL BE INSTALLED PER C5295, WHERE DAMAGE TO THE TRANSFORMER BY VEHICLES IS POSSIBLE. BARRIERS MUST BE INSTALLED BEFORE TRANSFORMER IS SET.
- 5.3 THE CONDUIT RUN FOR PRIMARY SERVICE CONNECTION CABLE ON PRIVATE PROPERTY - SEE 3.1(C).

1-PHASE TRANSFORMER:

CONDUIT RUN SHALL CONSIST OF 3 INCH MINIMUM IRON PIPE SIZE CONDUIT, (SINGLE CONDUIT RECOMMENDED) FROM A POINT ON CUSTOMER'S PROPERTY LINE, DESIGNATED BY ComEd, TO THE TRANSFORMER FOUNDATION, TERMINATING WITH 3 INCH 90 DEGREE 36 INCH MINIMUM RADIUS, PLASTIC SCHEDULE 40 BENDS OR HOT GALVANIZED RIGID STEEL BENDS PROVIDED WITH GROUND BUSHINGS FOR 1/0 WIRE, O.Z. GEDNEY TYPE "BLG" OR EQUIVALENT. TOP OF BENDS, INCLUDING GROUND BUSHINGS IF STEEL CONDUIT, SHALL TERMINATE FLUSH WITH TOP OF FOUNDATION. FOUNDATION SHALL BE BOXED OUT AROUND CONDUIT BENDS.

3-PHASE TRANSFORMER:

THE CONDUIT RUN SHALL CONSIST OF 4 INCH MINIMUM IRON PIPE SIZE CONDUIT, (SINGLE CONDUIT RECOMMENDED) FROM A POINT ON CUSTOMER'S PROPERTY LINE DESIGNATED BY ComEd, TO THE TRANSFORMER FOUNDATION, TERMINATING WITH 4 INCH 90 DEGREE 36 INCH MINIMUM RADIUS PLASTIC SCHEDULE 40 BENDS OR HOT GALVANIZED RIGID STEEL BENDS PROVIDED WITH GROUND BUSHINGS FOR 1/0 WIRE, O.Z. GEDNEY TYPE "BLG" OR EQUIVALENT. TOP OF BENDS, INCLUDING GROUND BUSHINGS IF STEEL CONDUIT, SHALL TERMINATE FLUSH WITH TOP OF FOUNDATION, UNLESS OTHERWISE NOTED. FOUNDATION SHALL BE BOXED OUT AROUND CONDUIT BENDS.

TYPES OF APPROVED CONDUIT RUNS

CONDUIT	SEPARATION BETWEEN CONDUITS	MINIMUM DEPTH TO 3" CONCRETE ENVELOPE*	MINIMUM DEPTH TO CONDUIT WITHOUT CONCRETE ENVELOPE*
HOT GALVANIZED RIGID STEEL	1 1/2 INCH	--	30 INCHES
MULTIPLE CONCRETE CONDUIT	--	--	30 INCHES
PLASTIC	1 1/2 INCH	30 INCHES	(SEE 5.8)

* FROM FINAL GRADE.

CONDUIT PASSING THROUGH BUILDINGS SHALL BE HOT GALVANIZED RIGID STEEL ENCASED IN 3 INCH CONCRETE ENVELOPE AND TO BE PROVIDED WITH A WATERTIGHT SEAL BETWEEN CONDUIT AND BUILDING WALL.

CURVES AND BENDS IN THE CONDUIT RUN SHOULD BE AVOIDED WHEREVER POSSIBLE. WHERE A RUN CONTAINS CURVES IN ANY PLANE OR IF A STRAIGHT RUN EXCEEDS 560 FEET IN LENGTH, THE COMPANY SHALL BE CONSULTED AS TO PERMISSIBLE MAXIMUM LENGTH AND RADII OF CURVATURE. MANHOLES, BUILT TO ComEd's STANDARDS, WILL BE REQUIRED WHERE TOTAL DISTANCE EXCEEDS PERMISSIBLE CONDUIT RUN LENGTHS.

THE ENTIRE CONDUIT RUN SHALL BE INSTALLED PER C4171 ON UNDISTURBED OR WELL TAMPED EARTH. CONDUIT SHALL SLOPE A MINIMUM OF 1 INCH PER 100 FEET AND MAY DRAIN EITHER WAY OR IN BOTH DIRECTIONS TO MANHOLE. AFTER INSTALLATION, CONDUIT SHALL BE CHECKED WITH A WIRE BRUSH TYPE MANDREL (DESIGNED FOR THE CONDUIT), AND A #8 GALVANIZED STEEL PULLING WIRE OR 1/4 INCH POLYETHYLENE ROPE SHALL BE LEFT IN DESIGNATED DUCT. ComEd INSPECTOR TO CHECK INSTALLATION OF CONDUIT BEFORE TRENCH IS BACKFILLED. ENDS OF CONDUIT SHALL BE TEMPORARILY SEALED.

- 5.4 THE CONDUIT BEND AT TRANSFORMER FOUNDATION FOR PRIMARY SERVICE CONNECTION CABLE WHEN CONDUIT RUN IS NOT INSTALLED. THE CONDUIT BEND SHALL BE OF PLASTIC SCHEDULE 40 OR HOT GALVANIZED RIGID STEEL CONDUIT - SEE 3.1 (C). METAL CONDUIT BENDS SHALL HAVE ACCEPTABLE GROUND BUSHINGS FOR 1/0 WIRE, O.Z. GEDNEY TYPE "BLG" OR EQUIVALENT.

1-PHASE TRANSFORMER:

CONDUIT BEND SHALL BE 3 INCH IRON PIPE SIZE 90 DEGREE, 36 INCH MINIMUM RADIUS. TOP OF BENDS, INCLUDING GROUND BUSHING IF STEEL CONDUIT, SHALL TERMINATE FLUSH WITH THE TOP OF THE FOUNDATION AND 1 FOOT BEYOND THE FOUNDATION 2 1/2 FEET BELOW FINAL GRADE.

3-PHASE TRANSFORMER:

CONDUIT BEND SHALL BE 3 INCH IRON PIPE SIZE 90 DEGREE, 36 INCH MINIMUM RADIUS. TOP OF BENDS, INCLUDING GROUND BUSHING IF STEEL CONDUIT, SHALL TERMINATE FLUSH WITH TOP OF FOUNDATION, UNLESS OTHERWISE NOTED, AND 1 FOOT BEYOND THE FOUNDATION 2 1/2 FEET BELOW FINAL GRADE.

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5. CUSTOMER SHALL FURNISH, INSTALL, OWN AND MAINTAIN (CONT'D)

5.5 UNDERGROUND SECONDARY SERVICE CONNECTION

THE UNDERGROUND SECONDARY SERVICE CONNECTION SHALL CONSIST OF CABLE AND CONDUIT BENDS. THE BENDS SHALL BE OF PLASTIC OR HOT GALVANIZED RIGID STEEL CONDUIT. TOP OF BENDS, INCLUDING GROUND BUSHINGS IF STEEL CONDUIT, SHALL TERMINATE FLUSH WITH TOP OF FOUNDATION (SEE 3.1A AND 4.1). METAL CONDUIT BENDS SHALL HAVE GROUND BUSHINGS FOR 1/0 WIRE, O.Z. GEDNEY TYPE "BLG" OR EQUIVALENT. WITHOUT EXCEPTION, CUSTOMER'S SERVICE NEUTRAL SHALL BE CONNECTED TO THE NEUTRAL SECONDARY OF THE COMPARTMENTAL TRANSFORMER. FOUNDATION SHALL BE BOXED OUT AROUND BENDS.

5.6 AN APPROVED JUNCTION CABINET WITH BUS BARS, FOUNDATION FOR JUNCTION CABINET AND TRANSFORMER, CONDUIT TO CABINET, CONDUIT BETWEEN TRANSFORMER AND CABINET, AND A TRENCH FOR GROUND WIRE PER ComEd's STANDARDS (SEE C5286, PAGE 3 FOR DETAILS) SHALL ALL BE PROVIDED WHEN CUSTOMER'S SECONDARY CONDUIT SPACE REQUIREMENTS EXCEED DIMENSIONS SPECIFIED ON C5286, PAGE 1.

5.7 TRANSPORTATION OF TRANSFORMERS

WHERE AN ELECTRIC SERVICE STATION IS ACCESSIBLE TO ComEd's TRUCK, TRANSFORMERS SHALL BE TRANSPORTED TO THE STATION LOCATION. WHERE SUCH STATION IS NOT ACCESSIBLE, ANY ADDITIONAL MOVING EXPENSE, WHICH MAY BE NECESSARY TO PLACE TRANSFORMERS IN POSITION FOR INSTALLATION, WILL BE THE CUSTOMER'S RESPONSIBILITY.

5.8 PLASTIC CONDUIT FOR NON-CONTINUOUS, NON-ENCASED INSTALLATIONS.

IF LARGE STRESS PRODUCING LOADS, SUCH AS VEHICULAR TRAFFIC, WILL NOT BE PRESENT, THEN THE CUSTOMER CAN, AT HIS EXPENSE AND UNDER ComEd DIRECTION, INSTALL PLASTIC CONDUIT FOR ComEd PRIMARY CABLE INSTALLATION. PLASTIC CONDUIT WITHOUT A CONCRETE ENVELOPE (NON-ENCASED) IS ONLY PERMITTED IN NON-CONTINUOUS CONDUIT RUNS THAT DO NOT CONTAIN BENDS. AN EXAMPLE OF A NON-CONTINUOUS INSTALLATION WOULD BE A PRIMARY CABLE RUN THAT IS DIRECT BURIED AND THEN PUT IN A CONDUIT FOR A SHORT SEGMENT UNDERNEATH A SIDEWALK.

THE CONDUIT SHALL BE SUITABLY RESTRAINED BY BACKFILL TO MAINTAIN ITS DESIGN POSITION UNDER THE STRESS OF INSTALLATION PROCEDURES, CABLE PULLING OPERATIONS, AND OTHER CONDITIONS SUCH AS SETTLING AND HYDRAULIC OR FROST UPLIFT. THE LOCATION OF CONDUIT ENDS SHALL BE MARKED BY THE CUSTOMER. AFTER INSTALLATION, CONDUIT LENGTHS GREATER THAN 20 FEET SHALL BE CHECKED WITH A WIRE BRUSH TYPE MANDREL (DESIGNED FOR THE CONDUIT), AND A #8 GALVANIZED STEEL PULLING WIRE OR 1/4 INCH POLYETHYLENE ROPE SHALL BE LEFT IN THE CONDUIT. CONDUIT SHALL BE ADEQUATELY SIZED TO ACCOMMODATE THE LARGEST ANTICIPATED CABLE. CONDUIT SHALL BE PLASTIC SCHEDULE 40 AND IS TO BE BURIED A MINIMUM OF 30 INCHES BELOW FINAL GRADE.

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Add:

110-3.8 LOCATING OF EXISTING UNDERGROUND UTILITIES AND CABLES. The location, size, and type of material of existing underground 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 Engineer shall also be immediately notified. Any such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract.

Contact JULIE for utility information, Telephone: 1-800-892-0123. Also contact the Airport Manager and/or respective airport personnel for assistance in locating underground airport cables and/or utilities. Contact FAA for assistance in located their cables.

METHOD OF MEASUREMENT

110-4.1 Revise this Section to read as follows:

"The quantity of Concrete Encased Duct to be paid for under this item shall be the number of linear feet of the type and size of multi-way duct bank installed, measured in place, completed and accepted. Separate measurements for individual ducts in a multi-duct bank will not be made.

"No separate measurement shall be made for furnishing and installing duct markers as they are incidental to a completed and accepted duct installation.

"Excavation, backfilling, topsoiling, seeding and mulching, or sodding for the trenching and backfilling of the duct installation shall not be paid for separately but shall be included in the unit cost of the duct."

110-4.2 Delete this Section.

Add:

110-4.3 The quantity of 4" Directional Bore to be paid under this item shall be the number of linear feet of 4-inch duct installed by the directional-bore method, measured in place, completed and accepted.

No separate measurement shall be made for furnishing and installing duct markers as they are incidental to a completed and accepted duct installation.

Excavation, backfilling, topsoiling, seeding and mulching, or sodding for the trenching and backfilling of the duct installation by directional-bore method shall not be paid for separately but shall be included in the unit cost of the duct.

Add:

110-4.4 The quantity of Electrical Handhole to be paid under this item shall be the number of units installed measured in place, completed and accepted.

Excavation, backfilling, topsoiling, seeding and mulching, or sodding for the trenching and backfilling of the handhole installation shall not be paid for separately but shall be included in the unit cost of the handhole.

110-4.5 The quantity of Concrete Utility Pad to be paid under this item shall be the number of units installed measured in place, completed and accepted.

Excavation, backfilling, topsoiling, seeding and mulching, or sodding for the trenching and backfilling of the utility pad installation shall not be paid for separately but shall be included in the unit cost of the utility pad.

BASIS OF PAYMENT

110-5.1 BASIS OF PAYMENT. Delete this Section and replace with the following:

"110-5.1 BASIS OF PAYMENT. Payment will be made at the Contract unit price for each type and size of duct and duct bank completed and accepted. Payment will be made at the Contract unit price for electrical handhole and concrete utility pad completed and accepted. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, for preparation of all duct ends to remain, and for all labor, equipment, tools, and incidentals necessary to complete this item.

"If, upon delivery and incorporation of any materials, the Contractor has failed to provide the necessary submittals as required by Sections 30-18, 40-01, 40-03 and 40-11 of the Standard Specifications, Supplemental Specifications and Special Provisions, the pay item shall not be included on the Contractor Progress Payment report until such submittals have been furnished.

"Payment will be made under:

"Item AR110014	4" Directional Bore - per linear foot.
Item AR110502	2-Way Concrete Encased Duct - per linear foot.
Item AR110600	Concrete Utility Pad - per each.
Item AR110610	Electrical Handhole - per each."

ITEM 150510

ENGINEER'S FIELD OFFICE

150510-1.1 This item shall consist of furnishing and maintaining in good condition, for the exclusive use of the Resident Engineer, a weatherproof building described hereinafter at the location approved by the Resident Engineer. Unless otherwise approved, the building shall be independent of any buildings used by the Contractor and all keys to the building shall be turned over to the Resident Engineer. The Resident Engineer will designate the location of the building and it shall remain on the work site until released by him. (Mobile units may be substituted with the approval of the Resident Engineer.)

DESCRIPTION

150510-2.1 Engineer's Field Office, Type A - Type "A" field offices shall have a ceiling height of not less than seven (7) feet and a floor space of not less than three hundred and eighty (380) square feet. The office shall be provided with sufficient heat, natural and artificial light and air conditioning. Doors and windows shall be equipped with locks approved by the Resident Engineer. Suitable sanitary facilities meeting Federal, State, and local health department requirements shall be provided and maintained clean and in good working condition and shall be stocked with lavatory and sanitary supplies at all times during the period of the Contract. 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.

In addition, the following equipment and furniture meeting the approval of the Resident Engineer shall be furnished:

- (a) One (1) desk (minimum 42" by 30") with three (3) non-folding chairs with upholstered seats and backs.
- (b) One (1) desk (minimum 42' by 30") with height adjustment (23" to 30") for computer use.
- (c) One (1) four-post drafting table (minimum 37½" by 48") and one (1) adjustable stool.
- (d) One (1) free standing file cabinet, legal size, four-drawer.
- (e) Four (4) folding chairs.
- (f) One (1) carbon dioxide fire extinguisher (ten pound rated capacity).
- (g) One (1) steel equipment cabinet (minimum 44" high by 24" wide by 30" deep) with lock.
- (h) One (1) electric water cooler dispenser and supply of water bottles.
- (i) One (1) 2.5 cubic foot counter-top office refrigerator.
- (j) One (1) 800 watt, 0.8 cubic foot microwave oven.
- (k) One (1) electric tape printing calculator.
- (l) One (1) telephone and three (3) telephone lines (one (1) telephone line to have facsimile transmission capability).
- (m) One (1) automatic telephone answering machine.
- (n) One (1) plain paper memory facsimile machine (Brother Intellifax 2600 or equivalent) with operating supplies, maintenance service and 2,000 sheets of paper.
- (o) One (1) photocopy machine (Canon Model PC-980 or equivalent) with activating agent, power source, maintenance and 2,000 sheets of paper.
- (p) Two (2) 28-quart wastebaskets with 8-gallon trash bags.

BASIS OF PAYMENT

150510-3.1 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. All telephone calls within Area Code 815 and to Area Codes 217, 312, 630, 708, 773, and 847 shall be included in the cost of the Engineer's Field Office. The Resident Engineer shall reimburse the Contractor for all long distance calls outside of these area codes.

Payment will be made under:

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

ITEM 152

EXCAVATION AND EMBANKMENT

Revise Item 152 of the Standard Specifications and Supplemental Specifications as follows:

152-1.1 DESCRIPTION. Add the following:

"This item is limited to the earthwork associated with the stripping, and re-compacting of subgrade, of ten (10) inches of existing earth within the areas for construction of the new PCC sidewalk and the stripping of ten (10) inches of existing earth within the limits of the new vault building. Excavation for the foundation and footings for the new vault building shall not be performed under this item but shall be performed in accordance with, and paid under, Item 109, including Exhibit A, Supplement to Item 109."

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

CONSTRUCTION METHODS

152-2.2 EXCAVATION. Add the following to the fourth paragraph:

"All material unsatisfactory for use as embankment under paved areas, and any broken asphalt and concrete from existing pavement surfaces excavated under "Unclassified Excavation", shall be removed by the Contractor to an off-airport disposal site. Clayey material considered satisfactory by the Resident Engineer as embankment may be used as fill elsewhere in the Project when placed outside of paved areas. All excess material from excavation activities, including excess material for building foundation excavation paid elsewhere, shall be removed from the site to an off-airport disposal site. Haul and disposal of these excess and/or unsuitable materials shall not be measured separately, but their haul and disposal shall be incidental to Unclassified Excavation.

"The Contractor will not be allowed to haul any materials across existing pavements or areas designated by the Airport Owner as used for agriculture or which have been seeded under this or previous contracts.

"Payment for haul away and disposal of unsuitable Unclassified Excavation shall not be made but shall be incidental to Unclassified Excavation."

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

Add:

152-3.6 Haul and disposal off-site of excess and/or unsuitable materials resulting from unclassified excavation operations, as determined by the Resident Engineer, shall not be paid for separately but shall be incidental to the Contract.

152-3.7 Dust control watering will not be measured for payment, but shall be considered incidental to the Contract items for earthwork.

BASIS OF PAYMENT

Add:

Payment will be made under:

Item AR152410 Unclassified Excavation - per cubic yard.

ITEM 208

AGGREGATE BASE COURSE

Revise Item 208 of the Standard Specifications and Supplemental Specifications as follows:

208-1.1 DESCRIPTION. Delete this paragraph and replace with the following:

"This item shall consist of a granular base material composed of crushed coarse aggregate as specified. It shall be constructed on a prepared underlying course in accordance with these specifications and shall conform to the dimensions and the typical cross section shown on the Plans and with the lines and grades established by the Resident Engineer. Aggregate Base Course shall be placed in lifts of limited thickness as required in the Standard Specifications and to total uniform compacted thickness of 6-inches, as shown in the Plans.

"This item is limited to the aggregate base course associated with the construction of the new PCC sidewalk. Coarse aggregate to be placed under concrete foundation footings and concrete slab for the new vault building shall not be performed under this item but shall be performed in accordance with, and paid under, Item 109, including Exhibit A, Supplement to Item 109."

MATERIALS

208-2.1 UNCRUSHED COARSE AGGREGATE. Delete this section.

208-2.3 GRADATION. Add the following:

"The gradation shall be Gradation B."

CONSTRUCTION METHODS

208-3.6 FINISHING AND COMPACTING. 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 standard)."

METHOD OF MEASUREMENT

208-4.1 Delete this Section and replace with the following:

"Measurement for payment shall be in accordance with Section 208-4.2 of the Supplemental Specifications."

BASIS OF PAYMENT

208-5.1 Delete this Section and replace with the following:

"208-5.1 BASIS OF PAYMENT. Payment shall be made at the Contract unit price per square yard, per each thickness indicated in the Plans, for Aggregate Base Course of material as specified in the Special Provisions. This price shall be full compensation for furnishing all materials and for all preparation, operations, hauling, and placing of these materials, for furnishing certified scales, and for all labor, equipment, tools, and incidentals necessary to complete the item.

"If, upon delivery and incorporation of any materials, the Contractor has failed to provide the necessary submittals as required by Sections 30-18, 40-01, 40-03 and 40-11 of the Standard Specifications, Supplemental Specifications and Special Provisions, the pay item shall not be included on the Contractor Progress Payment report until such submittals have been furnished.

"Payment will be made under:

"Item AR208606 6" Aggregate Base Course - per square yard."

ITEM 501604

PORTLAND CEMENT CONCRETE SIDEWALK

501604-1.1 DESCRIPTION. This item shall consist of Portland cement concrete (PCC) sidewalk and sidewalk accessibility ramps constructed in one (1) course on a prepared subgrade. The concrete thickness shall be four (4) inches as shown in the plans. This item shall apply to sidewalk and sidewalk accessibility ramps placed on earth, aggregate base course or other subgrade, but shall not apply to sidewalk that is integrally a part of a structure.

This item shall also include the removal of existing PCC sidewalk at the locations shown in the Plans and as directed by the Resident Engineer.

MATERIALS AND EQUIPMENT

501604-2.1 MATERIALS. Materials shall meet the requirements of Section 424.02 of the IDOT Specifications. Concrete shall be Item 610.

501604-2.2 EQUIPMENT. Equipment shall meet the requirements of Section 424.03 of the IDOT Specifications.

CONSTRUCTION REQUIREMENTS

501604-3.1 NEW SIDEWALK AND ACCESSIBILITY RAMP. The construction of new sidewalk and accessibility ramp shall be completed as shown in the Plan, details and notes shown in the Plans and in accordance with Sections 424.04 through 424.10 of the IDOT Specifications.

501604-3.2 REMOVE EXISTING SIDEWALK. The Contractor shall remove the existing PCC sidewalk pavement within the limits for removal as marked by the Resident Engineer. Sidewalk removed outside of the limits marked shall be replaced by the Contractor at no additional cost to the Contract. The Contractor shall also remove any subgrade or aggregate under the removed sidewalk to a depth of 10-inches below the final grade. The Contractor shall re-compact the subgrade in accordance with Item 152. The Contractor shall remove and dispose of the removed concrete and aggregate at an off-site disposal site licensed to receive such debris. Haul of and disposal of the debris shall not be paid separately but shall be included in the Contract unit price for sidewalk removal.

METHOD OF MEASUREMENT

501604-4.1 METHOD OF MEASUREMENT. Portland cement concrete sidewalk and accessibility ramp will be measured for payment in place, and the area computed in square feet.

Sidewalk removal will be measured for payment within the limits for removal as marked by the Resident Engineer, and the area computed in square feet.

BASIS OF PAYMENT

501604-5.1 BASIS OF PAYMENT. 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, 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 AR501604	4" PCC Sidewalk - per square foot.
Item AR501690	PCC Sidewalk Removal - per square foot.

ITEM 610

STRUCTURAL PORTLAND CEMENT CONCRETE

This item shall be provided in accordance with the Standard Specifications and Supplemental Specification for Item 610, Structural Portland Cement Concrete.

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.

ITEM 800591

UPGRADE AIRPORT ROTATING BEACON

DESCRIPTION

800591-1.1 This item of work shall consist of upgrades to the existing airport rotating beacon. This item of work shall include replacing the wiring from the junction box at the base of the beacon tower to the beacon, adding grounding for lightning protection, adding a safety switch and associated conduit, fittings, junction boxes to interface the new feeder circuit to the beacon as detailed on the Plans and specified herein. This item of work shall include all labor, tools, coordination, equipment, conduit, wiring, controls, obstruction lighting, lightning protection, grounding, site preparation, testing, and all materials and incidentals necessary to perform the upgrades to the satisfaction of the Engineer.

MATERIALS

800591-2.1 GENERAL. Airport lighting equipment and applicable materials covered by these Specifications shall have the prior approval of the Federal Aviation Administration and shall be listed in Advisory Circular 150/5345-1 "Approved Airport Equipment", and/or Advisory Circular 150/5345-53 "Airport Lighting Equipment Certification Program" (latest revision). All other equipment and materials covered by other referenced Specifications shall be subject to acceptance through manufacturer's certification on compliance with the applicable specification when requested by the Engineer.

800591-2.2 DOWN CONDUCTOR. The beacon tower shall serve as the down conductor where there is a continuous metallic path from the air terminal to the point of attachment to the grounding electrode conductor that bonds the tower to the ground rods.

800591-2.3 GROUND RODS. Ground rods shall be 3/4-inch diameter by 10-feet long, UL-listed, copper-clad with 10-mil minimum copper coating.

800591-2.4 WIRE. Wire for power and control circuits shall be THWN copper conductors. Cable shall be 1/C sized as indicated on the Plans. Cable shall comply with Underwriters' Laboratories Standard UL-83 and shall be UL-listed as VW-1. Conductor shall be soft annealed uncoated copper and shall comply with ASTM B3 and B8. Insulation shall be rated for 600V. 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-2. Cable shall be UL-listed and marked THWN-2. Power and control wiring shall be Southwire, Type THWN-2, or approved equal.

800591-2.5 CONDUIT.

- (a) Galvanized Rigid Steel Conduit. All GRSC and couplings shall conform to Federal Specification WW-C-581 and conform to Item 110; conduit and fittings shall also conform to the requirements of UL 6 and UL 514B.

SPECIAL PROVISIONS

DIXON MUNICIPAL AIRPORT (C73)

CONSTRUCT REPLACEMENT AIRFIELD ELECTRICAL VAULT

AIP PROJECT NO. 3-17-0036-B8

IDA PROJECT NO. C73-3548

- (b) 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 Sealite Type UA as manufactured by Anamet Electrical Inc., 1000 Broadway Avenue East, Mattoon, Illinois 61938-0039, (Telephone: 217-234-8844), Liqueflex Type LA as manufactured by Electri-Flex Company, 222 W. Central Ave., Roselle, Illinois 60172, (Telephone: 630-529-2920 or 1-800-323-6174), or approved equal.
- (c) Schedule 40 PVC Conduit. Schedule 40 PVC conduit shall comply with Item 110 and the following: Conduit shall be Schedule 40 PVC, 90° C, UL-rated, or approved equal. Material shall comply with NEMA Specification TC-2 (Conduit), (Fittings UL-514), and UL-651 (Standard for Rigid Non-metallic Conduit). The conduit and fittings shall carry a UL label (on each 10 ft length of conduit and stamped or molded on every fitting). Conduit fittings and cement shall be produced by the same manufacturer to assure system integrity and shall be Carlon Plus 40 conduit, or equal.

800591-2.6 SAFETY SWITCH. Furnish and install a safety switch for the respective airport rotating beacon at the base of the tower as detailed on the Plans and specified herein. Safety switch shall be 30 Amp, 240 VAC, 2 pole (or three pole) heavy duty, UL-listed, not fusible, with solid neutral, in a NEMA 3R and NEMA 12 rated enclosure without knockouts. Safety switches shall be pad lockable in the off position. Include ground lugs or grounding kits with all safety switches. Safety switch shall be Square D Catalog Number HU361AW with neutral assembly and equipment ground kit, or approved equal.

CONSTRUCTION METHODS

800591-3.1 GENERAL. The Contractor shall furnish and install all equipment and materials necessary for complete and operational installation, as shown on the Plans and specified herein. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NEC (most current issue 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, ETL listing, (or other third party listing), and/or the manufacturer's warranty of a device shall not be permitted.

The Contractor should examine the proposed site to evaluate the existing conditions and the complexity of the work.

Contractor shall keep a copy of the latest NEC in force on site at all times during construction for use as a reference.

Contractor shall coordinate work and any power outages to the airport rotating beacon or other facilities located on the airport with the Airport Manager and the Resident Engineer. Any shutdown of existing systems shall be scheduled with and approved by the Airport Manager, prior to shutdown.

SPECIAL PROVISIONS

DIXON MUNICIPAL AIRPORT (C73)

CONSTRUCT REPLACEMENT AIRFIELD ELECTRICAL VAULT

AIP PROJECT NO. 3-17-0036-B8

IDA PROJECT NO. C73-3548

800591-3.2 LIGHTNING PROTECTION. The Contractor shall furnish and install two 3/4-inch diameter by 10-foot long, UL-listed, copper-clad ground rods for the airport rotating beacon tower. The beacon tower has an existing air terminal/lightning rod. The beacon tower shall serve as the down conductor where there is a continuous metallic path from the air terminal to the point of attachment to the grounding electrode conductor that bonds the tower to the ground rods. Ground rods shall be located at least 2 feet from the tower foundation, at opposite corners, and shall not be spaced less than one rod length (10 feet) apart. The ground rods shall be driven into the earth so that the top of the rod is at least 30 inches below finish grade. The tower shall be bonded to the ground rods with a #2 AWG bare copper conductor. Connections to ground rods shall be with exothermic weld type connectors, Cadweld by Erico Products, Inc., Solon, Ohio, (Telephone 1-800-248-9353), or Thermoweld by Continental Industries, Inc., Tulsa, Oklahoma (Telephone 918-663-1440), or Ultraweld by Harger, Grayslake, Illinois (Telephone 1-800-842-7437). Connections to the tower shall be with two-hole tongue copper compression lugs bolted to the tower frame. The resistance to ground of any part of the lightning protection system shall not exceed **25 Ohms**. The Contractor shall test the made electrode ground rod with an instrument specifically designed for testing ground field systems. If ground resistance exceeds **25 Ohms**, contact the Resident Engineer for further direction. Copies of ground rod test results shall be furnished to the Resident Engineer for review and record purposes.

800591-3.3 WIRING. The Contractor shall furnish and install all wiring as detailed on the Plans, per the respective equipment manufacturer's recommendations, and as specified herein. Installation of cable and wiring shall also conform to Item 108.

800591-3.4 CONDUIT INSTALLATION. Installation of conduit shall conform to Item 110.

No conduit shall be installed on top of the beacon platform floor.

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 Plans.

Liquid-tight, flexible metal 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.

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.

Where conduit enters 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.

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

800591-3.5 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.

800591-3.6 LOCATE EXISTING UNDERGROUND UTILITIES AND CABLES. The location, size, and type of material of existing underground utilities indicated on the Plans are not represented as being accurate, sufficient or complete. 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 Engineer shall also be immediately notified. Any such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract. Contact JULIE (Joint Utility Location Information for Excavation) for utility information, Telephone: 1-800-892-0123. Also contact the Airport Manager and/or respective airport personnel for assistance in locating underground airport cables and/or utilities.

800591-3.7 MARKING AND LABELING. Legend plates shall be provided for all equipment. Legend plates shall be provided to identify the equipment controlled, the power source, and the function of each device. Legend plates shall be weatherproof and abrasion resistant phenolic/plastic engraved material and fastened with contact type permanent adhesive, screws, or rivets. Installation shall not break, crack, or deform the legend plate. Lettering shall be ¼ inch high, black on a white background, unless noted otherwise. Each panelboard/load center shall be furnished with a phenolic engraved legend plate that identifies the panel designation, the power source, and the respective voltage, phase, and wire. Color code phase and neutral conductor insulation for No. 6 AWG or smaller. Provide colored insulation or colored marking tape for phase and neutral conductors for No. 4 AWG and larger. Insulated ground conductors shall have green colored insulation for all conductor AWG and/or KCMIL. Standard colors for power wiring and branch circuits shall be as follows:

120/240 VAC, 1 PHASE, 3 Wire

Phase A	Black
Phase B	Red
Neutral	White
Ground	Green

800591-3.8 GROUNDING REQUIREMENTS. Grounding shall conform to the following, as applicable: The Contractor shall furnish and install all grounding shown on the Plans and/or as may be necessary or required to make a complete grounding system, as required by the latest NEC (NFPA 70) in force. The reliability of the grounding system is dependent on careful, proper installation and choice of materials. Improper preparation of surfaces to be joined to make an electrical path, loose joints, or corrosion can introduce impedance that will seriously impair the ability of the ground path to protect personnel and equipment and to absorb transients that can cause noise in 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 or equal.
- (c) Metallic surfaces to be joined shall be prepared by the removal of all non-conductive material, per 2005 National Electrical Code 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 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-in. diameter by 10-ft long, UL-listed, copper-clad with 10-mil minimum copper coating. Top of ground rods shall be a minimum of 30 in. 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 shall be made with exothermic weld type connectors. Exothermic weld connections shall be installed in conformance with the respective manufacturer's directions using molds as required for each respective application. Bolted connections will not be permitted at ground rods or at buried grounding electrode conductors.
- (f) All connections, located above grade, between the different types of grounding conductors shall be made using UL-listed double compression crimp type connectors or UL-listed bolted ground connectors. For ground connections to enclosures, cases and frames of electrical equipment not supplied with ground lugs the Contractor shall drill required holes for mounting a bolted ground connector. All bolted ground connectors shall be Burndy, Thomas and Betts, or equal. Tighten connections to comply with tightening torques in UL Standard 486A to assure permanent and effective grounding.
- (g) All metal equipment enclosures, conduits, cabinets, boxes, receptacles, etc. shall be bonded to the respective grounding system.
- (h) Each feeder circuit and/or branch circuit shall include an equipment ground wire. Metal raceway or conduit shall not meet this requirement. The equipment ground wire from equipment shall not be smaller than allowed by 2005 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 2005 NEC 250-24. Neutral conductors shall not be used as equipment ground conductors. Equipment ground conductors shall not be used as neutral conductors. Where the Contractor has questions in regard to neutral and/or ground terminations, contact the Resident Engineer for assistance and/or clarification from the Project Engineer.
- (j) All exterior metal conduits, where not electrically continuous because of manholes, handholes, non-metallic junction boxes, etc., shall be bonded to all other metal conduit in the respective duct run, and at each end, with a copper bonding jumper sized in conformance with 2005 NEC 250-102. Where metal conduits terminate in an enclosure (such as a the beacon tower pole.) where there is not electrical continuity with the conduit and the respective enclosure, provide a bonding jumper from the respective enclosure ground bus/frame to the conduit sized per 2005 NEC 250-102.
- (k) Install grounding electrode conductors and/or individual ground conductors in Schedule 40 or Schedule 80 PVC conduit. Where grounding electrode conductors or individual ground conductors are run in PVC conduit, do not completely encircle conduit with ferrous and/or magnetic materials. Use non-metallic reinforced fiberglass strut support. Where metal conduit clamps are installed, use nylon bolts, nuts, washers, and spacers to interrupt a complete metallic path from encircling the conduit.

METHOD OF MEASUREMENT

800591-4.1 The quantity to be paid for under this item shall be measured for payment a unit price per lump sum and shall consist of furnishing and installing the safety switch, conduit, fittings, junction boxes, wiring, and all labor, materials, equipment, electrical work, grounding, tools, operational instructions, coordination, and testing required to place the respective installation into proper working order.

The 120 VAC, 1 phase, 2-wire with ground feeder circuit from the airport electrical vault to the base of the airport rotating beacon tower will be paid for separately under Item AR108656, 3/C #6 600-Volt UG Cable In UD - per lin. ft. The quantity of wiring installed from the base of the airport rotating beacon tower to the airport rotating beacon shall be considered incidental to this item (AR800591), and no additional compensation will be allowed.

BASIS OF PAYMENT

800591-5.1 Payment shall be made at the Contract unit price per lump sum for Upgrade Airport Rotating Beacon. This price and payment shall be full compensation for furnishing and installing all materials, equipment, support hardware, wiring, conduits, grounding, labor, tools, connections, coordination, preparation, assembly, and incidentals necessary to complete this item of work.

If, upon delivery and incorporation of any materials, the Contractor has failed to provide the necessary submittals as required by Sections 30-18, 40-01, 40-03 and 40-11 of the Standard Specifications, Supplemental Specifications and Special Provisions, the pay item shall not be included on the Contractor Progress Payment report until such submittals have been furnished.

Payment will be made under:

Item AR800591 Upgrade Airport Rotating Beacon - per lump sum.

DIVISION V - TURFING

ITEM 904

SODDING

Revise Item 904 of the Standard Specifications and Supplemental Specifications as follows:

MATERIALS

904-2.1 SOD. Add the following:

"The sod used shall be approved grass that is compatible with the existing turfing at the Project site. It shall be either nursery grown or field grown and be well rooted and approved by the Project Engineer prior to being cut and again before it is laid. Sod that has been grown on soil high in organic matter such as peat will not be acceptable. The consistency of adherent soil shall be such that it will not break, crumble or tear during handling and placing of the sod.

"Each piece of sod shall be well covered with turf grass, shall be free from noxious weeds and other objectionable plants, and shall not contain substances injurious to growth. The grass shall be cut to a length of not less than 1-½ inches nor more than 4 inches before the sod is cut. The sod shall be cut in rectangular pieces with its shortest side not less than 12 inches. The sod shall not be cut less than ½-inch thick. This thickness measurement does not include grass. **The Contractor shall adjust the topsoil final grades for this sod thickness to meet the elevations shown in the Plans.**"

904-2.2 LIME. Delete this Section and replace with the following:

904-2.2 LIME. Agricultural ground limestone shall be applied to the top three (3) inches of the seedbed at a rate of two (2) tons per acre covered. The limestone material shall meet the requirements of Article 1081.07 of IDOT Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, adopted January 1, 2002, as revised."

904-2.3 FERTILIZER. Add the following:

"Fertilizer shall be applied to all areas designated for sodding at 5:3:2 ratio as follows:

Nitrogen Fertilizer Nutrients	90 pounds per acre
Phosphorus Fertilizer Nutrients	54 pounds per acre
Potassium Fertilizer Nutrients	36 pounds per acre

"The fertilizer shall be incorporated into the soil to a depth of not less than three (3) inches."

BASIS OF PAYMENT

904-5.1 Payment will be made under:

Item AR904510 Sodding - per square yard.

ITEM 905

TOPSOILING

Revise Item 905 of the Standard Specifications as follows:

DESCRIPTION

905-1.1 Add the following:

“Topsoil shall be from two sources: (1) from on-site and created by stripping of topsoil from within the grading limits shown in the Plans and stockpiled at locations designated by the Resident Engineer, and; (2) from an off-site source identified by the Contractor and approved by the Resident Engineer. For on-site, stripping of the topsoil and placing in the temporary stockpiles shall be paid under Item AR152410. When off-site, no separate payment for excavation at the off-site location or haul from off-site will be made, as the Contractor shall include these costs in the Contract unit price for Topsoil from Off-Site.”

MATERIALS

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

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

CONSTRUCTION REQUIREMENTS

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

“The topsoil shall be evenly spread on the prepared areas to receive sodding to a uniform depth of four (4) inches after compaction. The 4-inch topsoil depth is based upon a sod thickness of 0.5 inch. The Contractor shall adjust the topsoil depth based upon the thickness of the sod actually used.”

BASIS OF PAYMENT

905-5.1 Add the following:

“If, upon delivery and incorporation of any materials, the Contractor has failed to provide the necessary submittals as required by Sections 30-18, 40-01, 40-03 and 40-11 of the Standard Specifications, Supplemental Specifications and Special Provisions, the pay item shall not be included on the Contractor Progress Payment report until such submittals have been furnished.”

905-5.2 Add the following:

“If, upon delivery and incorporation of any materials, the Contractor has failed to provide the necessary submittals as required by Sections 30-18, 40-01, 40-03 and 40-11 of the Standard Specifications, Supplemental Specifications and Special Provisions, the pay item shall not be included on the Contractor Progress Payment report until such submittals have been furnished.”

Payment will be made under:

Item AR905510	Topsoiling (From On Site) - per cubic yard.
Item AR905520	Topsoiling (From Off Site) - per cubic yard.

Exhibit A

Supplement to Item 109, Construct Electrical Vault

The specifications and requirements included in this Exhibit A, Supplement to Item 109, Construct Electrical Vault are applicable only to work performed by the Contractor under Item 109. The requirements described in the Exhibit A, Supplement to Item 109, Construct Electrical Vault are attached to these Special Provisions and are incorporated herein by reference.

<i>Division/Section</i>	<i>Title</i>	
Division 2	SITE WORK	
02300	Excavation, Backfill, and Compaction for Building Structures	(5 Pages)
Division 3	CONCRETE	
03300	Cast-in-Place Concrete	(15 Pages)
Division 4	MASONRY	
04200	Unit Masonry	(7 Pages)
Division 5	METALS	
05210	Steel Joists	(4 Pages)
05310	Steel Deck	(6 Pages)
05500	Metal Fabrications	(4 Pages)
Division 6	WOOD AND PLASTIC	
06100	Rough Carpentry	(4 Pages)
Division 7	THERMAL AND MOISTURE PROTECTION	
07190	Water Repellents	(3 Pages)
07350	Single-Ply Membrane Roofing	(6 Pages)
07920	Joint Sealants	(5 Pages)
Division 8	DOORS AND WINDOWS	
08111	Standard Steel Doors and Frames	(7 Pages)
08710	Finish Hardware	(7 Pages)
Division 9	FINISHES	
09900	Painting	(10 Pages)
Division 10	SPECIALTIES	
10520	Fire Protection Specialties	(2 Pages)

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Exhibit A

DIVISION 2 – SITE WORK

Section 02300 – Excavation, Backfill, and Compacting for Structures

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Preparing subgrades for interior slabs-on-grades.
 - 2. Excavating and backfilling for buildings and structures.
 - 3. Drainage course for interior slabs-on-grade.

1.2 DEFINITIONS

- A. Backfill: Soil material used to fill an excavation.
- B. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Resident Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
 - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Resident Engineer. Unauthorized excavation, as well as remedial work directed by Resident Engineer, shall be without additional compensation.
- D. Fill: Soil materials used to raise existing grades.
- E. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- F. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- G. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

Exhibit A

1.3 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Resident Engineer and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Remove vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface within limits of building and sidewalks.

3.2 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.3 SUBGRADE INSPECTION

- A. Proof-roll subgrade below the building slabs with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
- B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Resident Engineer, without additional compensation.

Exhibit A

3.4 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi , may be used when approved by Resident Engineer.

3.5 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.6 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.7 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 98 percent Standard Proctor maximum dry density.
 - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent Standard Proctor maximum dry density.
 - 3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 90 percent Standard Proctor maximum dry density.

Exhibit A

3.8 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Lawn or Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1 inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of **1/2 inch** when tested with a **10-foot (3-m)** straightedge.

3.9 DRAINAGE COURSE

- A. Place drainage course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
 - 1. Place drainage course that exceeds **6 inches** in compacted thickness in layers of equal thickness, with no compacted layer more than **6 inches** thick or less than **3 inches** thick.
 - 2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 98 percent Standard Proctor maximum dry density.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Resident Engineer will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Resident Engineer.
- D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.
- E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

Exhibit A

3.11 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.12 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300

Exhibit A

DIVISION 3 - CONCRETE

Section 03300 - Cast-In-Place Concrete

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Base Bid

1. Contractor provide steel-reinforced, cast-in-place concrete work shown on drawing sheets and specified herein for building foundations, and slabs-on-grade. Work includes, but is not limited to:
 - a. Reinforcing steel bars and wire fabric.
 - b. Accessories.
 - c. Formwork with shoring, bracing, anchors, sleeves, and openings for other work.
 - d. Form Stripping.
 - e. Control, expansion, and contraction joint devices.
 - f. Toppings.
 - g. Placement and finishing.
 - h. Curing.
 - i. Admixtures.

1.2 RELATED WORK

- A. Section 02520 – Concrete Pavement.
- B. Section 04200 – Unit Masonry.
- C. Section 05310 - Steel Deck.
- D. Section 07190 – Water Repellents

1.3 REFERENCES

Specified references, current at the date of bidding documents, unless otherwise specified, govern the work. In conflict between specified Codes and Standards and Project Specifications or Regulatory Requirements, make written request to Resident Engineer for decision.

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 302 - Guide for Concrete Floor and Slab Construction.
- C. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
- D. ACI 305R - Hot Weather Concreting.

Exhibit A

- E. ACI 306R - Cold Weather Concreting.
 - F. ACI 308 - Standard Practice for Curing Concrete.
 - G. ACI 318 - Building Code Requirements for Reinforced Concrete.
 - H. ACI 347 - Recommended Practice for Concrete Formwork.
 - I. ACI SP-66 - American Concrete Institute - Detailing Manual.
 - J. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
 - K. ASTM A 615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
 - L. ASTM C 33 - Concrete Aggregates.
 - M. ASTM C94 - Ready-Mixed Concrete.
 - N. ASTM C150 - Portland Cement.
 - O. ASTM C260 - Air Entraining Admixtures for Concrete.
 - P. ASTM C494 - Chemical Admixtures for Concrete.
 - Q. ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).
 - R. AWS D1.4 - Structural Welding Code for Reinforcing Steel.
 - S. AWS D12.1 - Welding Reinforcement Steel, Metal Inserts, and Connections in Reinforced Concrete Construction.
 - T. CRSI - Concrete Reinforcing Steel Institute - Manual of Practice.
 - U. CRSI - Recommended Practice for Placing Reinforcing Bars.
 - V. CRSI - Recommended Practice for Placing Bar Supports, Specifications, and Nomenclature.
 - W. PS -1 Construction and Industrial Plywood
- 1.4 SUBMITTALS
- A. Product Data: For each type of manufactured material and product indicated.
 - B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mix water to be withheld for later addition at Project site.

Exhibit A

- C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
 - 1. Cementitious materials and aggregates.
 - 2. Form materials and form-release agents.
 - 3. Steel reinforcement and reinforcement accessories.
 - 4. Admixtures.
 - 5. Curing materials.
 - 6. Floor and slab treatments.
 - 7. Joint-filler strips.
 - 8. Repair materials.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
- C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- D. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code-- Reinforcing Steel."
- E. ACI Publications: Comply with the following, unless more stringent provisions are indicated:
 - 1. ACI 301, "Specification for Structural Concrete."
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

Exhibit A

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
- B. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish ties that, when removed, will leave holes not larger than 1 inch in diameter in concrete surface.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Plain-Steel Welded Wire Fabric: ASTM A185, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.
 - 2. Use concrete blocks as bar supports in footings only.

2.4 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
- B. Water: Potable and complying with ASTM C 94.
- C. Normal - Weight Aggregate: ASTM C33, uniformly graded, and as follows:
 - 1. Nominal Maximum Aggregate Size: 1 inch.

2.5 ADMIXTURES

Exhibit A

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: ASTM C 260.
- C. Water-Reducing Admixture: ASTM C 494, Type A.

2.6 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
- E. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include the following:
 - 1. Clear, Waterborne, Membrane-Forming Curing Compound:
 - a. Safe Cure and Seal; Dayton Superior Corporation.
 - b. Aqua Cure VOX; Euclid Chemical Co.
 - c. Cure & Seal 14 percent E; Symons Corporation.

2.7 RELATED MATERIALS

- A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.8 CONCRETE MIXES

- A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
 - 1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.
- C. Footings and Foundation Walls: Proportion normal-weight concrete mix as follows:
 - 1. Compressive Strength (28 Days): 4000 psi unless noted otherwise
 - 2. Maximum Slump: 4 inches.

Exhibit A

3. Maximum Slump for Concrete Containing High-Range Water-Reducing Admixture: 8 inches after admixture is added to concrete with 2- to 4-inch slump.
- D. Slab-on-Grade: Proportion normal-weight concrete mix as follows:
1. Compressive Strength (28 Days): 4000 psi.
 2. Maximum Slump: 5 inches.
- E. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Combined Fly Ash and Pozzolan: 25 percent.
- F. Air Content: Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content as follows:
1. 2 to 4 percent for footings and foundation walls below grade.
 2. 5 to 7 percent for concrete exposed to the exterior.
 3. Do not air entrain concrete to trowel-finished interior floor slabs. Do not allow entrapped air content to exceed 3 percent.
- G. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- H. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture only when approved by Resident Engineer.

2.9 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.
1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

Exhibit A

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
 - B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
 - 1. Foundation walls shall be within ½ inch of being straight and level throughout the entire length of the wall, and no more than ¼ inch deviation in any 10 feet.
 - C. Construct forms tight enough to prevent loss of concrete mortar.
 - D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
 - 1. Do not use rust-stained steel form-facing material.
 - E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
 - F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
 - G. Chamfer exterior corners and edges of permanently exposed concrete.
 - H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
 - I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
 - J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
 - K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
- 3.2 EMBEDDED ITEMS
- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor bolts, accurately located, to elevations required.

Exhibit A

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.
- B. Leave formwork, for beam soffits, joists, slabs, and other structural elements, that supports weight of concrete in place until concrete has achieved the following:
 - 1. At least 75 percent of 28-day design compressive strength.
- C. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- D. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor barrier/retarder. Repair damage and reseal vapor barrier/retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing or 12 inches, whichever is greater. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Resident Engineer.

Exhibit A

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 2. Form from preformed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-quarter of concrete thickness, as follows:
1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Joints shall be sawn as soon as possible, and no later than 24 hours after casting the slab.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as foundation walls and other locations, as indicated.
1. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
 2. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete, structurally sound, and that required inspections have been performed.
- B. Water may not be added at Project site unless it is included in the approved mix design.
- C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- D. Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
 1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and

Exhibit A

- complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.
3. Do not let concrete free-fall more than 4 feet when dropping concrete in forms.
- E. Deposit and consolidate concrete for slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When air temperature has fallen to or is expected to fall below 40 deg F uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F (27 deg C) at point of placement.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents.
 4. Do not use chemical accelerators, unless approved by Resident Engineer.
- G. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water.
 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FINISHING FORMED SURFACES

- A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch in height.
- B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent

Exhibit A

formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.8 FINISHING FLOORS AND SLABS

- A. General: Comply with recommendations in ACI 302.1R for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- C. Trowel Finish: (Interior Slabs) After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system
 - 2. Finish and measure surface so gap at any point between concrete surface and an unlevelled freestanding 10-foot- long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed the following:
 - a. 1/4 inch.
- D. Broom Finish: Apply a broom finish to exterior concrete Walkways and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.9 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.
- B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

3.10 CONCRETE PROTECTION AND CURING

Exhibit A

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.
- B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the following methods:
- C. Unformed Surfaces: Begin curing immediately after finishing concrete. Ensure surface water has left the concrete and foot traffic will not damage the surface. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer recommends for use with floor coverings.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.11 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid epoxy joint filler full depth in saw-cut joints. Overfill joint and trim joint filler flush with top of joint after hardening.

Exhibit A

3.12 CONCRETE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Resident Engineer. Remove and replace concrete that cannot be repaired and patched to Resident Engineer's approval.
- B. Remove and replace concrete that does not meet specified compressive strength.
- C. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- D. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete but not less than 1 inch in depth. Voids shall be less than 8 percent of the total surface. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent (concrete without course aggregate). Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Resident Engineer.
- E. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After concrete has cured at least 14 days, correct high areas by grinding.
 - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 - 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

Exhibit A

6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- F. Perform structural repairs of concrete, subject to Resident Engineer's approval, as required by Resident Engineer.
- G. Repair materials and installation not specified above may be used, subject to Architect's/Engineer's approval.
- H. Remove and replace concrete that cannot be practically repaired and concrete that has not achieved specified compressive strengths within allowable tolerances.

3.13 FIELD QUALITY CONTROL

- A. Testing Agency: The Resident Engineer will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change. Perform slump test before and after the addition of superplasticizer admixture.
 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C 31; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
 6. Compressive-Strength Tests: ASTM C 39; test one laboratory-cured specimens at 7 days and two at 28 days.
- C. Strength of each concrete mix will be satisfactory if no compressive-strength test value falls below specified compressive strength by more than 500 psi.

Exhibit A

- D. Test results shall be reported in writing to Resident Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Resident Engineer but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Resident Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Resident Engineer.

END 03300

Exhibit A

DIVISION 4 - MASONRY Section - 04200 Unit Masonry System

1. GENERAL

1.01 WORK INCLUDES

- A. Base Bid
 - 1. Concrete masonry units.
 - 2. Reinforcement, anchorage, and accessories.

1.02 RELATED SECTIONS

- A. Section 01400 - Quality Control.

1.03 REFERENCES

- A. ACI 530 - Building Code Requirements for Masonry Structures.
- B. ACI 530.1 - Specifications For Masonry Structures.
- C. ASTM A82 - Cold-Drawn Steel Wire for Concrete Reinforcement.
- D. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- E. ASTM C90 - Load-Bearing Concrete Masonry Units.
- F. ASTM C129 - Non-Load Bearing Concrete Masonry Units.
- G. IMIAC - International Masonry Industry All-Weather Council: Recommended Practices and Guide Specification for Cold Weather Masonry Construction.
- H. IMIAC - International Masonry Industry All-Weather Council: Recommended Practices and Guide Specification for Hot Weather Masonry Construction.
- I. UL - Fire Resistance Directory.

1.04 SUBMITTALS

- A. Product Data: Provide data for exposed masonry units and fabricated wire reinforcement.
- C. Samples: Submit samples of decorative block, exposed units to illustrate color, texture and extremes of color range.
- D. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

Exhibit A

- A. Perform Work in accordance with ACI 530 and ACI 530.1.
- B. Maintain one copy of each document on site.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.

1.07 REGULATORY REQUIREMENTS

- A. Conform to applicable code for requirements for fire rated masonry construction.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.
- B. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

1.09 COORDINATION

- A. Coordinate work under provisions of General Conditions.
- B. Coordinate the masonry work with other trades.

2. PRODUCTS

2.01 CONCRETE MASONRY UNITS

- A. Hollow Load Bearing Block Units (CMU): ASTM C90, Type I Grade N, - Moisture Controlled; normal weight.
 - 1. Size and Shape: Nominal modular size of 8 x 8 x 16 inches and 4 x 8 x 16 inches. Provide special units for 90 degree corners, bond beams, lintels, coved base, and bullnosed corners.
 - 2. Solid non-load bearing block units (CMU): ASTM C129, Type I, Grade N, moisture controlled; normal weight.
- C. Split Face CMU.
 - 1. Hollow load bearing block units (CMU): ASTM C90, Type I, Grade N, moisture controlled; normal weight. Color to be selected from manufacturer's full range of standard colors.
 - 2. Size and shape: Nominal modular size of 4" x 8" x 16" or 8" x 8" x 16". Provide special units for 90 degree corners, bond beams and lintels.
 - 3. Manufacturers:
 - a. Old Castle

Exhibit A

- b. Northfield block Co.
- c. Klasicrete by Kirckshner
- d. Master Builders

2.02 REINFORCEMENT AND ANCHORAGE

- A. Single Wythe Joint Reinforcement: Truss type; cold drawn steel wire conforming to ASTM A82, 9 gauge side rods with 9 gauge cross ties. Joint reinforcement shall be placed at 16 in. centers vertically.
- B. Reinforcing Steel: ASTM A615, 60 ksi yield grade, deformed billet bars, uncoated finish.

2.03 MORTAR AND GROUT

- A. Portland Cement
 - 1. ASTM C150, Type I, except Type III may be used to reduce protection requirements specified for laying masonry in cold weather. Provide natural color or white cement as required to produce required mortar color.
 - 2. At split face (CMU) use white Portland cement, white sand.
- B. Hydrated Lime:
 - 1. ASTM C207, Type S.
- C. Aggregate for Masonry:
 - 1. ASTM C144, except for joints less than 1/4", use aggregate graded with 100% passing the No. 8 sieve and 95% the No. 16 sieve.
 - 2. At Split face (CMU) use white Georgia marble.
- D. Fine Aggregate for Grout:
 - 1. Sand, ASTM C33 or ASTM C404, Size No. 1.
- E. Coarse Aggregate for Grout:
 - 1. ASTM C404, Size No. 8 or Size No. 89.
- F. Water:
 - 1. Clean, free of deleterious materials that would impair strength or bond.
- G. Lime Putty:
 - 1. Putty shall be a stiff mixture of lime and water. keep putty moist until used. Putty made from quicklime shall be slaked and allowed to soak at least 24 hours before using. Putty made from Type S hydrated lime may be used immediately after mixing.

Exhibit A

2.04 MORTAR AND GROUT MIXES

- A. Mortar (Portland Cement Mortar):
 - 1. ASTM C270 Proportion Specifications and of following type: (Masonry cements mortar not allowed).
 - a. Type S for exterior work. (Minimum compressive strength of 1,800 p.s.i. at 28 days).
 - b. Type S or N for interior work.
 - 2. Measure and batch materials either by volume or weight. Measurement of sand exclusively by shovel will not be permitted.
 - 3. Mix mortars with maximum amount of water consistent with workability to provide maximum tensile bond strength within capacity of mortar.

3. EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Verify items provided by other sections of work are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied to other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
 - 1. Bond: Running.
 - 2. Coursing: One unit and one mortar joint to equal 8 inches.
 - 3. Mortar Joints: Concave.

3.04 PLACING AND BONDING

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.

Exhibit A

- C. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.
- D. Remove excess mortar as work progresses.
- E. Interlock intersections and external corners.
- F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

3.05 REINFORCEMENT AND ANCHORAGE - SINGLE WYTHE MASONRY

- A. Install horizontal joint reinforcement 16 inches oc.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C. Place joint reinforcement continuous in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches.

3.06 LINTELS

- A. Install lintels over openings as noted on drawings.
- B. Maintain minimum 16 inch bearing on each side of opening for steel lintels, unless noted otherwise.

3.07 GROUTED COMPONENTS

- A. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- B. Place and consolidate grout fill without displacing reinforcing.
- C. At bearing locations, fill masonry cores with grout for a minimum 16 inches either side of opening.

3.08 ENGINEERED MASONRY

- A. Lay masonry units with core cells vertically aligned and cavities between wythes clear of mortar and unobstructed.
- B. Place mortar in masonry unit bed joints back 1/4 inch from edge of unit grout spaces, bevel back and upward.
- C. Reinforce masonry unit cores with reinforcement bars and grout as indicated.

Exhibit A

- D. Retain vertical reinforcement in position at top and bottom of cells and at intervals not exceeding 192 bar diameters. Splice reinforcement a minimum of 48 bar diameters.
- E. Wet masonry unit surfaces in contact with grout just prior to grout placement.
- F. Grout spaces less than 2 inches in width with fine grout using low lift grouting techniques. Grout spaces 2 inches or greater in width with course grout using high or low lift grouting techniques.
- G. When grouting is stopped for more than one hour, terminate grout 1-1/2 inch below top of upper masonry unit to form a positive key for subsequent grout placement.
- H. Low Lift Grouting: Place first lift of grout to a height of 48 inches and rod for grout consolidation. Place subsequent lifts in 16 inch increments and rod for grout consolidation.

3.09 CONTROL AND EXPANSION JOINTS

- A. Do not continue horizontal joint reinforcement through control and expansion joints, however, bond beam reinforcement shall be continuous through control joints.
- B. Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.
- C. Size control joint in accordance with Section 07920 for sealant performance.

3.10 BUILT-IN WORK

- A. As work progresses, install built-in metal door and glazed frames, fabricated metal frames, window frames, wood nailing strips, anchor bolts, plates, and other items to be built-in the work and furnished by other sections.
- B. Install built-in items plumb and level.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build in organic materials subject to deterioration.

3.11 CUTTING AND FITTING

- A. Cut and fit for chases, pipes, conduit, sleeves and grounds. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.12 FIELD QUALITY CONTROL

Exhibit A

- A. Field inspection and testing will be performed under provisions of Section 01400.
- B. Inspect and test all masonry work.

3.13 CLEANING

- A. Clean work under provisions of General Conditions.
- B. Remove excess mortar and mortar smears as work progresses.
- C. Replace defective mortar. Match adjacent work.
- D. Clean soiled surfaces with cleaning solution.
- E. Use non-metallic tools in cleaning operations.

3.14 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of General Conditions.
- B. Without damaging completed work, provide protective boards at exposed external corners which may be damaged by construction activities.

END 04200

Exhibit A

DIVISION 5 – METALS Section 05210 – Steel Joists

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Base Bid

1. Contractor provide all steel joists and accessories, including design, fabrication and erection, as specified herein and shown on the drawings. Work includes:
 - a. K-series steel joists.
 - b. Joist accessories.

1.2 RELATED WORK

- A. Section 05120 – Structural Steel.
- B. Section 05310 – Steel Deck.
- C. Section 05500 – Metal Fabrications.

- 1.3 REFERENCES. Specified references, current at date of bidding documents unless otherwise specified, govern the work. In conflict between specified Codes and Standards, and project specifications or Regulatory Requirements, make written request to Resident Engineer for decision.

1.4 SUBMITTALS

- A. Product Data: For each type of joist, accessory, and product indicated.
- B. Shop Drawings: Show layout, designation, number, type, location, and spacings of joists. Include joining and anchorage details, bracing, bridging, joist accessories; splice and connection locations and details; and attachments to other construction. Specify member sizes and detail bearing configurations.
- C. Welding certificates.
- D. Manufacturer certificates.
- E. Testing Agency submit field quality control test and inspection reports.

Exhibit A

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer certified by the Steel Joist Institute (SJI) to manufacture joists complying with SJI standard specifications and load tables.
- B. SJI Specifications: Comply with SJI's "Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders" (hereafter, SJI's "Specifications") that are applicable to types of joists indicated.
- C. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code - Steel."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle joists as recommended in SJI's "Specifications."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel: Comply with SJI's "Specifications" for web and steel-angle chord members.
- B. Carbon-Steel Bolts and Threaded Fasteners: ASTM A 307, Grade A, carbon-steel, hex-head bolts and threaded fasteners; carbon-steel nuts; and flat, unhardened steel washers.
 - 1. Finish: Plain, uncoated.
- C. Primer: SSPC-Paint 15, or manufacturer's standard shop primer complying with performance requirements in SSPC-Paint 15.

2.2 K-SERIES STEEL JOISTS

- A. Design and manufacture steel joists of type indicated according to "Standard Specifications for Open Web Steel Joists, K-Series" in SJI's "Specifications," with steel-angle top- and bottom-chord members, underslung ends, and parallel top chord.
 - 1. Joist Type: K-series steel joists.
 - 2. Joists shall be designed as simply supported and shall not rely on the supporting structural elements for longitudinal restraint. That is, joist design shall be based on restraint conditions of one end pinned, and opposite end free to translate longitudinally (roller).

2.3 JOIST ACCESSORIES

- A. Bridging: Provide bridging anchors and number of rows of diagonal bridging of material, size, and type required by SJI's "Specifications" for type of joist, chord size, spacing, and span. Furnish additional erection bridging if required for stability.

Exhibit A

- B. Supply miscellaneous accessories, including splice plates and bolts required by joist manufacturer to complete joist installation.

2.4 CLEANING AND SHOP PAINTING

- A. Clean and remove loose scale, heavy rust, and other foreign materials from fabricated joists and accessories. Apply 1 coat of shop primer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Do not install joists until supporting construction is in place and secured.
- B. Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Specifications," joist manufacturer's written recommendations, and requirements in this Section.
 - 1. Before installation, splice joists delivered to Project site in more than one piece.
 - 2. Space, adjust, and align joists accurately in location before permanently fastening.
 - 3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
- C. Unless otherwise specified, field weld joists to supporting steel framework. Coordinate welding sequence and procedure with placement of joists. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
- D. Bolt joists, where required by OSHA regulations, to supporting steel framework using carbon-steel bolts.
- E. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

3.2 FIELD QUALITY CONTROL

- A. Resident Engineer will engage an independent testing and inspecting agency to perform field inspections and tests and to prepare test reports.
 - 1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from requirements.
- B. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.
- C. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.

Exhibit A

- D. Field-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- E. Field-welded connections will be visually inspected according to AWS D1.1.

END 05210

Exhibit A

DIVISION 5 - METALS

Section 05310 – Steel Deck

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Base Bid

1. Contractor provide steel deck shown on drawing sheets and specified herein. Work includes, but is not limited to:
 - a. Roof Deck
 - d. Accessories.
 - e. Formed steel.
 - f. Bearing plates and angles.
 - g. Framing steel for deck openings up to and including 60 inches.

1.2 RELATED WORK

- A. Section 03300 - Cast-in-Place Concrete
- B. Section 05210 – Steel Joists
- C. Section 05500 – Metal Fabrications

1.3 REFERENCES. Specified references, current at date of bidding documents unless otherwise specified, govern the work. In conflict between specified Codes and Standards and project specifications or Regulatory Requirements, make written request to Architect/Engineer for decision.

- A. ASTM A36 - Structural Steel.
- B. ASTM A446 - Steel Sheet Zinc-Coated (Galvanized) by the Hot-Dip Process Structural (Physical) Quality.
- C. ASTM A525 - Steel Sheet, Zinc-Coated, Galvanized by the Hot-Dip Process.
- D. ASTM A611- Steel, Cold-Rolled Sheet, Carbon, Structural.
- E. AWS D1.1 - Structural Welding Code.
- F. SDI (Steel Deck Institute) - Design Manual for Composite Decks, Form Decks, Roof Decks, Cellular Metal Floor Deck w/Electrical Distribution.
- G. U.L. Fire Resistance Directory.

Exhibit A

1.4 SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, deck openings, special jointing, accessories, and attachments to other construction.
- C. Product Certificates: Signed by steel deck manufacturers certifying that products furnished comply with requirements.
- D. Diaphragm shear evaluation by deck or fastener manufacturer for alternate fasteners.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed steel deck similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."
- C. AISI Specifications: Calculate structural characteristics of steel deck according to AISI's "Specification for the Design of Cold-Formed Steel Structural Members."
- D. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
- E. Fire-Test-Response Characteristics: Where indicated, provide steel deck units identical to those steel deck units tested for fire resistance per ASTM E 119 by a testing and inspection agency acceptable to authorities having jurisdiction.
 - 1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
 - 2. Steel deck units shall be identified with appropriate markings of applicable testing and inspecting agency.
- F. AISI Specifications: Calculate structural characteristics of steel deck according to AISI's "Specification for the Design of Cold-Formed Steel Structural Members."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

Exhibit A

- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.
- C. Steel deck that has become soiled shall be cleaned prior to installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include the following:
 - 1. Steel Deck:
 - a. BHP Steel Building Products USA Inc.
 - b. Consolidated Systems, Inc.
 - c. Epic Metals Corp.
 - d. Marlyn Steel Products, Inc.
 - e. Nucor Corp.; Vulcraft Div.
 - f. Roof Deck, Inc.
 - g. United Steel Deck, Inc.
 - h. Verco Manufacturing Co.
 - i. Wheeling Corrugating Co.; Div. of Wheeling-Pittsburgh Steel Corp.

2.2 ROOF DECK

- A. Steel Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with “SDI Specifications and Commentary for Steel Roof Deck,” in SDI Publication No.29, and the following:
 - 1. Galvanized Steel Sheet: ASTM A 653, Structural Steel (SS), Grade 33, G90 zinc coating.
 - 2. Deck Profile: As indicated.
 - 3. Profile Depth: As indicated.
 - 4. Design Uncoated-Steel Thickness as indicated.
 - 5. Span Condition: Triple span or more.
 - 6. Side Laps: Overlapped.

2.5 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.
- B. Mechanical Fasteners: Corrosion-resistant, low-velocity, powder-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

Exhibit A

- C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, size as indicated on the drawings.
- D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- F. Steel Sheet Accessories: Steel sheet, of same material, finish, and thickness as deck, unless otherwise indicated.
- G. Galvanizing Repair Paint: ASTM A 780.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

3.2 INSTALLATION, GENERAL

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 29, manufacturer's written instructions, and requirements in this Section.
- B. Install temporary shoring before placing deck panels, if required to meet deflection limitations.
- C. Locate decking bundles to prevent overloading of supporting members.
- D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.
- E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to decking.
- G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of decking, and support of other work.
- H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

Exhibit A

- I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's and/or fastener manufacturer's written instructions to achieve equivalent diaphragm properties.
- J. Reinforce deck openings from 6 to 12 inches with 2 x 2 x ¼ in. steel angles. Place angles perpendicular to flutes. Extend minimum two flutes each side of opening and weld to deck.
- K. Reinforce openings greater than 1 ft and less than 5 ft as detailed on the plans.
- L. Immediately after welding deck in place, touch-up welds, burned areas, and surface coating damage with zinc-chromate paint.

3.3 ROOF DECK INSTALLATION

- A. Fasten roof deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter, but not less than 1-1/2 inches long, and as follows:
 - 1. Weld Diameter: 5/8 inch, nominal.
 - 2. Weld Spacing: Space welds, as indicated.
- B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals indicated on drawings.
 - 1. Mechanically fasten with self-drilling carbon-steel screws, size as indicated.
- C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:
 - 1. End Joints: Lapped 2 inches minimum.
- D. Miscellaneous Roof Deck Accessories: Install ridge and valley plates, finish strips, cover plates, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld to substrate to provide a complete deck installation.
- E. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

3.4 FIELD QUALITY CONTROL

- A. Testing: Resident Engineer will engage a qualified independent testing agency to perform field quality-control testing.
- B. Field welds or alternate deck attachment will be subject to inspection.
- C. Testing agency will report test results promptly and in writing to Contractor and Resident Engineer.
- D. Remove and replace work that does not comply with specified requirements.

Exhibit A

- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.6 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END 05310

Exhibit A

DIVISION 5 – METALS
SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Base Bid:
 - 1. General Contractor Provide:
 - a. Miscellaneous steel framing and supports.
 - b. Loose bearing and leveling plates.
 - c. Steel weld plates and angles.

1.2 RELATED WORK

- A. Section 05210 – STEEL JOISTS
- B. Section 05310 – STEEL DECK

1.3 SUBMITTALS

- A. Shop Drawings: Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
- B. Templates: For anchors and bolts.

PART 2 - PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.
- B. Ferrous Metals:
 - 1. Steel Plates and Angles: ASTM A 36/A 36M.

2.2 FASTENERS

- A. Cast-in-Place Anchors in Concrete: Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

Exhibit A

2.3 MISCELLANEOUS MATERIALS

- A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI #79.
- B. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
 - 1. Products:
 - a. Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19.
 - b. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.
 - c. Tnemec Company, Inc.; Tneme-Zinc 90-97.
- C. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint for regalvanizing welds in steel.
- D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.
- E. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of **4000 psi**, unless otherwise indicated.

2.4 FABRICATION

- A. General: Preassemble items in the shop to greatest extent possible. Use connections that maintain structural value of joined pieces.
 - 1. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.
 - 2. Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.
 - 3. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.
 - 4. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
 - 5. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, not less than **24 inches (600 mm)** o.c.
- B. Miscellaneous Framing and Supports: Provide steel framing and supports not specified in other Sections as needed to complete the Work. Fabricate units from steel shapes, plates, and bars of welded construction. Cut, drill, and tap units to receive hardware, hangers, and similar items.
 - 1. Fabricate steel girders for wood frame construction from continuous steel shapes. Where wood nailers are attached to girders with bolts or lag screws, drill holes at **24 inches (600 mm)** o.c.

Exhibit A

2. Fabricate steel pipe columns for supporting wood frame construction with steel baseplates and top plates welded to pipe with fillet welds the same size as pipe wall thickness.
- C. Loose Bearing and Leveling Plates: Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts.

2.5 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Finish metal fabrications after assembly.
- B. Steel and Iron Finishes:
1. Hot-dip galvanize items as indicated to comply with ASTM A 123/A 123M or ASTM A 153/A 153M as applicable.
 2. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with requirements indicated below for environmental exposure conditions of installed metal fabrications:
 - a. Exteriors (SSPC Zone 1B) and Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - b. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
 3. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, with edges and surfaces level, plumb, and true.
1. Fit exposed connections accurately together. Weld connections that are not to be left as exposed joints but cannot be shop welded. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication.
 2. Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.
 3. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- B. Set bearing and leveling plates on cleaned surfaces using wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts and pack solidly with nonshrink, nonmetallic grout.

Exhibit A

- C. Touch up surfaces and finishes after erection.
 - 1. Painted Surfaces: Clean field welds, bolted connections, and abraded areas and touch up paint with the same material as used for shop painting.
 - 2. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05500

Exhibit A

DIVISION 6 - WOOD AND PLASTIC

Section 06100 - Rough Carpentry

1. GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 WORK INCLUDED

- A. Base Bid:

- 1. General Contractor Provide:

- a. Rough carpentry work not specified elsewhere and generally intended for support of other work.
 - b. Miscellaneous blocking, grounds, nailers, and panels.
 - c. Plywood.

- B. Alternates: As applicable.

1.03 RELATED WORK

- A. Specified elsewhere:

- 1. Section 13121 - Pre-Engineered Building

1.04 SUBMITTALS

- A. General: Submit the following according to Section 01300 of Division 1 of the Specifications.

- 1. Material certificates for dimension lumber indicated for compliance with selected minimum design values.
 - 2. Wood treatment data including treatment plant's certification of compliance with indicated requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack material above ground level on uniformly spaced supports to prevent deformation.

- 1. For material pressure treated with waterborne chemicals, place spacers between each bundle for air circulation.

Exhibit A

2. PRODUCTS

2.01 LUMBER, GENERAL

- A. Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Grade Stamps: Furnish lumber with each piece factory-marked with grade stamp of inspection agency that indicates grading agency, grade, species, moisture content at time of surfacing, and mill.
 - 1. For exposed lumber, furnish pieces marked on ends or back of each piece.
- C. Sizes: Provide nominal sizes indicated, complying with PS 20 except where actual sizes are specifically noted as being required.
- D. Surfacing: Dressed lumber, S4S, unless otherwise indicated.
- E. Provide lumber with 15% moisture content at time of dressing and shipment for sizes 2" or less in thickness.

2.02 CONCEALED BOARDS

- A. Standard grade, any species graded under WWPA rules or No. 3 grade Southern Pine graded under SPIB rules.

2.03 LUMBER FOR MISCELLANEOUS USES

- A. Unless otherwise indicated, provide Standard grade lumber for support of other work, including bucks, nailers, blocking, furring, grounds, stripping and similar members.

2.04 PLYWOOD

- A. Exposed Plywood:
 - 1. Where plywood will be exposed in finished work, provide exterior type plywood for exterior use and interior type plywood with exterior glue for interior use.
- B. Where transparent or natural finish or no finish is indicated, provide Exterior Type plywood for exterior use and Interior Type with exterior glue for interior use of species indicated.
- C. Where painted finish is indicated, provide Medium Density Overlay (MDO/EXT-APA).
- D. Concealed Plywood:
 - 1. Where plywood will be concealed by other work, provide Interior Type plywood C-D Plugged Grade, unless otherwise specified.

Exhibit A

- E. For backing panels for electrical or telephone equipment, provide fire-retardant treated Standard grade plywood with exterior glue.
- 2.05 FASTENERS
- A. General: Where miscellaneous carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.
 - B. Nails, Wire, Brads and Staples: FS FF-N-105.
 - C. Bolts: ASTM A 307, Grade A; with ASTM A 563 hex nuts and flat washers.
- 2.06 PRESERVATIVE WOOD TREATMENT
- A. General: Obtain preservative-treated lumber complying with AWWA standard C2. Mark each treated item with AWPB or SPIB Quality Mark Requirements. Coat surfaces cut after treatment to comply with AWWA M4.
 - B. Above-Ground Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.25 pcf.
 - 1. Kiln-dry interior dimension lumber after treatment to 19 percent maximum moisture content.
 - 2. Treat wood items indicated and in the following circumstances:
 - a. In contact with roofing, flashing, or waterproofing.
 - b. In contact with masonry or concrete.
 - c. Within 18 inches of grade.
 - C. Ground-Contact Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.40 pcf.
- 2.07 FIRE-RETARDANT TREATMENT
- A. Wood and plywood used for interior framing construction to receive fire-retardant treatment shall comply with AWWA standards for pressure impregnation with fire-retardant chemicals to achieve flame spread rating of not more than 25 when tested in accordance with UL Test 723, ASTM E84 or NFPA Test 355.
 - B. Where treated items are indicated to receive transparent or paint finish, use fire-retardant treatment which will not bleed through or adversely affect bond of finish.
3. EXECUTION
- 3.01 INSTALLATION, GENERAL
- A. Discard units of material with defects that impair quality of miscellaneous carpentry and in sizes that would require an excessive number or poor arrangement of joints.

Exhibit A

- B. Cut and fit miscellaneous carpentry accurately. Install members plumb and true to line and level.
- C. Coat cut edges of preservative-treated wood to comply with AWPA M4.
- D. Securely fasten miscellaneous carpentry as indicated and according to applicable codes and recognized standards.
- E. Countersink nail heads on exposed carpentry work and fill holes.
- F. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.02 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install where shown and where required for screeding or attachment of other work. Cut and shape to required size. Coordinate location with other work involved.
- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.

END OF SECTION 06100.

Exhibit A

DIVISION 7 THERMAL AND MOISTURE PROTECTION Section 07190 – Water Repellents

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes clear water-repellent coatings for the following vertical and nontraffic horizontal surfaces:
 - 1. Concrete Masonry Units.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide water repellents with the following properties based on testing manufacturer's standard products, according to test methods indicated, applied to substrates simulating Project conditions using same materials and application methods to be used for Project.
 - 1. Absorption: Minimum 90 percent reduction of absorption after 24 hours in comparison of treated and untreated specimens.
 - a. Concrete Unit Masonry: ASTM C 140.
 - 2. Water-Vapor Transmission: Maximum 10 percent reduction in rate of vapor transmission in comparison of treated and untreated specimens, per ASTM E 96.
 - 3. Water Penetration and Leakage through Masonry: Maximum 90 percent reduction in leakage rate in comparison of treated and untreated specimens, per ASTM E 514.
 - 4. Durability: Maximum 5 percent loss of water repellency after 2500 hours of weathering in comparison to specimens before weathering, per ASTM G 53.
 - 5. Permeability: Minimum 80 percent breathable in comparison of treated and untreated specimens, per ASTM D 1653.

1.4 SUBMITTALS

- A. Product Data: Include manufacturer's specifications, surface preparation and application instructions, recommendations for water repellents for each surface to be treated, and protection and cleaning instructions. Include data substantiating that materials are recommended by manufacturer for applications indicated and comply with requirements.

1.5 PROJECT CONDITIONS

- A. Weather and Substrate Conditions: Do not proceed with application of water repellent under any of the following conditions, except with written instruction of manufacturer:

Exhibit A

1. Ambient temperature is less than 40 deg F.
2. Concrete surfaces and mortar have cured for less than 28 days.
3. Rain or temperatures below 40 deg F are predicted within 24 hours.
4. Application is earlier than 24 hours after surfaces have been wet.
5. Substrate is frozen or surface temperature is less than 40 deg F.
6. Windy condition exists that may cause water repellent to be blown onto vegetation or surfaces not intended to be coated.

1.6 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Submit a written warranty, executed by the applicator and water repellent manufacturer, covering materials and labor, agreeing to repair or replace materials that fail to provide water repellency within the specified warranty period. Warranty does not include deterioration or failure of coating due to unusual weather phenomena, failure of prepared and treated substrate, formation of new joints and cracks in excess of 1/16 inch wide, fire, vandalism, or abuse by maintenance equipment.
 1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the following:
 1. Siloxanes: With more than 3.3 lb/gal. (400 g/L) VOCs.
 - a. Prime-A-Pell 200; Chemprobe Technologies
 - b. Klere-Seal 908-SX; Pecora Corporation.
 - c. Weather Seal Siloxane; ProSoCo, Inc.

2.2 WATER REPELLENTS

- A. Siloxanes: Penetrating water repellent. Alkylalkoxysiloxanes that are oligomeric with alcohol, ethanol, mineral spirits, water, or other proprietary solvent carrier.

PART 3 - EXECUTION

3.1 PREPARATION

Exhibit A

- A. Clean substrate of substances that might interfere with penetration or performance of water repellents. Test for moisture content, according to repellent manufacturer's written instructions, to ensure surface is sufficiently dry.
- B. Test for pH level, according to water repellent manufacturer's written instructions, to ensure chemical bond to silicate minerals.
- C. Protect adjoining work, including sealant bond surfaces, from spillage or blow-over of water repellent. Cover adjoining and nearby surfaces of aluminum and glass if there is the possibility of water repellent being deposited on surfaces. Cover live plants and grass.
- D. Coordination with Sealants: Do not apply water repellent until sealants for joints adjacent to surfaces receiving water-repellent treatment have been installed and cured.
 - 1. Water-repellent work may precede sealant application only if sealant adhesion and compatibility have been tested and verified using substrate, water repellent, and sealant materials identical to those used in the work.

3.2 APPLICATION

- A. Apply a heavy-saturation spray coating of water repellent on surfaces indicated for treatment using low-pressure spray equipment. Comply with manufacturer's written instructions for using airless spraying procedure, unless otherwise indicated.
- B. Apply a second saturation spray coating, repeating first application. Comply with manufacturer's written instructions for limitations on drying time between coats and after rainstorm wetting of surfaces between coats. Consult manufacturer's technical representative if written instructions are not applicable to Project conditions.

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Provide services of a factory-authorized technical service representative to inspect and approve the substrate before application and to instruct the applicator on the product and application method to be used.

3.4 CLEANING

- A. Protective Coverings: Remove protective coverings from adjacent surfaces and other protected areas.
- B. Immediately clean water repellent from adjoining surfaces and surfaces soiled or damaged by water-repellent application as work progresses. Repair damage caused by water-repellent application. Comply with manufacturer's written cleaning instructions.

END OF SECTION 07190

Exhibit A

DIVISION 7 THERMAL AND MOISTURE PROTECTION
Section 07530 – Single Ply Membrane Roofing

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes mechanically-fastened single-ply membrane roofing systems.
- B. Single-ply roofing membranes include the following:
 - 1. Ethylene Propylene Diene Monomer (EPDM)
 - 2. Polyvinyl Chloride (PVC)
 - 3. Chlorosulfonated Polyethylene (CSPE)
 - 4. Tri-Polymer Alloy (C-3)
- C. Roof insulation related to flexible sheet roofing is specified in this section.
- D. Wood nailers, blocking and other related items are specified in Division 6.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Obtain primary flexible sheet roofing from a single manufacturer. Provide secondary materials as recommended by manufacturer of primary materials.
- B. Installer: Engage an experienced installer to apply single-ply membrane roofing who has specialized in application of roofing systems similar to those required for this project. Installer must be acceptable to or licensed by manufacturer of primary roofing material.
- C. Work associated with single-ply membrane roofing, including (but not limited to) insulation, flashing and counterflashing, expansion joints and joint sealers, is to be performed by installer of this work.
- D. Pre-Roofing Conference: Prior to installation of roofing and associated work, meet at project site, or other mutually agreed location, with installer, roofing sheet manufacturer, installers of related work and other entities concerned with roofing performance, including (where applicable) Owner's insurer, test agencies, governing authorities, Architect and Owner. Record discussions and agreements and furnish copy to each participant. Provide at least 72 hours' advance notice to participants prior to convening pre-roofing conference.
- E. UL Listing: Provide labeled materials that have been tested and listed by UL in "Building Materials Directory" or by other nationally recognized testing laboratory for application indicated, with "Class A" rated materials/system for roof slopes shown.

Exhibit A

1.4 SUBMITTALS

- A. Product data, installation instructions and general recommendations from manufacturer of single-ply membrane system for types of roofing required. Include data substantiating that materials comply with requirements.
- B. Samples of finished roofing sheets, including T-shaped side/end-lap seam. Also include insulation.
- C. Pre-roofing conference records.
- D. Test data for pullout resistance of fastening systems.

1.5 PROJECT CONDITIONS

- A. Weather: Proceed with roofing work when existing and forecasted weather conditions permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.
- B. Substrate Conditions: Do not begin roofing installation until substrates have been inspected and are determined to be in satisfactory condition.

1.6 WARRANTY

- A. Standard Roofing Manufacturer's Warranty: Submit a written warranty, without monetary limitation, signed by roofing system manufacturer agreeing to promptly repair leaks resulting from defects in materials or workmanship for the following warranty period.
 - 1. Warranty Period: **10** years.
- B. Special Project Warranty: Submit roofing Installer's written warranty, signed by Installer, covering Work of this Section, including membrane roofing, sheet flashing, roof insulation, fasteners, and vapor retarders, if any, for the following warranty period.
 - 1. Warranty Period: **3** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ETHYLENE PROPYLENE DIENE MONOMER MEMBRANE:

- A. General: Ethylene propylene diene monomers formed into uniform, flexible sheets, complying with ASTM D 4637, Type 1.
 - 1. Class U, Unreinforced
 - 2. Class SR, Scrim or fabric internal reinforced
 - 3. Thickness: 45 mils, nominal
 - 4. Exposed Face Color: Manufacturer's standard.
 - 5. Mechanically-fastened EPDM membrane (manufacturer's standard installation):

Exhibit A

- B. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
1. Carlisle Syntec Systems
 2. Firestone
 3. Manville Roofing Systems
 4. Senergy Methods, Inc.
- 2.2 POLYVINYL CHLORIDE (PVC) MEMBRANE:
- A. General: Virgin polyvinyl chloride (PVC) with plasticizers and modifiers, formed into uniform flexible sheets, complying with ASTM D 4434, type to suit project.
1. Thickness: 48 mils, nominal.
 2. Membrane Reinforcing: Manufacturer's standard glass fiber or polyester scrim.
 3. Exposed Face Color: Grey.
 4. Mechanically Fastened PVC Membrane: Manufacturer's standard installation.
- B. Manufacturers: Subject to compliance with requirements, provide products of one of the following (or equal):
1. Trocal Inc.
 2. Sarnafil, Inc.
- 2.3 CHLOROSULFONATED POLYETHYLENE (CSPE) MEMBRANE:
- A. General: "Hypalon" synthetic rubber as produced by E.I. du Pont de Nemours & Co., formed into uniform flexible sheets, complying with the following:
1. Tensile strength (ASTM D 412): 1000 psi.
 2. Ultimate Elongation (ASTM D 412): 350 percent.
 3. Brittleness Temperature (ASTM D 746): Minimum 40 degrees F (minus 40 deg C).
 4. Resistance to Heat Aging (ASTM D 573): Retains 100 percent of tensile strength (14 days at 212 degrees F/100 degrees C).
 5. Thickness: 45 mils, nominal.
 6. Exposed Face Color: White.
 7. Mechanically Fastened CSPE Membrane: Manufacturer's standard installation.
- B. Manufacturers: Subject to compliance with requirements, provide products of "J.P. Stevens Hi-Tuff" by J.P.S. Elastomerics Corporation.
- 2.4 TRI-POLYMER ALLOY (C-3) MEMBRANE:
- A. General: Minimum Thickness: 60 mils.
- B. Manufacturers: Subject to compliance with requirements, provide products of the following (or equal): Cooley Roofing Systems.
- 2.5 AUXILIARY MATERIALS:

Exhibit A

- A. Sheet Seaming System: Manufacturer's standard materials for sealing lapped joints, including edge sealer to cover exposed spliced edges as recommended by membrane manufacturer.
 - B. Cant Strips, Tapered Edge Strips and Flashing Accessories: Types recommended by membrane manufacturer, including adhesive tapes, flashing cements and sealants.
 - C. Flashing Material: Manufacturer's standard system compatible with flexible sheet membrane.
 - D. Walkway Panels: Prefabricated made by successful bidder or approved by him, specifically for protection of exposed FSR membrane.
 - E. Slip Sheet: Type recommended by membrane manufacturer for protecting membrane from incompatible substrates.
 - F. Mechanical Fasteners: Metal plates, caps, battens, accessory components, fastening devices and adhesives to suit substrate and as recommended by membrane manufacturer.
 - G. Membrane Adhesive: As recommended by membrane manufacturer for particular substrate and project conditions, formulated to withstand minimum 60 psf uplift force.
- 2.07 INSULATING MATERIALS:
- A. General: Provide insulating materials to comply with requirements indicated for materials and compliance with referenced standards in sizes to fit applications indicated, selected from manufacturer's standard thickness, widths and lengths.
 - B. Extruded Polystyrene Board Insulation: Rigid, Cellular thermal insulation with closed cells and integral high density skin, complying with ASTM C 578 for type indicated; with five year aged r-values of 5.4 and 5 at 40 and 75 degrees F (4.4 and 23.9 degrees C), respectively; and as follows: Type IV, 1.6 pcf minimum density, unless otherwise indicated; Surface Burning Characteristics - Maximum flame spread and smoke developed values of 5 and 165, respectively.
 - C. Cellular Glass Board Roof Insulation: Roof boards composed of multiple sections of rigid flat cellular glass block with kraft-paper sheet facings laminated to both sides with asphalt; complying with ASTM C 552, Type IV; 24 inches wide by 48 inches long, passing ASTM E 136 for combustion characteristics of unfaced board; with r-values of 3.03 and 2.86 at 50 and 75 degrees F (10 and 23.0 degrees C), respectively.
 - D. Perlite/Polyisocyanurate Composite Board Roof Insulation: Rigid thermal composite insulation with polyisocyanurate closed-cell foam core with rigid perlite board laminated to one side and manufacturer's standard facing laminated to other side; complying with FS HH-I-1972/3, Class 1. Flame spread = 25.
 - E. Polyisocyanurate Board Roof Insulation: Rigid, cellular thermal insulation with polyisocyanurate closed-cell foam core and manufacturer's standard facing laminated to both sides; complying with FS HH-I-1972/2, Class 1.

Exhibit A

2.08 AUXILIARY INSULATION MATERIALS:

- A. Adhesive for Bonding Insulation: Type recommended by insulation manufacturer and complying with fire resistance requirements.
- B. Mastic Sealer: Type recommended by insulation manufacturer for bonding edge joints and filling voids.
- C. Mechanical Anchors: Corrosion-resistant type as recommended by insulation manufacturer for deck type and complying with fire and insurance uplift rating requirements.
- D. Provide system tested and approved for I-60 wind uplift rating.

PART 3 - EXECUTION

3.1 PREPARATION OF SUBSTRATE:

- A. General: Comply with manufacturers' instructions for preparation of substrate to receive single-ply membrane systems.
- B. Verify that penetrations, expansion joints and blocking are in place and secured and that roof drains are properly clamped into positions.

3.2 INSULATION INSTALLATION:

- A. General: Extend insulation fill thickness in two layers, or in multiple layers over entire surface to be insulated, cutting and fitting tightly around obstructions. Form cant strips, crickets, saddles and tapered areas with additional material as shown and as required for proper drainage of membrane. Stagger joints in one direction for each course. For multiple layers, stagger joints in both directions between courses with no gaps to form a complete thermal envelope.
- B. Do not install more insulation each day than can be covered with membrane before end of day or before start of inclement weather.
- C. Secure roof insulation to substrate with mechanical anchors of type and spacing indicated, but in no case provide less than one anchor per four square feet of surface area or less anchorage than required by FM "Loss Prevention Data Sheet 1-28."

3.3 MEMBRANE INSTALLATION:

- A. General: Start installation only in presence of manufacturer's technical representative. Cut out and repair membrane defects at end of each day's work.
- B. Mechanically fastened Membrane: Install membrane by unrolling over prepared substrate, lapping adjoining sheets as recommended by manufacturer, and bonding and sealing seams. Install mechanical fasteners at spacing recommended by manufacturer,

Exhibit A

covering with adhesive applied membrane so that no fasteners are exposed. Install flashings and counterflashings as shown or recommended by manufacturer.

- C. Walkway Panels: Install panels at locations shown and where required for access to roof mounted equipment. Place protection boards carefully to avoid damage to membrane, laying over an additional layer of roof membrane material, loosely applied, for additional protection.

3.4 PROTECTION OF ROOFING:

- A. Upon completion of roofing (including associated work), institute appropriate procedures for surveillance and protection of roofing during remainder of construction period. At end of construction period, or at a time when remaining construction will in no way affect or endanger roofing, make a final inspection of roofing and prepare a written report to Owner, describing nature and extent of deterioration or damage found.
- B. Repair or replace (as required) deteriorated or defective work found at time of final inspection to a condition free to damage and deterioration at time of Substantial Completion and in accordance with requirements of specified warranty.

END OF SECTION 07530

Exhibit A

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

Section 07920 – Joint Sealants

- 1. GENERAL
- 1.01 RELATED DOCUMENTS
 - A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- 1.02 WORK INCLUDED
 - A. Base Bid:
 - 1. General Contractor provide:
 - a. Sealing of joints, including joint fillers and accessories, shown on drawings and herein specified.
 - B. Alternates: Not applicable.
- 1.03 RELATED WORK
 - A. Specified elsewhere:
 - 1. 08111 - Standard Steel Doors and Frames
- 1.04 QUALITY ASSURANCE
 - A. Qualifications of installers: Employ only experienced craftsmen, skilled in installation of specified products.
- 1.05 REFERENCES
 - A. Manufacturer's catalogs: Acceptable manufacturer's catalogs, current at date of bidding documents, are incorporated by reference to same force and effect as if repeated herein at length.
- 1.06 SUBMITTALS
 - A. In accordance with 01300:
 - 1. Product data:
 - a. Materials description.
 - b. Manufacturer's current printed installation instructions for each product.
 - 2. Samples: Each compound and filler.

Exhibit A

1.07 DELIVERY, STORAGE & HANDLING

- A. Deliver all products in manufacturer's original containers, with seals unbroken, labels, product and manufacturer's names intact and legible.
- B. Store all products in a manner to prevent damage, in a secure place, out of way of construction operations. Provide protection until ready to use.
- C. Handle in accord with manufacturer's recommendations.

1.08 PROJECT/SITE CONDITIONS

- A. Environmental conditions:
 - 1. Weather: Do not install products during adverse weather conditions.
 - 2. Temperature: Ensure that surface and ambient temperatures are within the range recommended by the manufacturer.

1.09 WARRANTY

General Contractor's Warranty: Two years in accord with General Conditions.

2. PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Use only specified products of following manufacturers:

<u>CODE</u>	<u>MANUFACTURER</u>
1. DAP	DAP, Inc./Schering Plough Corp., Tipp City, OH.
2. DOW	DOW Chemical Co., Midland, MI.
3. MAM	Mameco International, Cleveland, OH.
4. MEAD	W.R. Meadows, Inc., Elgin, IL.
5. PECO	Pecora Chemical Corp., Harleysville, PA.
6. SIKA	Sika Chemical Corp., Lyndhurst, NJ.
7. SON	Contech, Inc., Sonneborn Building Products Div., Minneapolis, MN.
8. TREM	Tremco Manufacturing Co., Cleveland, OH.

2.02 SEALANTS (Exterior & Interior)

- A. Generic Description and Use:
 - 1. S-1: One component urethane, non-sag, gun grade elastomeric sealant or silicone rubber sealant. Use in all joints one-inch wide or less wherever movement may occur on interior or exterior, at contraction and expansion joints, masonry to masonry, concrete building construction joints, metal door and window frames to masonry, metal to metal and sheet metal to masonry.

Exhibit A

2. S-2: Two component urethane, non-sag, gun grade elastomeric sealant. Use in all joints wherever movement may occur in locations indicated for S-1 sealant.
3. S-3: One component urethane, pour grade, self-leveling elastomeric sealant. Use in exterior and interior contraction and expansion joints in sidewalks, pavements and decks.

B. Acceptable products:

	<u>MFGR/TYPE</u>	<u>S-1</u>	<u>S-2</u>	<u>S-3</u>
1.	MAM	Vulkem 116	Vulkem 227	Vulkem 45
2.	MEAD		Dualthane	
	<u>MFGR/TYPE</u>	<u>S-1</u>	<u>S-2</u>	<u>S-3</u>
3.	PECO	Dynatrol I	Dynatrol II	Urexpan NR201
4.	SIKA	Sikaflex 15LM		Sikaflex 12SL
5.	SON	Sonalastic NPI	Sonalastic NPII	Sonalastic SLI
6.	TREM	Dymonic	Dymeric	THC-900

2.03 JOINT FILLERS

A. Generic Description & Use:

1. JF-1: Backer rod for elastomeric sealants. Extruded closed-cell polyethylene foam or polyethylene jacketed polyurethane foam, non-bleeding, non-staining, oversized 30 to 50 percent.

B. Acceptable products:

	<u>MFGR/TYPE</u>	<u>JF-1</u>
1.	DOW	Ethafoam
2.	MEAD	Backer Rod
3.	SON	Sonofoam Backer Rod

2.04 JOINT CLEANER

Type recommended by manufacturer of sealing or caulking compound for the specific joint surface and condition.

2.05 BOND BREAKER

Polyethylene tape; pressure sensitive recommended by sealant manufacturer to suit application.

3. EXECUTION

3.01 INSPECTION

- A. Thoroughly inspect existing construction and conditions under which work will be performed.

Exhibit A

Report to Architect/Engineer in writing conditions that would adversely affect installation of work.

- B. Verify that joint dimensions are in accord with manufacturer's recommendations.
- C. Start of work constitutes acceptance of construction and conditions.

3.02 PREPARATION

- A. Clean, prepare and size joints in accord with manufacturer's instructions. Remove loose materials and other foreign matter which might impair adhesion of sealant or caulking.
- B. Prior to installing sealants in horizontal joints where asphalt impregnated expansion joint fillers or other non-polyethylene joint fillers have already been placed, duct tape or polyethylene tape may be placed directly over existing filler.

3.03 INSTALLATION

- A. Comply with sealant manufacturer's printed instructions.
- B. Install sealant backer rod for liquid elastomeric sealants.
- C. Install bond breaker tape wherever recommended by manufacturer to ensure that elastomeric sealants will perform properly.
- D. Install sealants and caulking in uniform, continuous ribbons, without gaps or air pockets. Ensure complete "wetting" of joints. Bond surfaces equally on opposite sides. Fill sealant rabbet to slightly concave surface, slightly below adjoining surfaces.
- E. Install sealants to depths shown; when not shown, within following limitations:
 - 1. For sidewalks, pavements and similar joints sealed with elastomeric sealants and subject to traffic and other abrasion and indentation exposures, fill joints to a depth equal to 75% of joint width, but not more than 3/4" deep or less than 3/8" deep.
 - 2. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but not more than 1/2" deep or less than 1/4" deep.
 - 3. For joints sealed with non-elastomeric sealants and caulking compounds, fill joints to a depth in the range of 75% to 125% of joint width.
- F. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces.
 - 1. Use masking tape or other precautionary devices to prevent staining of adjoining surfaces.

3.04 CURING

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions to obtain high early bond strength, internal cohesive strength and surface durability.

Exhibit A

3.05 ADJUST/CLEAN

- A. Upon completion, carefully examine sealant and caulking work. Remove damaged and defective work and replace with new materials.
- B. Clean up. Remove surplus products, containers and rubbish and dispose of off site.
- C. Remove spilled or spattered materials from surfaces. When adjacent surfaces or other work has been damaged or stained as a result of sealing and caulking work, repair damage and remove stains to the satisfaction of Architect/Engineer.

3.06 PROTECTION

Protect installed work during remainder of construction period. Ensure that it will be without damage or deterioration (other than normal wear or weathering) at substantial completion.

END OF SECTION 07920.

Exhibit A

DIVISION 8 - DOORS AND WINDOWS

Section 08111 - Standard Steel Doors And Frames

1. GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 WORK INCLUDED

- A. Base Bid:

- 1. General Contractor Provide:

- a. Doors: Flush, insulated, galvanized standard steel doors for exterior and interior openings.
 - b. Frames: Pressed steel frames for doors - welded unit type.

- B. Alternates: Not Applicable.

1.03 RELATED WORK

- A. Specified Elsewhere:

- 1. Section 08710 - Finish Hardware
 - 2. Section 09900 - Painting

1.04 REFERENCES

- A. ASTM E152 - Methods of Fire Tests of Door Assemblies.
- B. NFPA 80 - Fire Doors and Windows.
- C. SDI-100 - Standard Steel Doors and Frames.
- D. SDI-105 - Recommended Erection Instructions for Steel Frames.

1.05 SUBMITTALS

- A. General: Submit following in accordance with Section 01300 and Division 1 Specification Sections.
- B. Product data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.
- C. Shop drawings showing fabrication and installation of standard steel doors and frames. Include

Exhibit A

details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

1. Provide schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.
- D. Label Construction Certification: For door assemblies required to be fire-rated and exceeding limitations of labeled assemblies, submit manufacturer's certification that each door and frame assembly has been constructed to conform to design, materials and construction equivalent to requirements for labeled construction.

1.06 QUALITY ASSURANCE

- A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard Steel Doors and Frames" ANSI/SDI-100 and as herein specified.
- B. Fire-Rated Assemblies:
 1. Wherever a fire-resistance classification (3 hour, 1-1/2 hour, etc. or "A", "B", etc.) is shown or scheduled for hollow metal work, provide fire-rated hollow metal doors and frames investigated and tested as a fire door assembly, complete with type of fire door hardware to be used. Identify each fire door and frame with UL labels, indicating applicable rating of both door and frame.
 2. Fire rated door and frame construction to conform to ASTM E152.
 3. Installed frame and door assembly to conform to NFPA 80 for fire rated class indicated in Door and Frame Schedule.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover. Avoid use of non-vented plastic or canvas shelters that could create a humidity chamber.

2. PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide standard steel doors and frames by one of following:

Exhibit A

1. Standard Steel Doors and Frames:
 - a. Amweld Building Products, Inc.
 - b. Ceco Corp.
 - c. Curries Company.
 - d. Republic Builders Products.
 - e. Steelcraft Manufacturing Co.

2.02 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.
- C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, or drawing quality, ASTM A 642, hot dipped galvanized in accordance with ASTM A 525, with A60 or G60 coating designation, mill phosphatized.
- D. Supports and Anchors: Fabricate of not less than 18-gage sheet steel; galvanized where used with galvanized frames.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize in compliance with ASTM A 153, Class C or D as applicable.
- F. Shop Applied Paint: Apply after fabrication.
 1. Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints complying with ANSI A224.1, "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames."

2.03 DOORS

- A. Provide metal doors of SDI grades and models specified below and as indicated on drawings or schedules:
 1. Exterior and Interior Doors: ANSI/SDI-100, Grade III, extra heavy-duty, Model 4, minimum 16-gage galvanized steel faces.
 2. Doors shall be full flush seamless construction and shall have continuous vertical mechanical inter-locking joints at lock and hinge edges with visible edge seam filled and ground smooth.

2.04 FRAMES

- A. Provide metal frames for doors of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated.

Exhibit A

1. Fabricate frames with mitered corners, continuously welded construction.
 2. Form exterior and interior frames from 14-gage galvanized steel.
- B. Plaster Guards: Provide minimum 26-gage steel plaster guards or mortar boxes at back of hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.
- C. Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single door frames and 2 silencers on beads of double door frames.
- D. Head Reinforcing:
1. For frames over 4'-0" wide provide 2 continuous steel angles not less than 2" x 2" x 12 gauge and width of opening, welded to back of frame at head, unless otherwise shown.
- 2.05 FABRICATION
- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory- assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI-100 requirements.
1. Internal Construction: One of the following manufacturer's standard core materials according to SDI standards:
 - a. Rigid polystyrene conforming to ASTM C 578.
 2. Clearances: Not more than 1/8 inch at jambs and heads except between non-fire-rated pairs of doors not more than 1/4 inch. Not more than 3/4 inch at bottom.
 - a. Fire Doors: Provide clearances according to NFPA 80.
- B. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Steel Doors and Frames".
- C. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel.
- D. Fabricate exterior and interior doors, panels, and frames from galvanized sheet steel in accordance with SDI-112. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gage inverted steel channels.
- E. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- F. Thermal-Rated (Insulating) Assemblies: At exterior and interior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM C 236 or ASTM C 976 on fully operable door assemblies.

Exhibit A

1. Unless otherwise indicated, provide thermal-rated assemblies with U factor of 0.067 (R=14.9) or better.
- G. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware in accordance with final Door Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 Series Specifications for door and frame preparation for hardware.
1. Hinge reinforcements shall be 7 gauge. Lock reinforcements shall be 16 gauge and closer reinforcements, 12 gauge.
- H. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at project site.
- I. Locate hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware on Standard Steel Doors and Frames," published by Door and Hardware Institute.
- J. Attach fire rated label to each frame and door unit.
- K. Jamb Anchors:
1. Furnish jamb anchors as required to secure frames to adjacent construction, formed of not less than 18 gauge galvanized steel.
 - a. Masonry Construction:
 1. Adjustable, flat or corrugated or perforated, T-shaped to suit frame size with leg not less than 2" wide by 10" long. Furnish at least 3 anchors per jamb up to 7'-6" height, 4 anchors up to 8'-0" jamb height, one additional anchor for each 24" or fraction thereof over 8'-0" height.
 - b. Metal Building:
 1. Insert type to engage metal building jamb, welded to back of frames. Provide at least 4 anchors for each jamb for frames up to 7'-6" in height; 5 anchors up to 8'-0" jamb height; one additional anchor each 24" or fraction thereof over 8'-0" height.
- L. Floor Anchors:
1. Provide floor anchors for each jamb and mullion which extends to floor, formed of not less than 16 gauge galvanized steel sheet, as follows:
 - a. Monolithic Concrete Slabs:
 1. Clip Type anchors with 2 holes to receive fasteners, welded to bottom of jambs and mullions.

Exhibit A

M. Glazing Stops:

1. Provide non-removable stops on outside of exterior doors.
2. Provide screwless snap-in type glazing beads on inside of glass.

N. Spreader Bars:

1. Provide 2 removable spreader bars across bottom of frames, tack welded to jambs and mullions.

O. Shop Painting: Clean, treat and paint exposed surfaces of steel door and frame units, including galvanized surfaces.

1. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
2. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface of not less than 0.75 mils ready to receive finish paint.

3. EXECUTION

3.01 EXECUTION

A. General: Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.

B. Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instructions For Steel Frames," unless otherwise indicated.

1. Except for frames located at existing concrete, masonry or drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
2. In masonry construction, locate 3 wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.
3. Place fire-rated frames in accordance with NFPA Standard No. 80.

C. Door Installation: Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI-100.

1. Place fire-rated doors with clearances as specified in NFPA Standard NO. 80.

3.02 ADJUST AND CLEAN

A. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of

Exhibit A

prime coat and apply touch-up of compatible air-drying primer.

- B. Final Adjustments: Check and readjust operating hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition. Remove and replace defective work, including doors or frames that are warped, bowed or otherwise damaged.

END OF SECTION 08111.

Exhibit A

DIVISION 8 - DOORS AND WINDOWS
Section 08710 - Finish Hardware

1. GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 WORK INCLUDES

- A. Base Bid:

- 1. General Contractor Provide:

- a. Hardware as indicated in Hardware Schedule and on drawings.

- B. Alternates: Not Applicable.

1.03 RELATED WORK

- A. Specified Elsewhere:

- 1. Section 08111 - Standard Steel Doors and Frames.

1.04 QUALITY ASSURANCE

- A. Manufacturer:

- 1. To greatest extent possible, obtain each kind of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer, even though several may be specified as acceptable manufacturers.

- B. Supplier:

- 1. Subcontract furnishing of hardware, as specified herein, only to a recognized builders' hardware supplier who has been furnishing hardware in same area as project for a period of not less than 2 years, and who has in his employment an experienced hardware consultant who is available at reasonable times during course of work, for project hardware consultation to Owner, Architect and Contractor.

- C. Installer:

- 1. Assign installation of hardware to experienced tradesmen in compliance with trade union jurisdictions; either at door and frame fabrication plant or at project site, at Contractor's option except as otherwise indicated. It is assumed that carpentry trade will install hardware items, except as otherwise required by manufacturer, or otherwise directed by Contractor, or otherwise specified.

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D. Scheduled Designations:

1. Except as otherwise indicated, use of one manufacturer's numeric designation system in schedules does not imply that another manufacturer's products will not be acceptable, unless they are not equal in design, size, weight, finish, function, or other quality of significance. See Hardware Schedule in this Section for list of acceptable manufacturers.

E. Where no hardware is specified herein for opening requiring hardware (nor listed as not included under this Section of Specifications), or where hardware specified herein will not function correctly, hardware supplier shall notify Contractor and Architect of such conditions promptly, to enable changes or corrections to be made in time so that construction of project will not be delayed. Failure of supplier of hardware to make such notification in writing will be supplier's responsibility for furnishing hardware required or hardware that will function and operate to satisfaction of Architect.

1.05 SUBMITTALS

A. Product Data:

1. Submit manufacturer's data for each item of finish hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and exposed finishes. Wherever needed, furnish templates to fabricators of other work to receive finish hardware. Indicate by transmittal that copy of applicable data has been distributed to installer.

B. Hardware Schedule:

1. Submit 5 copies of final hardware schedule in manner and format specified, complying with actual construction progress schedule requirements (for each draft). Include separate key schedule, showing clearly how Owner's final instructions on keying of locks have been fulfilled. Hardware schedules are intended for coordination of work. Review and acceptance by Architect or Owner does not relieve Contractor of his exclusive responsibility to fulfill requirements as shown and specified.

a. Finish Hardware Schedule:

1. Based on finish hardware requirements as indicated (including drawings, schedules and specifications), organize schedule into "hardware sets", indicating complete designation of every item required for each door or opening. Furnish initial draft of schedule at earliest possible date, in order to facilitate fabrication of other work (such as hollow metal frames) that may be critical in project construction schedule. Furnish final draft of schedule after samples, manufacturer's data sheets, coordination with shop drawings for other work, delivery schedules and similar information has been completed and accepted.

1.06 DELIVERY, STORAGE AND HANDLING

A. Provide secure lock-up for hardware delivered to project, but not yet installed. Control handling

Exhibit A

and installation of hardware items that are not immediately replaceable, so that completion of work will not be delayed by hardware losses, both before and after installation.

B. Delivery:

1. All hardware shall be delivered to job site in one shipment with door number on each package clearly marked and shall be checked on job site by supplier's personnel and contractor's representative. Hardware shall be stored in a clean, dry, secure room until ready for installation.

1.07 **JOB CONDITIONS**

A. Coordination:

1. Coordinate hardware with other work. Tag each item or package separately, with identification related to final hardware schedule and include basic installation instructions in package. Furnish hardware items of proper design for use on doors and frames of the thicknesses, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information in contract documents. Deliver individually packaged hardware items at times and to locations (shop or field) for installation, as directed by Contractor.

B. Templates:

1. Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work to confirm that adequate provisions will be made for proper installation of hardware.

- C. Provide temporary cylinders for exterior door locks during construction. Permanent cylinders for these locks shall be installed by Contractor at completion of work. Provide Owner with 2 keys for temporary construction locks.

2. PRODUCTS

2.01 **MATERIALS**

A. Hardware Materials and Fabrication:

1. Produce hardware units of basic metal indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for the applicable hardware units by FS FF-H-106, FS FF-H-111, FS FF-H-116 and FS FF-H-121. Do not substitute "optimal" materials for those indicated, except as otherwise permitted by other sections of these specifications.
2. Form the base metal into required shapes and sizes by method indicated (cast, wrought, forged, rolled, pressed, etc.), or if not indicated, by manufacturer's standard production method for class or quality of hardware units required. Do not substitute "optional" methods of forming for those indicated, except when commercially recognized as a superior method, and except as otherwise permitted by other sections of these specifications.

Exhibit A

3. Fasteners:
 - a. Manufacturer hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
 4. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match finish of such other work, as closely as possible, except as otherwise indicated.
 5. Provide concealed fasteners for hardware units that are exposed when door is closed, except to extent no standard-manufactured units of type specified are available with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed under any condition, except where it is not possible to adequately reinforce work and use machine screws or concealed fasteners of another standard type, to satisfactorily avoid use of through bolts.
 6. Provide fasteners compatible with both unit fastened and substrate and which will not cause corrosion or deterioration of hardware, base material or fastener.
 7. Hand of Door:
 - a. Drawings show swing or hand of each door leaf (left, right, reverse bevel, etc.). Furnish each item of hardware for proper installation and operation of door swing as shown.
- B. Hardware Finishes:
1. General:
 - a. Match finish of every hardware unit at each door or opening, to greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where base metal or metal forming process is different for individual units of hardware exposed at same door or opening. In general, match all items to manufacturer's standard finish for latch and lock set for color and texture.
 1. The Architect will be sole judge of whether hardware units match accepted samples and match each other satisfactorily. Units will be judged when held 2'-0" apart at 3'-0" distance.
 - b. Provide finishes which match those established by BHMA or, if none established, match Architect's samples.
 - c. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for applicable units of hardware by FS FF-H-106, FS FF-H-111, ES FF-H-116 and FS FF-H-121.
 - d. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze

Exhibit A

and aluminum, except as otherwise indicated. Suffix "NL" is used with standard finish designations to indicate "no lacquer".

2. Standard Finish Designations:

- a. Designations used in schedules and elsewhere to indicate hardware finishes are those listed in "Materials and Finishes Standard 1301" by BHMA, including coordination with traditional U.S. finishes shown by certain manufacturers for their products.
- b. Manufacturer's Standard:
 1. Aluminum lacquer or bronze lacquer (as required for approximate match with other hardware finishes); for USP finish on iron and steel; primarily on door closer arms and cases.
- c. Rust Resistant Finish:
 1. For iron and steel base metal, required for exterior work and in areas shown as "High Humidity" areas (and also when designated with suffix "-RR"), provide 0.2 mil thick copper coating on base metal before applying brass, bronze, nickel or chromium plated finishes.

3. EXECUTION

3.01 HARDWARE MOUNTING HEIGHTS

- A. Mount hardware units at following locations on each door or door opening, except as otherwise specifically indicated, or required to comply with governing regulations, and except as may be otherwise directed by Architect:
 1. Lowest Hinge - 10" above floor to bottom of unit.
 2. Highest Hinge - 5" below top of door to top of unit.
 3. Intermediate Hinges - equally spaced between lowest and highest hinge units.
 4. Lock and Latch Set - knobs centered 38" above floor.
 5. Dead Lock - cylinder and turn centered 60" above floor.
 6. Special Pulls and Other Special Units - units mounted at height recommended by manufacturer.

3.02 INSTALLATION

- A. Install each hardware item in compliance with manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, install each item completely and then remove and store in a secure place during finish application. After completion of finishes, re-install each item. Do not install surface-mounted items until finishes have been completed on substrate.

Exhibit A

3.03 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Lubricate moving parts with type lubrication recommended by manufacturer (graphite-type if no other recommended). Replace units which cannot be adjusted and lubricated to operate freely and smoothly as intended for application made.
- B. Final Adjustment:
 - 1. Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to work during week prior to acceptance or occupancy, and make a final check and adjustment of all hardware items in such space or area. Clean and relubricate operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Instruct Owner's personnel in proper adjustments and maintenance of hardware and hardware finishes, during final adjustment of hardware.

3.04 KEYS AND KEYING

- A. All locks shall be keyed to existing keying system.
- B. All locks shall be keyed to one master key.
- C. Locks are to be keyed alike. Provide two keys per lock.

3.05 HARDWARE SCHEDULE

A. Manufacturers:

- 1. **Butt hinges** shall be of size and type as listed in hardware schedule. All hinges 4-1/2" x 4-1/2" unless noted otherwise in Schedule. Basis for design is Hager BB1191 Stainless Steel (satin finish) with Stainless Steel Non-Removable Pins (or equal). Butt hinges shall be manufactured by:

Hager Co.	St. Louis, Missouri
Stanley Hardware	New Britain, Connecticut
Lawrence Bros.	Sterling, Illinois
McKinney	Scranton, Pennsylvania

- 2. **Door closers and holders**: Basis for design is Norton Series 7500 BF with hold-open and multi-spring power adjustment, Aluminum Finish (or equal) as manufactured by the following:

Norton	Bensenville, Illinois
Yale	Charlotte, North Carolina
LCN	Princeton, Illinois

Exhibit A

3. **Locks, latches and cylinders** are to be mortise type. Basis for design is Schlage L-series lever and trim, finish 630 (satin stainless steel) as indicated in hardware schedule and by the following:

Schlage Lock Company	Colorado Springs, Colorado
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4. **Thresholds** shall be Hager 520S series, finish AL (aluminum) (or equal). **Weatherstripping** shall be Reese DS70C (or equal) and **Sill Protection** shall be Reese 323A (or equal) as manufactured by the following:

Reese	Rosemont, Minnesota
Hager Co.	St. Louis, Missouri
Pemko Mfg. Co.	Emeryville, CA
Zero Mfg. Co.	New York, New York
National Guard Products, Inc.	Memphis, Tennessee

5. **Stops** shall be Hager series 241F floor dome stops and Hager series 230W convex wall stops, finish 26D (or equal) as manufactured by the following:

Glynn-Johnson Corp.	Indianapolis, Indiana
Ives	Wallingford, Connecticut
Hager Co.	St. Louis, Missouri

6. **Flushbolts** shall be Hager 282D (or equal) and dustproof strikes shall be Hager 280X (or equal) as manufactured by the following:

Hager Co.	St. Louis, Missouri
Glynn-Johnson Corp.	Indianapolis, Indiana
Ives	Wallingford, Connecticut

7. **Kickplates** shall be Hager series 193S, stainless steel, beveled or equal as manufactured by the following:

Hager Co.	St. Louis, Missouri
Lindstrom Corp.	Washington, D.C.
Baldwin Hardware	Reading, Pennsylvania
Brookline Industries	Chicago, Illinois

- B. Hardware Schedule: Hardware for doors included in the new electrical vault is listed on the drawings in the “Keyed Notes” that accompany the Floor Plan.

END OF SECTION 08710.

Exhibit A

DIVISION 9 - FINISHES
Section 09900 - Painting

1. GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 WORK INCLUDED

- A. General Contractor Provide: Painting is indicated on drawings and specified herein and includes, but is not necessarily limited to:

1. Painting and finishing of interior and exterior exposed items and surfaces throughout project, except as otherwise noted.
2. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections, except as otherwise specified.
3. Field painting of exposed pipes and ducts, and of hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work where scheduled to be painted or where that item occurs on surface or in space scheduled to be painted.
4. "Paint" as used herein means all coating systems, materials, including primers, emulsions, enamels, stains, sealers and fillers and other applied materials whether used as prime, intermediate or finish coat.
5. Paint exposed surfaces whether or not colors are designated in "schedules", except where natural finish of material is obviously intended and specifically noted as surface not to be painted. Where items or surfaces are not specifically mentioned, paint these same as adjacent similar materials or areas. If color or finish is not designated, Architect will select these from standard colors available for materials systems as specified. Exposed surfaces to be painted include, but are not necessarily limited to structural and miscellaneous steel, hollow metal doors and frames, concrete floors, metal trim, sheet metal, ferrous metals and mechanical and electrical items.

- B. Painting Not Included:

1. Pre-Finished Items:
 - a. Unless otherwise indicated, do not include painting when factory-finishing or installer-finishing is specified for such items as (but not limited to) pre-engineered metal wall and roof panels, sectional overhead doors, overhead coiling doors, acoustic materials, light fixtures, switchgear and distribution cabinets.

Exhibit A

2. Concealed Surfaces:
 - a. Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.
3. Finished Metal Surfaces:
 - a. Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, brass and similar finished materials will not require finish painting, except as otherwise indicated.
4. Operating Parts and Labels:
 - a. Do not paint any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts, unless otherwise indicated.
 - b. Do not paint over any code-required labels such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

1.03 RELATED WORK

A. Specified Elsewhere:

1. Section 08111 – Standard Steel Doors and Frames

1.04 SUBMITTALS

A. Submit the following according to Division 1 Specification Sections.

B. Product Data:

1. Submit manufacturer's specifications, including paint label analysis and application instructions for each material specified. Indicate by transmittal that a copy of each manufacturer's instructions has been distributed to paint applicator.

C. Samples:

1. Submit samples for Architect review of color and texture only. Compliance with other requirements is exclusive responsibility of contractor. Provide listing of material and application for each coat of each finish sample. Approved samples shall serve as standard for similar work throughout project.
 - a. Provide 2 samples of each color and material, with texture to simulate actual conditions.

1.05 QUALITY ASSURANCE

Exhibit A

- A. **Applicator Qualifications:** Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance.
- B. **Single-Source Responsibility:** Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
- C. **Field Samples:** On wall surfaces and other exterior and interior components, duplicate finishes of prepared samples. Provide full-coat finish samples on at least 100 sq. ft. of surface until required sheen, color, and texture are obtained; simulate finished lighting conditions for review of in-place work.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label.
- B. Provide labels on each container with following information:
 - 1. Name or title of material.
 - 2. Federal Specification number, if applicable.
 - 3. Manufacturer's stock number.
 - 4. Manufacturer's name.
 - 5. Contents by volume, for major pigment and vehicle constituents.
 - 6. Thinning instructions.
 - 7. Application instructions.
- C. No materials other than types specified or approved may be delivered to project site. Unapproved materials shall be removed from project site immediately. Paint shall be well ground, shall not settle readily, cake or thicken in container; shall be broken up readily with paddle to smooth consistency; and shall have easy brushing properties.
- D. **Storage of Materials:**
 - 1. Store paint materials and equipment in an assigned area. Protect floor and wall surfaces against damage. Take necessary precaution to keep fire hazard to minimum. Leave surfaces of storage space clean and in condition required for equivalent spaces in project.

1.07 JOB CONDITIONS

- A. Do not apply water-base paints when temperatures of surfaces to be painted and surrounding air temperatures are below 50 F., unless otherwise permitted by paint manufacturer's printed instructions.

Exhibit A

- B. Do not apply solvent-thinned paints when temperatures of surfaces to be painted and surrounding air temperatures are below 45 F., unless otherwise permitted by paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist, or when relative humidity exceeds 85%; or too damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions. Painting may be continued during inclement weather only if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

2. PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
 - 1. Benjamin Moore and Co. (Moore)
 - 2. Pratt and Lambert, Inc.
 - 3. Pittsburgh Paints. (PPG)
 - 4. DeVoe.
 - 5. Dulux.
 - 6. Sherwin Williams Paints. (S-W)

(NOTE: Not all the manufacturers listed produce competitive products for all the applications covered in this section. Any alternate other than the specifically named manufacturer for each item shall meet the same type, grade and quality for the application intended.)

2.02 COLORS AND FINISHES

- A. Surface treatments and finishes are shown on drawings and indicated in schedules of contract documents. Colors will be selected by Architect from standard colors available for coatings required.
- B. Prior to beginning work, furnish Architect with sample color chips.
 - 1. Final acceptance of colors will be from samples applied on job.
- C. Proprietary names used to designate colors or materials are not intended to imply that products of manufacturers are required to exclusion of equivalent products of other manufacturers.
- D. Paint Coordination:
 - 1. Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of specified finish materials, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of anticipated problems using specified coating systems with substrates primed by others.

Exhibit A

2.03 MATERIAL QUALITY

- A. Provide best quality grade of various types of coatings, linseed oil, shellac, turpentine, thinner, cleaner, etc. as regularly manufactured by approved paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.
- B. Paint used on this project shall not contain lead, chromium or isocyanates.
- C. Provide undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer and use only within recommended limits.

2.04 MATERIALS

- A. Oils:
 - 1. Raw Linseed Oil shall conform to ASTM D234. Boiled Linseed Oil shall conform to ASTM D260.
- B. Colors for Tinting:
 - 1. Shall be recommended by manufacturer of paint or finish.
- C. Thinners:
 - 1. Turpentine - pure gum spirits of turpentine, conforming to ASTM D13-51. Mineral spirits conforming to ASTM D236-61.

2.04 SCHEDULE OF PAINTING

- A. Provide the following paint systems for various substrates, as indicated. Equivalent products of another manufacturer listed as acceptable manufacturers, may be substituted provided that to extent possible all paint be manufactured by one manufacturer and provided that Contractor submit a duplicate list of all substitutions in time for Architect's approval prior to ordering paint. Successive coats shall have different tint. Mil thickness indicated is the minimum dry mil thickness required for each coat.

(NOTE: Should the total dry mil thickness not be achieved for any one coat, additional coats shall be applied to achieve the required dry mil thickness.)

- B. Interior Concrete Block:
 - 1. Acrylic co-polymer:
 - a. Primer/Filler: 3010 Ultra-Hide (Dulux) Interior/Exterior Vinyl Acrylic Block Filler (or equal).
 - b. First and Second Coats: Dulux 1406 Professional Acrylic Semi-Gloss Interior Wall & Trim Enamel (or equal). Color = White.

Exhibit A

C. Ferrous Metal:

1. Semigloss Enamel Finish: Two coats over primer with total dry film thickness not less than 2.5 mils.
 - a. Primer: Synthetic, quick-drying, rust-inhibiting primer.
 1. Moore: Ironclad Retardo Rust-Inhibitive Paint #163.
 2. PPG: 6-208 Red Inhibitive Metal Primer.
 3. S-W: Kem Kromik Metal Primer B50N2/B50W1.
 - b. Undercoat: Interior enamel undercoat.
 1. Moore: Moore's Alkyd Enamel Underbody #217.
 2. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
 3. S-W: Pro-Mar 200 Alkyd Enamel Undercoater B49W200.
 - c. Finish Coat: Interior, semigloss, odorless, alkyd enamel.
 1. Moore: Moore's Satin Impervo Enamel #235.
 2. PPG: 27 Line Wallhide Semigloss Enamel.
 3. S-W: Class 99 Semigloss Enamel A40 Series.

D. Zinc-Coated Metal:

1. Semigloss Finish: Two coats over primer, with total dry film thickness not less than 2.5 mils.
 - a. Primer: Galvanized metal primer.
 1. Moore: Ironclad Galvanized Metal Latex Primer #155.
 2. PPG: 6-215/216 Speedhide Galvanized Steel Primer.
 3. S-W: Galvite B50W3.
 - b. Undercoat: Interior enamel undercoat.
 1. Moore: Moore's Alkyd Enamel Underbody #217.
 2. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
 3. S-W: Pro-Mar 200 Alkyd Enamel Undercoater B49W200.
 - c. Finish Coat: Interior, semigloss, odorless alkyd enamel.
 1. Moore: Moore's Satin Impervo Enamel #235.
 2. PPG: 27 Line Wallhide Semigloss Enamel.
 3. S-W: Classic 99 Semigloss Enamel A40 Series.

3. EXECUTION

3.01 INSPECTION

Exhibit A

- A. Starting of painting work will be construed as applicator's acceptance of surfaces and conditions within any particular area.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of durable paint film.

3.02 SURFACE PREPARATION

A. General:

- 1. Perform preparation and cleaning procedures in strict accordance with paint manufacturer's instructions and as herein specified for each particular substrate condition.
- 2. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items by workmen skilled in trades involved.
- 3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

B. Cementitious Materials:

- 1. Prepare cementitious surfaces of concrete, concrete block, cement plaster and cement-asbestos board to be painted by removing all efflorescence, chalk, dust, dirt, grease, oils and by roughening as required to remove glaze.
- 2. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
- 3. The paint manufacturer's surface preparation requirements and recommendations for the coating used for the chemical spill containment structures shall be fully and strictly complied with. The paint manufacturer shall supply the Contractor and the Architect with the written requirements and recommendations.

C. Ferrous Metals:

- 1. Structural steel, joists and miscellaneous steel.
 - a. Prior to delivery and erection abrasive blast in accordance with SSPC-SP6. Blast profile shall be compatible with primer paint.
 - b. Immediately after blasting (same day) paint with prime coat as indicated.
- 2. Steel Pipe and Ductile Iron Pipe

Exhibit A

- a. Steel pipe shall have welds ground smooth and welds and pipe blasted to SSPC-SP10 prior to primer paint.
 - b. Immediately after blasting (same day) paint with prime coat as indicated.
 - c. Ductile iron pipe shall be cleaned of all oil, grease dirt and loose mill scale. Cleaning shall be with a power wire brush (SSPC-SP3).
- D. Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with same type shop primer.

3.03 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce mixture of uniform density and stir as required during application of materials. Do not stir surface film into the material. Remove film and if necessary, strain material before using.

3.04 APPLICATION

- A. General:
 - 1. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for type of material being applied.
 - 2. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint is of uniform finish, color and appearance.
 - 3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only.
 - 4. For exposed piping, paint entire pipe surfaces including under/behind supports. Also paint all surfaces of supports including those in contact with the pipe. Painting of concrete saddle supports is not required. Painter shall be responsible for providing temporary pipe supports as necessary during execution of this work.
 - 5. Paint interior surfaces of ducts, where visible through registers or grilles, with flat, non-specular black paint.
 - 6. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 - 7. Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.

Exhibit A

8. Sand lightly between each succeeding enamel or varnish coat.
9. Each coat shall be flowed on smoothly and free from sages and runs.
10. Each coat of paint shall be perceptibly different shade or color. Each coat shall be inspected by Architect before following coat may be applied. Only coats of paint inspected and found satisfactory by Architect will be considered in determining minimum number of coats applied.
11. Minimum drying time shall comply with that recommended by paint manufacturer. Each coat shall be thoroughly dry before application of succeeding coats.
12. Sand between coats of interior woodwork and ferrous metal with No. 00 sandpaper.
13. Make edges of paint adjoining other materials or colors sharp and clean without overlapping.
14. Parts of moldings and ornaments shall be left clean and true to details and without undue amount of paint in corners and depressions.
15. Apply primer before glazing.

B. Painting Work:

1. Back prime exterior woodwork with house paint.
2. Back prime interior trim, exercising due care to prevent runs on face of trim.
3. Touch up scarred and abraded places on shop primed work after cleaning and smoothing down to avoid shoulders.
4. Touch up primer on structural steel before applying field coats of paint.
5. Where colors are different and where door frames are painted to wall colors, change colors at inside corner of door rebate.

C. Minimum Coating Thickness:

1. Dry mil thickness shown previous are the minimum thickness required for each coat. Should this minimum not be achieved for any one coat, additional coats shall be applied to achieve the required dry mil thickness.
2. Prime Coats:
 - a. Do not prime coat within two inches of the inter-face surfaces of bolted or welded connections for structural steel.
 - b. Recoat primed and sealed walls and ceiling where there is evidence of suction spots or unsealed areas in first coat, to assure finish coat with no burn-through or other defects due to insufficient sealing.
3. Pigmented (Opaque) Finishes:

Exhibit A

- a. Completely cover to provide opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

4. Completed Work:

- a. Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3.05 CLEAN-UP AND PROTECTION

A. Clean-Up:

1. During progress of work, remove from project daily, discarded paint materials, rubbish, cans and rags and wasted sandblasting abrasive.
2. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage-finished surfaces.

B. Protection:

1. Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct damages by cleaning, repairing or replacing and repainting as directed by Architect.
2. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
3. Comply with any and all Local, State or Federal regulations pertaining to any painting or surface preparation (sandblasting).

END OF SECTION 09900.

Exhibit A

DIVISION 10 - SPECIALTIES Section 10520 - Fire Protection Specialties

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Portable fire extinguisher.

1.3 SUBMITTALS

- A. Product Data: Include material descriptions and dimensions of individual components.
 - 1. Fire Extinguishers: Include rating and classification.
- B. Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. Provide fire extinguishers approved, listed, and labeled by FMG.

1.5 WARRANTY

- A. Special Warranty: Manufacturer's Standard Form in which manufacturer agrees to repair or replace components of portable fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure or hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
 - 2. Warranty period. Six years from date of substantial completion.

Exhibit A

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers:
 - 1. JL Industries, Inc.
 - 2. Larsen's Manufacturing Company.
 - 3. Potter Roemer; Div. of Smith Industries, Inc.
- B. Basis for design is Larsen's Manufacturing Company model no. DC5, regular dry chemical extinguisher with 5 ½ lb nominal capacity. Provide with standard wall mounting bracket.

2.2 FINISHES, GENERAL

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging. Remove and replace damaged, defective, or undercharged units.

3.2 INSTALLATION

- A. General: Install fire-protection specialties in locations and at mounting heights indicated or, if not indicated, at heights indicated below:
 - 1. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.
- B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 10520

(END OF SPECIAL PROVISIONS)

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