

If you plan to submit a bid directly to the Department of Transportation

PREQUALIFICATION

Any contractor who desires to become pre-qualified to bid on work advertised by IDOT must submit the properly completed pre-qualification forms to the Bureau of Construction no later than 4:30 p.m. prevailing time twenty-one days prior to the letting of interest. This pre-qualification requirement applies to first time contractors, contractors renewing expired ratings, contractors maintaining continuous pre-qualification or contractors requesting revised ratings. To be eligible to bid, existing pre-qualification ratings must be effective through the date of letting.

REQUESTS FOR AUTHORIZATION TO BID

Contractors downloading and/or ordering CD-ROM's and are wanting to bid on items included in a particular letting must submit the properly completed "Request for Authorization to Bid/or Not For Bid Status" (BDE 124INT) and the ORIGINAL, signed and notarized, "Affidavit of Availability" (BC 57) to the proper office no later than 4:30 p.m. prevailing time, three (3) days prior to the letting date.

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 Authorization to Bid/or Not For Bid Status"(BDE 124INT) 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.

ABOUT AUTHORIZATION TO BID: Firms that have not received an authorization form within a reasonable time of complete and correct original document submittal should contact the department as to status. This is critical in the week before the letting. These documents must be received three days before the letting date. Firms unsure as to authorization status should call the Prequalification Section of the Bureau of Construction at the number listed at the end of these instructions.

ADDENDA AND REVISIONS: It is the contractor's responsibility to determine which, if any, addenda or revisions pertain to any project they may be bidding. Failure to incorporate all relevant addenda or revisions may cause the bid to be declared unacceptable.

Each addendum will be placed with the contract number. Addenda and revisions will also be placed on the Addendum/Revision Checklist and each subscription service subscriber will be notified by e-mail of each addendum and revision issued.

The Internet is the Department's primary way of doing business. The subscription server e-mails are an added courtesy the Department provides. It is suggested that bidder check IDOT's website <http://www.dot.il.gov/desenv/delett.html> before submitting final bid information.

IDOT is not responsible for any e-mail related failures.

Addenda Questions may be directed to the Contracts Office at (217)782-7806 or D&Econtracts@dot.il.gov

Technical Questions about downloading these files may be directed to Tim Garman (217)524-1642 or garmantr@dot.il.gov.

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 |
| Electronic plans and proposals | (217)524-1642 |

ADDENDUMS AND REVISIONS TO THE PROPOSAL FORMS

Planholders should verify that they have received and incorporated the addendum and/or revision prior to submitting their bid. Failure by the bidder to include an addendum could result in a bid being rejected as irregular.

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RETURN WITH BID

| |
|-----------------------|
| Proposal Submitted By |
| Name |
| Address |
| City |

Letting June 17, 2005

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)

Notice To Bidders, Specifications, Proposal, Contract and Contract Bond



Illinois Department
of Transportation

Springfield, Illinois 62764

Contract No. 62877
COOK County
Section 0305-302K-L-3
District 1 Construction Funds
Route FAI 290/FAP 342

PLEASE MARK THE APPROPRIATE BOX BELOW:

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

Prepared by

S

Checked by

(Printed by authority of the State of Illinois)

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.

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. To request authorization, a potential bidder must complete and submit Part B of the Request for Authorization to Bid/or Not For Bid Status form (BDE 124 INT) and submit an original Affidavit of Availability (BC 57).

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

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| Mailing of CD-ROMS | 217/782-7806 |

RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

for the improvement identified and advertised for bids in the Invitation for Bids as:

**Contract No. 62877
COOK County
Section 0305-302K-L-3
Route FAI 290/FAP 342
District 1 Construction Funds**

Lighting, CCTV and fiber optic communications network along I-290/IL Route 53 from south of IL Route 62 (Algonquin Road) to north of IL Route 72 (Higgins Road) in Schaumburg and Rolling Meadows.

2. The undersigned bidder will furnish all labor, material and equipment to complete the above described project in a good and workmanlike manner as provided in the contract documents provided by the Department of Transportation. This proposal will become part of the contract and the terms and conditions contained in the contract documents shall govern performance and payments.

RETURN WITH BID

3. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, form of contract and contract bond, 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.
4. **EXECUTION OF CONTRACT AND CONTRACT BOND.** 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 bond 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.
5. **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 | \$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 a contract bond 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 bond; otherwise, the bid bond shall become void or the proposal guaranty check shall be returned to the undersigned.

| | |
|--|-------------------|
| Attach Cashier's Check or Certified Check Here | |
| In the event that one proposal guaranty check is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guaranties which would be required for each individual proposal. If the guaranty check is placed in another proposal, state below where it may be found. | |
| The proposal guaranty check will be found in the proposal for: | Item _____ |
| | Section No. _____ |
| | County _____ |

Mark the proposal cover sheet as to the type of proposal guaranty submitted.

RETURN WITH BID

6. **COMBINATION BIDS.** The undersigned further agrees that if awarded the contract for the sections contained in the following combination, he/she will perform the work in accordance with the requirements of each individual proposal comprising the combination bid specified in the schedule below, and that the combination bid shall be prorated against each section in proportion to the bid submitted for the same. If an error is found to exist in the gross sum bid for one or more of the individual sections included in a combination, the combination bid shall be corrected as provided in the specifications.

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 |
| | | | |
| | | | |
| | | | |
| | | | |

7. **SCHEDULE OF PRICES.** The undersigned bidder submits herewith, in accordance with the rules and instructions, a schedule of prices for the items of work for which bids are sought. The unit prices bid are in U.S. dollars and cents, and all extensions and summations have been made. The bidder understands that the quantities appearing in the bid schedule are approximate and are provided for the purpose of obtaining a gross sum for the comparison of bids. If there is an error in the extension of the unit prices, the unit prices shall govern. Payment to the contractor awarded the contract will be made only for actual quantities of work performed and accepted or materials furnished according to the contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as provided elsewhere in the contract.

8. **CERTIFICATE OF AUTHORITY.** The undersigned bidder, if a business organized under the laws of another State, assures the Department that it will furnish a copy of its certificate of authority to do business in the State of Illinois with the return of the executed contract and bond. Failure to furnish the certificate within the time provided for execution of an awarded contract may be cause for cancellation of the award and forfeiture of the proposal guaranty to the State.

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 62877

State Job # - C-91-061-05
 PPS NBR - 1-75649-0700
 County Name - COOK- -
 Code - 31 - -
 District - 1 - -
 Section Number - 0305-302K-L-3

Project Number

Route
 FAI 290
 FAP 342

| Item Number | Pay Item Description | Unit of Measure | Quantity | x | Unit Price | = | Total Price |
|-------------|-----------------------|-----------------|------------|---|------------|---|-------------|
| XX000986 | REM EX LUM & SALV | EACH | 56.000 | | | | |
| X0323574 | MAINTAIN LIGHTING SYS | CAL MO | 12.000 | | | | |
| X0323914 | FOC SPLICE - LATERAL | EACH | 6.000 | | | | |
| X0323957 | FOC SPLICE - MAINLINE | EACH | 1.000 | | | | |
| X0324237 | CCTV DOME CAM HM TOW | EACH | 6.000 | | | | |
| X0324280 | LTG CT RCD C-TY SC/VP | EACH | 2.000 | | | | |
| X0324597 | CCTV CABINET | EACH | 14.000 | | | | |
| X0324807 | CCTV CABINET EQUIPMNT | EACH | 6.000 | | | | |
| X0325038 | BK BOOST TRNS 240V 1P | EACH | 16.000 | | | | |
| X0325039 | CCTV DIST SUBSYSTEM | L SUM | 1.000 | | | | |
| X0325040 | FO INNERDUCT 1 1/4" | FOOT | 36,000.000 | | | | |
| X0325041 | REM/REP LT UNIT DECAL | EACH | 100.000 | | | | |
| X0325042 | MOD EX CON TO SN STR | EACH | 8.000 | | | | |
| X0325043 | MOD EX UNDP LT LOC 1 | EACH | 1.000 | | | | |
| X0325044 | MOD EX UNDP LT LOC 2 | EACH | 1.000 | | | | |

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|-------------|-----------------------|-----------------|------------|---|------------|---|-------------|
| X0325045 | MOD EX UNDP LT LOC 3 | EACH | 1.000 | | | | |
| X0325046 | ELCBL 19 25PR IO | FOOT | 6,000.000 | | | | |
| X0325047 | EC C EPR RHW 3C#2#4G | FOOT | 2,600.000 | | | | |
| X0325048 | EC C EPR RHW 2C#4#6G | FOOT | 525.000 | | | | |
| X0325049 | CCTV DOME CAM MAT O | EACH | 6.000 | | | | |
| X7011015 | TR C-PROT EXPRESSWAYS | L SUM | 1.000 | | | | |
| X8110119 | CON ATS 2.5 PVC RS | FOOT | 2,330.000 | | | | |
| X8110127 | CON ATS 4 PVC RS | FOOT | 960.000 | | | | |
| X8160165 | UD 2#4 #6G ERP 1.25P | FOOT | 7,225.000 | | | | |
| X8160370 | UD 3#4 #6G EPRRHW1.25 | FOOT | 5,000.000 | | | | |
| X8160395 | UD 3#2 #4G EPRRHW1.5 | FOOT | 34,060.000 | | | | |
| X8350405 | LT TOW 120MH LM 12 IO | EACH | 52.000 | | | | |
| X8450100 | REMOV EX LT CONT/SALV | EACH | 2.000 | | | | |
| X8710028 | FIB OPT CBL 6F SM | FOOT | 24,800.000 | | | | |
| X8710035 | FIB OPT CBL 96F SM | FOOT | 4,700.000 | | | | |

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|-------------|-----------------------|-----------------|-----------|---|------------|---|-------------|
| X8950130 | MOD EX LTG CONTROLLER | EACH | 1.000 | | | | |
| Z0013798 | CONSTRUCTION LAYOUT | L SUM | 1.000 | | | | |
| 63302700 | REM RE-E T B TERM T6 | EACH | 2.000 | | | | |
| 67000400 | ENGR FIELD OFFICE A | CAL MO | 12.000 | | | | |
| 67100100 | MOBILIZATION | L SUM | 1.000 | | | | |
| 70101800 | TRAF CONT & PROT SPL | L SUM | 1.000 | | | | |
| 80400100 | ELECT SERV INSTALL | EACH | 2.000 | | | | |
| 80400200 | ELECT UTIL SERV CONN | L SUM | 1.000 | | 7,500.00 | | 7,500.00 |
| 80700140 | GROUND ROD 5/8 X 10 | EACH | 236.000 | | | | |
| 81018600 | CON P 2 1/2 GALVS | FOOT | 350.000 | | | | |
| 81018900 | CON P 4 GALVS | FOOT | 3,240.000 | | | | |
| 81300720 | JUN BX SS AS 16X12X8 | EACH | 1.000 | | | | |
| 81300820 | JUN BX SS AS 18X12X10 | EACH | 10.000 | | | | |
| 81300960 | JUN BX SS AS 42X36X12 | EACH | 4.000 | | | | |
| 81400100 | HANDHOLE | EACH | 16.000 | | | | |

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|-------------|-----------------------|-----------------|------------|---|------------|---|-------------|
| 81400105 | HANDHOLE SPL | EACH | 1.000 | | | | |
| 81500200 | TR & BKFIL F ELECT WK | FOOT | 29,800.000 | | | | |
| 81701385 | EC C EPR USE 3-1C 350 | FOOT | 200.000 | | | | |
| 82105700 | LUM SV HM HOR MT 750W | EACH | 215.000 | | | | |
| 82106400 | LUM SV HOR MT 400W IO | EACH | 56.000 | | | | |
| 83050820 | LT P A 47.5MH 15MA IO | EACH | 22.000 | | | | |
| 83600200 | LIGHT POLE FDN 24D | FOOT | 220.000 | | | | |
| 83700250 | LT TOWER FDN 44D | FOOT | 1,300.000 | | | | |
| 83800205 | BKWY DEV TR B 15BC | EACH | 22.000 | | | | |
| 84200500 | REM EX LT UNIT SALV | EACH | 193.000 | | | | |
| 84200705 | LIGHTING FDN REM PART | EACH | 159.000 | | | | |
| 87900200 | DRILL EX HANDHOLE | EACH | 2.000 | | | | |
| 89502205 | MOD EX CONTR SPL | EACH | 1.000 | | | | |

CONTRACT NUMBER

62877

THIS IS THE TOTAL BID

\$ _____

NOTES:

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.

RETURN WITH BID

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.

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 \$150,700.00. Sixty percent of the salary is \$90,420.00.

RETURN WITH BID

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.

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, offerors, 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.

RETURN WITH BID

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.

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.

RETURN WITH BID

(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.

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.

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. ADDENDA

The contractor or bidder certifies that all relevant addenda have been incorporated in to this contract. Failure to do so may cause the bid to be declared unacceptable.

J. 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.

K. Apprenticeship and Training Certification (Does not apply to federal aid projects)

In accordance with the provisions of Section 30-22 (6) of the Illinois Procurement Code, the bidder certifies that it is a participant, either as an individual or as part of a group program, in the approved apprenticeship and training programs applicable to each type of work or craft that the bidder will perform with its own forces. The bidder further certifies for work that will be performed by subcontract that each of its subcontractors submitted for approval either (a) is, at the time of such bid, participating in an approved, applicable apprenticeship and training program; or (b) will, prior to commencement of performance of work pursuant to this contract, begin participation in an approved apprenticeship and training program applicable to the work of the subcontract. The Department, at any time before or after award, may require the production of a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and any or all of its subcontractors. Applicable apprenticeship and training programs are those that have been approved and registered with the United States Department of Labor. The bidder shall list in the space below, the official name of the program sponsor holding the Certificate of Registration for all of the types of work or crafts in which the bidder is a participant and that will be performed with the bidder's forces. Types of work or craft work that will be subcontracted shall be included and listed as subcontract work. The list shall also indicate any type of work or craft job category that does not have an applicable apprenticeship or training program. **The bidder is responsible for making a complete report and shall make certain that each type of work or craft job category that will be utilized on the project as reported on the Construction Employee Workforce Projection (Form BC-1256) and returned with the bid is accounted for and listed.**

The requirements of this certification and disclosure are a material part of the contract, and the contractor shall require this certification provision to be included in all approved subcontracts. In order to fulfill this requirement, it shall not be necessary that an applicable program sponsor be currently taking or that it will take applications for apprenticeship, training or employment during the performance of the work of this contract.

TO BE RETURNED 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. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. 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 a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. 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 \$90,420.00? YES ___ NO ___
3. Does anyone in your organization receive more than \$90,420.00 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 \$90,420.00? 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 | Email Address | 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 (or equivalent if applicable) 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 \$90,420.00 (60% of the Governor's salary as of 7/1/01). **(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 ___

If your answer is yes, please answer each of the following questions.

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois Toll Highway Authority? Yes ___ No ___
2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds \$90,420.00, (60% of the Governor's salary as of 7/1/01) provide the name the State agency for which you are employed and your annual salary. _____

RETURN WITH BID/OFFER

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds \$90,420.00, (60% of the Governor's salary as of 7/1/01) are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes ___ No ___
4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds \$90,420.00, (60% of the Governor's salary as of 7/1/01) are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor? Yes ___ No ___

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment services in the previous 2 years.

Yes ___ No ___

If your answer is yes, please answer each of the following questions.

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois Toll Highway Authority? Yes ___ No ___
2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds \$90,420.00, (60 % of the Governor's salary as of 7/1/01) provide the name of your spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____
-
3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds \$90,420.00, (60% of the salary of the Governor as of 7/1/01) are you entitled to receive (i) more then 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes ___ No ___
4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds \$90,420.00, (60% of the Governor's salary as of 7/1/01) are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor? 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 ___

(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 ___

RETURN WITH BID/OFFER

(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: _____ Date _____
Signature of Individual or Authorized Representative

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 _____

RETURN WITH BID/OFFER

ILLINOIS DEPARTMENT
OF TRANSPORTATION

Form B
Other Contracts &
Procurement Related Information
Disclosure

| | | |
|------------------|---------------|---------------------------|
| Contractor Name | | |
| Legal Address | | |
| City, State, Zip | | |
| Telephone Number | Email Address | 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.

RETURN WITH BID



Contract No. 62877
 COOK County
 Section 0305-302K-L-3
 Route FAI 290/FAP 342
 District 1 Construction Funds

PART I. IDENTIFICATION

Dept. Human Rights # _____ 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 | | | |
| | | | 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 |
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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 the next page

RETURN WITH BID

**Contract No. 62877
COOK County
Section 0305-302K-L-3
Route FAI 290/FAP 342
District 1 Construction Funds**

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

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.

Signature: _____ Title: _____ Date: _____

- 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

**Contract No. 62877
COOK County
Section 0305-302K-L-3
Route FAI 290/FAP 342
District 1 Construction Funds**

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 3 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 _____
Signature of Authorized Representative _____
Typed or printed name and title of Authorized Representative _____
(IF A CORPORATION) Attest _____
Signature _____
(IF A JOINT VENTURE, USE THIS SECTION
FOR THE MANAGING PARTY AND THE
SECOND PARTY SHOULD SIGN BELOW) Business Address _____

Corporate Name _____
By _____
Signature of Authorized Representative _____
Typed or printed name and title of Authorized Representative _____
(IF A JOINT VENTURE) Attest _____
Signature _____
Business Address _____

If more than two parties are in the joint venture, please attach an additional signature sheet.



RETURN WITH BID

Division of Highways
Proposal Bid Bond
(Effective November 1, 1992)

Item No.
Letting Date

KNOW ALL MEN BY THESE PRESENTS, That We

as PRINCIPAL, and

as SURETY, are held jointly, severally and firmly bound unto the STATE OF ILLINOIS in the penal sum of 5 percent of the total bid price...

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH, That Whereas, the PRINCIPAL has submitted a bid proposal to the STATE OF ILLINOIS...

NOW, THEREFORE, if the Department shall accept the bid proposal of the PRINCIPAL; and if the PRINCIPAL shall, within the time and as specified in the bidding and contract documents...

IN THE EVENT the Department determines the PRINCIPAL has failed to comply with any requirement as set forth in the preceding paragraph, then Surety shall pay the penal sum to the Department within fifteen (15) days of written demand therefor.

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

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

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
COUNTY OF

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

(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of PRINCIPAL and SURETY, appeared before me this day in person and acknowledged respectively...

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

My commission expires Notary Public

In lieu of completing the above section of the Proposal Bid Form, the Principal may file an Electronic Bid Bond. By signing below the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the State of Illinois under the conditions of the bid bond as shown above.

Electronic Bid Bond ID# Company/Bidder Name Signature and Title

PROPOSAL ENVELOPE



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 use an IDOT proposal envelope or affix this form to the front of a 10" x 13" 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 326
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

NOTICE

Individual bids, including Bid Bond and/or supplemental information if required, should be securely stapled.

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.

**Contract No. 62877
COOK County
Section 0305-302K-L-3
Route FAI 290/FAP 342
District 1 Construction Funds**



Illinois Department of Transportation



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., June 17, 2005. 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 is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 62877
COOK County
Section 0305-302K-L-3
Route FAI 290/FAP 342
District 1 Construction Funds**

Lighting, CCTV and fiber optic communications network along I-290/IL Route 53 from south of IL Route 62 (Algonquin Road) to north of IL Route 72 (Higgins Road) in Schaumburg and Rolling Meadows.

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, 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 rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Timothy W. Martin, Secretary

BD 351 (Rev. 01/2003)

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted March 1, 2005

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-02) (Revised 3-1-05)

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted , the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAI Route 290/FAP Route 342, Section 0305-302K-L-3 in Cook County and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

This project is located along FAI 290/FAP 342 (I-290/IL. 53) from South of IL. 62 (Algonquin Road) to North of IL. 72 (Higgins Road), within Cook County, located in the Villages of Schaumburg and Rolling Meadows.

DESCRIPTION OF PROJECT

The project consists of removal and relocation of existing roadway lighting, and installation of light towers. Additional work includes CCTV monitoring, fiber optic system extension, and reconnection of existing sign luminaires, underpass luminaires, and lighting units that remain, to the new lighting controllers.

COMPLETION DATE

The contractor for this project is advised that the construction activities for this improvement will be governed by a completion of May 31, 2006, as specified in Article 108.05 of the Standard Specifications.

In the event that all work is not completed by the specified completion date, liquidated damages for each calendar day will be deducted based upon the total contract amount using the schedule in Article 108.09 of the Standard Specifications.

TRAFFIC CONTROL PLAN

Effective: September 30, 1985

Revised: October 1, 1995

Traffic Control shall be in accordance with the applicable sections of the Standard Specifications, the Supplemental Specifications, the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", any special details and Highway Standards contained in the plans, and the Special Provisions contained herein.

Special attention is called to Article 107.09 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The Contractor shall contact the District One Bureau of Traffic at least 72 hours in advance of beginning work.

STANDARDS:

| | |
|--------|--|
| 701001 | OFF-ROAD OPERATIONS 2-L, 2-W, MORE THAN 15' AWAY |
| 701006 | OFF-ROAD OPERATIONS 2-L, 2-W, 15' TO 24" FROM PAVEMENT EDGE |
| 701011 | OFF-ROAD MOVING OPERATIONS 2-L, 2-W, DAY ONLY |
| 701101 | OFF-ROAD OPERATIONS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE |
| 701106 | OFF-ROAD OPERATIONS, MULTILANE, MORE THAN 15' AWAY |
| 701301 | LANE CLOSURE, 2-L, 2-W, SHORT TIME OPERATIONS |
| 701400 | APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY |
| 701401 | LANE CLOSURE, FREEWAY/EXPRESSWAY |
| | LANE CLOSURE MULTILANE AT ENTRANCE OR EXIT RAMP FOR SPEEDS \geq 45 |
| 701411 | MPH |
| | LANE CLOSURE, MULTILANE, DAY OPERATIONS ONLY, FOR SPEEDS \geq 45 MPH |
| 701421 | TO 55 MPH |
| 701446 | TWO LANE CLOSURE, FREEWAY/EXPRESSWAY |
| 701501 | URBAN LANE CLOSURE 2-L, 2-W, UNDIVIDED |
| 702001 | TRAFFIC CONTROL DEVICES |

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| | |
|-------|--|
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| | TRAFFIC CONTROL AND PROTECTION FOR SIDEROADS, INTERSECTIONS, AND |
| TC-10 | DRIVEWAYS |
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SPECIAL PROVISIONS:

KEEPING THE EXPRESSWAY OPEN TO TRAFFIC
FAILURE TO OPEN TRAFFIC LANES TO TRAFFIC
TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)
WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT)
TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)
WORK ZONE PUBLIC INFORMATION SIGNS (BDE)
WORK ZONE TRAFFIC CONTROL DEVICES (BDE)
FLAGGER VESTS (BDE)
PORTABLE CHANGEABLE MESSAGE SIGNS (BDE)
WORK ZONE SPEED LIMIT SIGNS (BDE)
MINIMUM LANE WIDTH WITH LANE CLOSURE (BDE)

KEEPING THE EXPRESSWAY OPEN TO TRAFFIC:

Rev. 2-9-05

Whenever work is in progress on or adjacent to an expressway, the Contractor shall provide the necessary traffic control devices to warn the public and to delineate the work zone as required in these Special Provisions, the Standard Specifications, the State Standards and the District Freeway details. All Contractor's personnel shall be limited to these barricaded work zones and shall not cross the expressway.

The Contractor shall request and gain approval from the Illinois Department of Transportation's Expressway Traffic Operations Engineer (847-705-4151) twenty-four (24) hours in advance of all daily lane, ramp and shoulder closures and seventy-two (72) hours in advance of all permanent and weekend closures on all Freeways and/or Expressways in District One. This advance notification is calculated based on workweek of Monday through Friday and shall not include weekends or Holidays.

LOCATION: I-290/ IL 53 (IL 72 to IL 62)

| WEEK NIGHT | TYPE OF CLOSURE | ALLOWABLE LANE CLOSURE HOURS | | |
|-------------------|--------------------------|------------------------------|----|------------------|
| | | | To | |
| Sunday – Thursday | One Lane (Express) | 7:00 p.m. | To | 5:00 a.m. |
| | Two Lanes(Express) | 10:00 p.m. | To | 5:00 a.m. |
| | Full Express | Midnight | To | 5:00 a.m. |
| | One or Two Lane (Locals) | 9:00 p.m. | To | 5:00 a.m. |
| Friday | One Lane (Express) | 8:00 p.m. (FRI) | To | 8:00 a.m. (SAT) |
| | Two Lanes(Express) | 11:00 p.m. (FRI) | To | 7:00 a.m. (SAT) |
| | Full Express | Midnight (FRI) | To | 6:00 a.m. (SAT) |
| | One or Two Lane (Locals) | 10:00 p.m. (FRI) | To | 7:00 a.m. (SAT) |
| Saturday | One Lane (Express) | 8:00 p.m. (SAT) | To | 10:00 a.m. (SUN) |
| | Two Lanes(Express) | 11:00 p.m. (SAT) | To | 9:00 a.m. (SUN) |
| | Full Express | Midnight (SAT) | To | 8:00 a.m. (SUN) |
| | One or Two Lane (Locals) | 10:00 p.m.(SAT) | To | 9:00 a.m. (SUN) |

Restrictions for lane closures in both local and express lanes are as follows:

1. A two lane closure in both the local lanes and express lanes will only be permitted after midnight.
2. The express lanes shall not be fully closed when there are lanes closed on the local lanes.
3. Local lanes shall not be fully closed.
4. Special traffic control may be required to close the left lane of the locals or the right lane of the express.

In addition to the hours noted above, temporary shoulder and partial ramp closures are allowed weekdays between 9:00 AM and 3:00 PM.

Narrow lanes and permanent shoulder closures **will not** be allowed between Dec. 1st and April 1st.

Additional lane closure hour restrictions may have to be imposed to facilitate the flow of traffic to and from major sporting events and/or other events.

All lane closure signs shall not be erected any earlier than one-half (1/2) hour before the starting hours listed above. Also, these signs should be taken down within one-half (1/2) hour after the closure is removed.

The Contractor will be required to cooperate with all other contractors when erecting lane closures on the expressway. All lane closures (includes the taper lengths) without a three (3) mile gap between each other, in one direction of the expressway, shall be on the same side of the pavement. Lane closures on the same side of the pavement with a half (1/2) mile or less gap between the end of one work zone and the start of taper of next work zone should be connected. The maximum length of any lane closure on the project and combined with any adjacent projects shall be three (3) miles. Gaps between successive permanent lane closures shall be no less than two (2) miles in length.

Private vehicles shall not be parked in the work zone. Contractor's equipment and/or vehicles shall not be parked on the shoulders or in the median during non-working hours. The parking of equipment and/or vehicles on State right-of-way will only be permitted at the locations approved by the Engineer.

FAILURE TO OPEN TRAFFIC LANES TO TRAFFIC:

Rev. 2-09-05

Should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance with the limitations specified under the Special Provisions for "Keeping the Expressway Open to Traffic", the Contractor shall be liable to the Department for the amount of:

One lane or ramp blocked = **\$2,000.00**

Two lanes blocked = **\$4,000.00**

Not as a penalty but as liquidated and ascertained damages for each and every 15 minute interval or a portion thereof that a lane is blocked outside the allowable time limitations. Such damages may be deducted by the Department from any monies due the Contractor. These damages shall apply during the contract time and during any extensions of the contract time.

TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)

Effective: 3/8/96 Revised: 02/9/05

This work shall include furnishing, installing, maintaining, replacing, relocating, and removing all traffic control devices used for the purpose of regulating, warning, or directing traffic. Traffic control and protection shall be provided as called for in the plans, applicable Highway Standards, District One Expressway details, Standards and Supplemental Specifications, these Special Provisions, or as directed by the Engineer.

GENERAL

The governing factor in the execution and staging of work for this project is to provide the motoring public with the safest possible travel conditions on the expressway through the construction zone. The Contractor shall arrange his operations to keep the closing of lanes and/or ramps to a minimum.

The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices. Special attention shall be given to existing warning signs and overhead guide signs during all construction operations. Warning signs and existing guide signs with down arrows shall be kept consistent with the barricade placement at all times. The Contractor shall immediately remove, completely cover, or turn from the motorist's view all signs which are inconsistent with lane assignment patterns.

The Contractor shall coordinate all traffic control work on this project with adjoining or overlapping projects, including barricade placement necessary to provide a uniform traffic detour pattern. When directed by the Engineer, the Contractor shall remove all traffic control devices that were furnished, installed, or maintained by him under this contract, and such devices shall remain the property of the Contractor. All traffic control devices shall remain in place until specific authorization for relocation or removal is received from the Engineer.

Signs

Prior to the beginning of construction operations, the Contractor will be provided a sign log of all existing signs within the limits of the construction zone. The Contractor is responsible for verifying the accuracy of the sign log. Throughout the duration of this project, all existing traffic signs shall be maintained by the Contractor. All provisions of Article 107.25 of the Standard

Specifications shall apply except the third paragraph shall be revised to read: "The Contractor shall maintain, furnish, and replace at his own expense, any traffic sign or post which has been damaged or lost by the Contractor or a third party. The Contractor will not be held liable for third party damage to large freeway guide signs".

Exit Gore Signs

The exit gore signs as shown in Standard 701411 shall be a minimum size of 1.2m (48 inch) by 1.2m (48 inch) with 300mm (12 inch) capital letters and a 500mm (20inch) arrow.

Rough Grooved Surface Signs

The Contractor shall furnish and erect "Rough Grooved Surface" signs (W8-1107) on both sides of the expressway, 300m (1000') in advance of any milled area. These signs shall be erected on all ramps that enter the milled area. All signs shall be mounted at a minimum clearance height of 2.1m (7').

Drums/Barricades

Check barricades shall be placed in work areas perpendicular to traffic every 300m (1000'), one per lane and per shoulder, to prevent motorists from using work areas as a traveled way. Check barricades shall also be placed in advance of each open patch, or excavation, or any other hazard in the work area, the first at the edge of the open traffic lane and the second centered in the closed lane. Check barricades, either Type I or II, or drums shall be equipped with the flashing light.

To provide sufficient lane widths (3m [10'] minimum) for traffic and also working room, the Contractor shall furnish and install vertical barricades with steady burn lights, in lieu of Type II or drums, along the cold milling and asphalt paving operations. The vertical barricades shall be placed at the same spacing as the drums.

Vertical Barricades

Vertical barricades shall not be used in lane closure tapers, lane shifts, and exit ramp gores. Also, vertical barricades shall not be used as patch barricades or check barricades. Special attention shall be given, and ballast provided per manufacture's specification, to maintain the vertical barricades in an upright position and in proper alignment.

Temporary Concrete Barrier Wall

Prismatic barrier wall reflectors shall be installed on both the face of the wall next to traffic and the top of all temporary concrete barrier wall. These reflectors shall be placed at 50 foot centers along tangents and at 25 foot centers on curves. The color of these reflectors shall match the color of the edgelines (yellow on the left and crystal or white on the right). If the base of the temporary concrete barrier wall is 12 inches or less from the travel lane, then the wall shall also have a 6 inch wide temporary pavement marking edgeline (yellow on the left and white on the right).

Method of Measurement: This item of work will be measured on a lump sum basis for furnishing, installing, maintaining, replacing, relocating, and removing traffic control devices required in the plans and these Special Provisions. Traffic control and protection required under Standards 701101, 701400, 701401, 701411 701426 and 701446 will be included with this item.

Basis of Payment:

- a) This work will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS). This price shall be payment in full for all labor, materials, transportation, handling, and incidental work necessary to furnish, install, maintain, replace, relocate, and remove all Expressway traffic control devices required in the plans and specifications.

In the event the sum total value of all the work items for which traffic control and protection is required is increased or decreased by more than ten percent (10%), the contract bid price for Traffic Control and Protection will be adjusted as follows:

$$\text{Adjusted contract price} = .25P + .75P [1+(X-0.1)]$$

Where "P" is the bid unit price for Traffic Control and Protection:

$$\text{Where "X"} = \frac{\text{Difference between original and final sum total value of all work items for which traffic control and protection is required.}}{\text{Original sum total value of all work items for which traffic control and protection is required.}}$$

The value of the work items used in calculating the increase and decrease will include only items that have been added to or deducted from the contract under Article 104.02 of the Standard Specifications and only items which require use of Traffic Control and Protection.

- b) The Engineer may require additional traffic control be installed in accordance with standards and/or designs other than those included in the plans. In such cases, the standards and/or designs will be made available to the Contractor at least one week in advance of the change in traffic control. Payment for any additional traffic control required will be in accordance with Article 109.04 of the Standard Specifications.
- c) Revisions in the phasing of construction or maintenance operations, requested by the Contractor, may require traffic control to be installed in accordance with standards and/or designs other than those included in the plans. Revisions or modifications to the traffic control shown in the contract shall be submitted by the Contractor for approval by the Engineer. No additional payment will be made for a Contractor requested modification.
- d) Temporary concrete barrier wall will be measured and paid for according to Section 704.

Impact attenuators, temporary bridge rail, and temporary rumble strips will be paid for separately.

All temporary pavement markings will be measured and paid for according to Section 703 and Section 780.

All pavement marking removal will be measured and paid for according to Section 703 or Section 783.

Temporary pavement marking at the base of the temporary concrete barrier wall will be measured and paid for as TEMPORARY PAVEMENT MARKING, 6".

All prismatic barrier wall reflectors will be measured and paid for according to Section 782.

WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT)

Effective: February 1, 1996 Revised: November 1, 1996

Specific traffic control plan details and Special Provisions have been prepared for this contract.

Method of Measurement: All traffic control, except traffic control pavement marking, and TRAFFIC CONTROL AND PROTECTION INCLUDED UNDER PAY ITEM TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS) indicated on the traffic control plan details and specified in the Special Provisions will be measured for payment on a lump sum basis. Traffic control pavement markings will be measured per meter (foot).

Basis of Payment: All traffic control and protection, other than expressways, will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL). This price shall be payment in full for all labor, materials, transportation, handling and incidental work necessary to furnish, install, maintain and remove all traffic control devices required as indicated in the plans and as approved by the Engineer.

SHORT TERM PAVEMENT MARKING, TEMPORARY PAVEMENT MARKING and PAVEMENT MARKING TAPE TYPE III will be paid for separately.

TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: April 1, 1992

Revised: January 1, 2005

To ensure a prompt response to incidents involving the integrity of work zone traffic control, the Contractor shall provide a telephone number where a responsible individual can be contacted 24 hours-a-day.

When the Engineer is notified, or determines a traffic control deficiency exists, he/she will notify and direct the Contractor to correct the deficiency within a specified time. The specified time,

which begins upon notification to the Contractor, will be from 1/2 hour to 12 hours based upon the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge.

A deficiency may be any lack of repair, maintenance, or non-compliance with the traffic control plan. A deficiency may also be applied to situations where corrective action is not an option such as the use of non-certified flaggers for short term operations; working with lane closures beyond the time allowed in the contract; or failure to perform required contract obligations such as traffic control surveillance.

If the Contractor fails to correct a deficiency within the specified time, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The calendar day(s) will begin with notification to the Contractor and end with the Engineer's acceptance of the correction. The daily monetary deduction will be either \$1,000 or 0.05 percent of the awarded contract value, whichever is greater. For those deficiencies where corrective action was not an option this monetary deduction will be immediate.

In addition, if the Contractor fails to respond, the Engineer may correct the deficiency and the cost thereof will be deducted from monies due or which may become due the Contractor. This corrective action will in no way relieve the Contractor of his/her contractual requirements or responsibilities.

5729I

WORK ZONE PUBLIC INFORMATION SIGNS (BDE)

Effective: September 1, 2002
Revised: January 1, 2005

Description. This work shall consist of furnishing, erecting, maintaining, and removing work zone public information signs.

Camera-ready artwork for the signs will be provided to sign manufacturing companies upon request by contacting the Central Bureau of Operations at 217-782-2076. The sign number is W21-I116-6048.

Freeways/Expressways. These signs are required on freeways and expressways. The signs shall be erected as shown on Highway Standard 701400 and according to Article 702.05(a) of the Standard Specifications.

All Other Routes. These signs shall be used on other routes when specified on the plans. They shall be erected in pairs midway between the first and second warning signs.

Basis of Payment. This work will not be paid for separately but shall be considered as included in the cost of the Standard.

80090

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: January 1, 2003

Revised: November 1, 2004

Add the following to Article 702.01 of the Standard Specifications:

“All devices and combinations of devices shall meet the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350 for their respective categories. The categories are as follows:

Category 1 includes small, lightweight, channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. These include cones, tubular markers, flexible delineators and plastic drums with no attachments. Category 1 devices shall be crash tested and accepted or may be self-certified by the manufacturer.

Category 2 includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. These include drums and vertical panels with lights, barricades and portable sign supports. Category 2 devices shall be crash tested and accepted for Test Level 3.

Category 3 includes devices that are expected to cause significant velocity changes or other potentially harmful reactions to impacting vehicles. These include crash cushions, truck mounted attenuators and other devices not meeting the definitions of Category 1 or 2. Category 3 devices shall be crash tested and accepted for either Test Level 3 or the test level specified.

Category 4 includes portable or trailer-mounted devices such as arrow boards, changeable message signs, temporary traffic signals and area lighting supports. Currently, there is no implementation date set for this category and it is exempt from the NCHRP 350 compliance requirement.

The Contractor shall provide a manufacturer’s self-certification letter for each Category 1 device and an FHWA acceptance letter for each Category 2 and Category 3 device used on the contract. The letters shall state the device meets the NCHRP 350 requirements for its respective category and test level, and shall include a detail drawing of the device.”

Delete the third, fourth and fifth paragraphs of Article 702.03(b) of the Standard Specifications.

Delete the third sentence of the first paragraph of Article 702.03(c) of the Standard Specifications.

Revise the first sentence of the first paragraph of Article 702.03(e) of the Standard Specifications to read:

“Drums shall be nonmetallic and have alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes.”

Add the following to Article 702.03 of the Standard Specifications:

“(h) Vertical Barricades. Vertical barricades may be used in lieu of cones, drums or Type II barricades to channelize traffic.”

Delete the fourth paragraph of Article 702.05(a) of the Standard Specifications.

Revise the sixth paragraph of Article 702.05(a) of the Standard Specifications to read:

“When the work operations exceed four days, all signs shall be post mounted unless the signs are located on the pavement or define a moving or intermittent operation. When approved by the Engineer, a temporary sign stand may be used to support a sign at 1.2 m (5 ft) minimum where posts are impractical. Longitudinal dimensions shown on the plans for the placement of signs may be increased up to 30 m (100 ft) to avoid obstacles, hazards or to improve sight distance, when approved by the Engineer. “ROAD CONSTRUCTION AHEAD” signs will also be required on side roads located within the limits of the mainline “ROAD CONSTRUCTION AHEAD” signs.”

Delete all references to “Type 1A barricades” and “wing barricades” throughout Section 702 of the Standard Specifications.

FLAGGER VESTS (BDE)

Effective: April 1, 2003

Revised: April 1, 2005

Revise the first sentence of Article 701.04(c)(1) of the Standard Specifications to read:

“The flagger shall be stationed to the satisfaction of the Engineer and be equipped with a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments and approved flagger traffic control signs conforming to Standard 702001 and Article 702.05(e).”

Revise Article 701.04(c)(6) of the Standard Specifications to read:

“(6) Nighttime Flagging. The flagger station shall be lit by additional overhead lighting other than streetlights. The flagger shall be equipped with a fluorescent orange, fluorescent yellow/green, or a combination of fluorescent orange and fluorescent yellow/green garment meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 3 garments.”

80101

PORTABLE CHANGEABLE MESSAGE SIGNS (BDE)

Effective: November 1, 1993

Revised: April 2, 2004

Description. This work shall consist of furnishing, placing, and maintaining changeable message sign(s) at the locations(s) shown on the plans or as directed by the Engineer.

The sign(s) shall be trailer mounted. The message panel shall be at least 2.1 m (7 ft) above the pavement, present a level appearance, and be capable of displaying up to eight characters in each of three lines at a time. Character height shall be 450 mm (18 in.).

The message panel shall be of either a bulb matrix or disc matrix design controlled by an onboard computer capable of storing a minimum of 99 programmed messages for instant recall. The computer shall be capable of being programmed to accept messages created by the operator via an alpha-numeric keyboard and able to flash any six messages in sequence. The message panel shall also be capable of being controlled by a computer from a remote location via a cellular linkage. The Contractor shall supply the modem, the cellular phone, and the necessary software to run the sign from a remote computer at a location designated by the Engineer. The Contractor shall promptly program and/or reprogram the computer to provide the messages as directed by the Engineer.

The message panel shall be visible from 400 m (1/4 mile) under both day and night conditions. The letters shall be legible from 250 m (750 ft).

The sign shall include automatic dimming for nighttime operation and a power supply capable of providing 24 hours of uninterrupted service.

The Contractor shall provide all preventive maintenance efforts s(he) deems necessary to achieve uninterrupted service. If service is interrupted for any cause and not restored within 24 hours, the Engineer will cause such work to be performed as may be necessary to provide this service. The cost of such work shall be borne by the Contractor or deducted from current or future compensation due the Contractor.

When the sign(s) are displaying messages, they shall be considered a traffic control device. At all times when no message is displayed, they shall be considered equipment.

Basis of Payment. When portable changeable message signs are shown on the Standard, this work will not be paid for separately but shall be considered as included in the cost of the Standard.

For all other portable changeable message signs, this work will be paid for at the contract unit price per calendar month for each sign as CHANGEABLE MESSAGE SIGN.

80124

WORK ZONE SPEED LIMIT SIGNS (BDE)

Effective: April 2, 2004

Revised: April 15, 2004

Delete Article 702.05(c).

Revise Article 702.05(d) to read:

“(d) Work Zone Speed Limit Signs. Work zone speed limit sign assemblies shall be provided and located as shown on the plans. Two additional assemblies shall be placed 150 m (500 ft) beyond the last entrance ramp for each interchange. The individual signs that make up an assembly may be combined on a single panel. The sheeting for the signs shall be reflective and conform to the requirements of Article 1084.02.

All permanent “SPEED LIMIT” signs located within the work zone shall be removed or covered. This work shall be coordinated with the lane closure(s) by promptly establishing a reduced posted speed zone when the lane closure(s) are put into effect and promptly reinstating the posted speed zone when the lane closure(s) are removed.

The work zone speed limit signs and end work zone speed limit signs shown in advance of and at the end of the lane closure(s) shall be used for the entire duration of the closure(s).

The work zone speed limit signs shown within the lane closure(s) shall only be used when workers are present in the closed lane adjacent to traffic; at all other times, the signs shall be promptly removed or covered. The sign assemblies shown within the lane closure(s) will not be required when the worker(s) are located behind a concrete barrier wall.

80125

MINIMUM LANE WIDTH WITH LANE CLOSURE (BDE)

Effective: January 1, 2005

Add the following paragraph after the eighth paragraph of Article 701.04(a) of the Standard Specifications.

“The minimum lane width adjacent to a closed lane during paving, patching, and other moving operations on freeways and expressways shall be a minimum of 3 m (10 ft). The 3 m (10 ft) shall be clear, unobstructed, and free of channelizing devices or other obstacles.”

80137

GENERAL ELECTRICAL REQUIREMENTS

Effective: March 1, 2003

Add the following to Article 801 of the Standard Specifications:

“Maintenance transfer and Preconstruction Inspection:

General. Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall request a maintenance transfer and preconstruction site inspection, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting and/or traffic control systems which may be affected by the work. The request for the maintenance transfer and preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date. The maintenance transfer and preconstruction inspection shall:

Establish the procedures for formal transfer of maintenance responsibility required for the construction period.

Establish the approximate location and operating condition of lighting and/or traffic control systems which may be affected by the work

Marking of Existing Cable Systems. The party responsible for maintenance of any existing lighting and/or traffic control systems at the project site will, at the Contractor's request, mark and/or stake, once per location, all underground cable routes owned or maintained by the State. A project may involve multiple "locations" where separated electrical systems are involved (i.e. different controllers). The markings shall be taken to have a horizontal tolerance of at least 304.8 mm (one (1) foot) to either side.. The request for the cable locations and marking shall be made at the same time the request for the maintenance transfer and preconstruction inspection is made. The Contractor shall exercise extreme caution where existing buried cable runs are involved. The markings of existing systems are made strictly for assistance to the Contractor and this does not relieve the Contractor of responsibility for the repair or replacement of any cable run damaged in the course of his work, as specified elsewhere herein. NOTE THAT THE CONTRACTOR SHALL BE ENTITLED TO ONLY ONE REQUEST FOR LOCATION MARKING OF EXISTING SYSTEMS AND THAT MULTIPLE REQUESTS MAY ONLY BE HONORED AT THE CONTRACTOR'S EXPENSE. NO LOCATES WILL BE MADE AFTER MAINTENANCE IS TRANSFERRED, UNLESS IT IS AT THE CONTRACTOR'S EXPENSE.

Condition of Existing Systems. The Contractor shall conduct an inventory of all existing electrical system equipment within the project limits, which may be affected by the work, making note of any parts which are found broken or missing, defective or malfunctioning. Megger and load readings shall be taken for all existing circuits which will remain in place or be modified. If a circuit is to be taken

out in its entirety, then readings do not have to be taken. The inventory and test data shall be reviewed with and approved by the Engineer and a record of the inventory shall be submitted to the Engineer for the record. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition.”

Delete the last paragraph of Article 801.06 of the Standard Specifications.

Revise the 7th and 8th paragraphs of Article 801.08 of the Standard Specifications to read:

“Engineer’s Stamp. After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as ‘Approved’, ‘Approved-As-Noted’, ‘Disapproved’, or ‘Information Only’. Since the Engineer’s review is for conformance with the design concept only, it is the Contractor’s responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department’s approval thereof. The Contractor must still be in full compliance with contract and specification requirements.

Resubmittals. All submitted items reviewed and marked ‘APPROVED AS NOTED’, or ‘DISAPPROVED’ are to be resubmitted in their entirety with a disposition of previous comments to verify contract compliance at no additional cost to the state unless otherwise indicated within the submittal comments.”

Revise Article 801.12 of the Standard Specifications to read:

“Lighting Operation and Maintenance Responsibility. The scope of work shall include the assumption of responsibility for the continuing operation and maintenance the of existing, proposed, temporary, sign and navigation lighting, or other lighting systems and all appurtenances affected by the work as specified elsewhere herein.”

Add the following to Section 801.12 of the Standard Specifications:

“Energy and Demand Charges. The payment of basic energy and demand charges by the electric utility for existing lighting which remains in service will continue as a responsibility of the Owner, unless otherwise indicated. Unless otherwise indicated or required by the Engineer duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously at the Owner’s expense and lighting systems shall not be kept in operation during long daytime periods at the Owner’s expense. Upon written authorization from the Engineer to place a proposed new lighting system in service, whether the system has passed final acceptance or not, (such as to allow temporary lighting to be

removed), the Owner will accept responsibility for energy and demand charges for such lighting, effective the date of authorization. All other energy and demand payments to the utility shall be the responsibility of the Contractor until final acceptance.”

Add the following to Section 801 of the Standard Specifications:

“Splicing of Lighting cables. Splices above grade, such as in poles and junction boxes, shall have a waterproof sealant and a heat-shrinkable plastic cap. The cap shall be of a size suitable for the splice and shall have a factory-applied sealant within. Additional seal of the splice shall be assured by the application of sealant tape or the use of a sealant insert prior to the installation of the cap. Either method shall be assured compatible with the cap sealant. Tape sealant shall be applied in not less than one half-lapped layer for a length at least 6.35 mm (1/4-inch) longer than the cap length and the tape shall also be wrapped into the crotch of the splice. Insert sealant shall be placed between the wires of the splice and shall be positioned to line up flush or extend slightly past the open base of the cap.

Lighting Cable Identification. Each wire installed shall be identified with its complete circuit number at each termination, splice, junction box or other location where the wire is accessible.

Lighting Cable Fuse Installation. Standard fuse holders shall be used on non-frangible (non-breakaway) light pole installations and quick-disconnect fuse holders shall be used on frangible (breakaway) light pole installations. Wires shall be carefully stripped only as far as needed for connection to the device. Over-stripping shall be avoided. An oxide inhibiting lubricant shall be applied to the wire for minimum connection resistance before the terminals are crimped-on. Crimping shall be performed in accordance with the fuse holder manufacturer's recommendations. The exposed metal connecting portion of the assembly shall be taped with two half-lapped wraps of electrical tape and then covered by the specified insulating boot. The fuse holder shall be installed such that the fuse side is connected to the pole wire (load side) and the receptacle side of the holder is connected to the line side.

Grounding of Lighting Systems. All electrical systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC, even though every detail of the requirements is not specified or shown. Good ground continuity throughout the electrical system shall be assured. All electrical circuit runs shall have a continuous equipment grounding conductor. IN NO CASE SHALL THE EARTH BE CONSIDERED AS AN ADEQUATE EQUIPMENT GROUNDING PATH. Where connections are made to painted surfaces, the paint shall be scraped to fully expose metal at the connection point and serrated connectors or washers shall be used. Where metallic conduit is utilized as the equipment grounding conductor, extreme care shall be exercised to assure continuity at joints and termination points. No wiring run shall be installed without a suitable equipment ground conductor. Where no equipment ground conductor is

provided for in the plans and associated specified pay item, the Contractor is obligated to bring the case to the attention of the Engineer who will direct the Contractor accordingly. Work which is extra to the contract will be paid extra. All connections to ground rods, structural steel, reinforcing steel or fencing shall be made with exothermic welds. Where such connections are made to insulated conductors, the connection shall be wrapped with at least 4 layers of electrical tape extended 152.4 mm (six inches) onto the conductor insulation. Where a ground field of "made" electrodes is provided, the exact locations of the rods shall be documented by dimensioned drawings as part of the Record Drawings. Equipment ground wires shall be bonded, using a splice and pigtail connection, to all boxes and other metallic enclosures throughout the wiring system.

Lighting Unit Identification. Each pole, light tower and underpass light shall be labeled as indicated in the plans to correspond to actual circuiting, and as designated by the Engineer. They shall be installed by the Contractor on each lighting unit pole shaft and on the underpass walls, or piers, as shown in the details. Median-mounted poles shall have two sets of identification labeling oriented to allow visibility from travel in either direction. Lighting Controllers shall also be identified by means identification decals as described herein. Identification shall be in place prior to placing the equipment in service. Identification of weathering steel poles shall be made by application of letters and numerals as specified herein to an appropriately sized 3.175 mm (1/8-inch) thick stainless steel plate which shall be banded to the pole with two stainless steel bands. Identification of painted poles shall be made by application of letters and numerals as specified herein via an adhesive approved by the paint manufacturer for the application. Identification of luminaires which are not pole mounted, such as underpass luminaires, shall be done using identification brackets. In general, the brackets shall be mounted adjacent to and within one foot of their respective luminaires. The brackets shall be fabricated from 3.175 mm (one-eighth (1/8)) inch aluminum alloy sheet according to the dimensions shown on the plans. The bracket shall be bent so as to present the luminaire identification numbers at a sixty (60) degree angle to the wall. The bracket shall be attached to concrete walls with three (3) 6.35 mm (1/4 inch), self drilling, snap-off type galvanized steel concrete anchors set flush with the wall, or power driven fasteners approved by the Engineer. The brackets shall be offset from the wall with 12.7 mm (1/2") aluminum bushings. The structural steel shall not be drilled to attach the brackets. The luminaire identification numbers shall be applied to the bracket using the method described for identification applied to poles.

Procurement. Materials and equipment shall be the products of established manufacturers, and shall be suitable for the service required. The Contractor is obligated to conduct his own search into the timely availability of the specified equipment and to ensure that all materials and equipment are in strict conformance with the contract documents and that delivery schedules are compatible with project time constraints. **Materials or equipment items which are similar or identical shall be the product of the same manufacturer.** The cost of submittals, certifications, any required samples and similar costs shall not be paid for extra but shall be included in the pay item bid price for the respective material or work.

UL Label. Unless otherwise indicated, materials and equipment shall bear the UL label whenever such labeling is available for the type of material or equipment being furnished.

MAINTENANCE OF LIGHTING SYSTEMS

Effective: March 1, 2003

Replace Article 801.12 of the Standard Specifications with the following:

Effective the date the Contractor's activities (electrical or otherwise) at the job site begin, the Contractor shall be responsible for the proper operation and maintenance of all existing and proposed lighting systems which are part of, or which may be affected by the work until final acceptance or as otherwise determined by the Engineer.

Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall initiate a request for a maintenance transfer and preconstruction inspection, as specified elsewhere herein, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting systems which may be affected by the work. The request for the maintenance preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date.

Existing lighting systems, when depicted on the plans, are intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. It remains the Contractor's responsibility to visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained.

Maintenance of Existing Lighting Systems

Existing lighting systems. Existing lighting systems shall be defined as any lighting system or part of a lighting system in service prior to this contract. The contract drawings indicate the general extent of any existing lighting, but whether indicated or not, it remains the Contractor's responsibility to ascertain the extent of effort required for compliance with these specifications and failure to do so will not be justification for extra payment or reduced responsibilities.

Extent of Maintenance.

Partial Maintenance. Unless otherwise indicated, if the number of circuits affected by the contract is equal to or less than 40% of the total number of

circuits in a given controller and the controller is not part of the contract work, the Contractor needs only to maintain the affected circuits. The affected circuits shall be isolated by means of in-line waterproof fuse holders as specified elsewhere and as approved by the Engineer.

Full Maintenance. If the number of circuits affected by the contract is greater than 40% of the total number of circuits in a given controller, or if the controller is modified in any way under the contract work, the Contractor shall maintain the entire controller and all associated circuits.

Maintenance of Proposed Lighting Systems

Proposed Lighting Systems. Proposed lighting systems shall be defined as any lighting system or part of a lighting system which is to be constructed under this contract.

The Contractor shall be fully responsible for maintenance of all items installed under this contract. Maintenance shall include, but not be limited to, any equipment failures or malfunctions as well as equipment damage either by the motoring public, Contractor operations, or other means. The potential cost of replacing or repairing any malfunctioning or damaged equipment shall be included in the bid price of this item and will not be paid for separately.

Lighting System Maintenance Operations

The Contractor's responsibility shall include all applicable responsibilities of the Electrical Maintenance Contract, State of Illinois, Department of Transportation, Division of Highways, District One. These responsibilities shall include the maintenance of lighting units (including sign lighting), cable runs and lighting controls. In the case of a pole knockdown or sign light damage caused by normal vehicular traffic, the Contractor shall promptly clear the lighting unit and circuit discontinuity and restore the system to service.

Responsibilities shall also include weekly night-time patrol of the lighting system, with patrol reports filed immediately with the Engineer and with deficiencies corrected within 24 hours of the patrol. Patrol reports shall be presented on standard forms as designated by the Engineer. Uncorrected deficiencies may be designated by the Engineer as necessitating emergency repairs as described elsewhere herein.

The following chart lists the maximum response, service restoration, and permanent repair time the Contractor will be allowed to perform corrective action on specific lighting system equipment.

| INCIDENT OR PROBLEM | SERVICE RESPONSE TIME | SERVICE RESTORATION TIME | PERMANENT REPAIR TIME |
|---|-----------------------------|--------------------------------|-----------------------------|
| Control cabinet out | 1 hour | 4 hours | 7 Calendar days |
| Hanging mast arm | 1 hour to clear | na | 7 Calendar days |
| Radio problem | 1 hour | 4 hours | 7 Calendar days |
| Motorist caused damage or leaning light pole 10 degrees or more | 1 hour to clear | 4 hours | 7 Calendar days |
| Circuit out – Needs to reset breaker | 1 hour | 4 hours | na |
| Circuit out – Cable trouble | 1 hour | 24 hours | 21 Calendar days |
| Outage of 3 or more successive lights | 1 hour | 4 hours | na |
| Outage of 75% of lights on one tower | 1 hour | 4 hours | na |
| Outage of light nearest RR crossing approach, Islands and gores | 1 hour | 4 hours | na |
| Outage (single or multiple) found on night outage survey or reported to EMC | na | na | 7 Calendar days |
| Navigation light outage | na | na | 24 hours |

- **Service Response Time** -- amount of time from the initial notification to the Contractor until a patrolman physically arrives at the location.
- **Service Restoration Time** – amount of time from the initial notification to the Contractor until the time the system is fully operational again (In cases of motorist caused damage the undamaged portions of the system are operational.)
- **Permanent Repair Time** – amount of time from initial notification to the Contractor until the time permanent repairs are made if the Contractor was required to make temporary repairs to meet the service restoration requirement.

Failure to provide this service will result in liquidated damages of \$500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of \$500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. Repeated failures and/or a gross failure of maintenance shall result in the State's Electrical Maintenance Contractor being directed to correct all deficiencies and the resulting costs deducted from any monies owed the contractor.

Damage caused by the Contractor's operations shall be repaired at no additional cost to the Contract.

Operation of Lighting

The lighting shall be operational every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Lighting systems shall not be kept in operation during long daytime periods. The contractor shall demonstrate to the satisfaction of the Engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request.

Basis of Payment. Maintenance of lighting systems shall be paid for at the contract unit price per calendar month or fraction thereof for **MAINTENANCE OF LIGHTING SYSTEM**, which shall include all work as described herein.

STAINLESS STEEL JUNCTION BOX

Effective: January 1, 2002

Revise the second sentence of the seventh paragraph of Article 1088.04 of the Standard Specifications to read:

“The gasket shall be extruded directly onto the junction box cover.”

ELECTRIC SERVICE INSTALLATION

Effective: January 1, 2002

Description. This item shall consist of all material and labor required to extend, connect or modify the electric services, as indicated or specified, which is over and above the work performed by the utility. Unless otherwise indicated, the cost for the utility work, if any, will be reimbursed to the Contractor separately under ELECTRIC SERVICE CONNECTION. This item may apply to the work at more than one service location and each will be paid separately.

Materials. Materials shall be according to the following Articles of Section 1000 - Materials

| Item | Article/Section |
|--|-----------------|
| (a) Electric Service Installation – Lighting | 1086.01 |

CONSTRUCTION REQUIREMENTS

General. The Contractor shall ascertain the work being provided by the electric utility and shall provide all additional material and work required to complete the electric service work in complete compliance with the requirements of the utility.

No additional compensation will be allowed for work required for the electric service, even though not explicitly shown on the Drawings or specified herein

Method Of Measurement. Electric Service Installation shall be counted, each.

Basis Of Payment. This work will be paid for at the contract unit price each for **ELECTRIC SERVICE INSTALLATION** which shall be payment in full for the work specified herein.

LUMINAIRE

Effective: August 1, 2004

Add the following to first paragraph of Article 1067(a)(3) of the Standard Specifications:

“The reflector shall not be altered by paint or other opaque coatings which would cover or coat the reflecting surface. Control of the light distribution by any method other than the reflecting material and the aforementioned clear protective coating that will alter the reflective properties of the reflecting surface is unacceptable”

Add the following to Article 1067(a)(5)a. of the Standard Specifications:

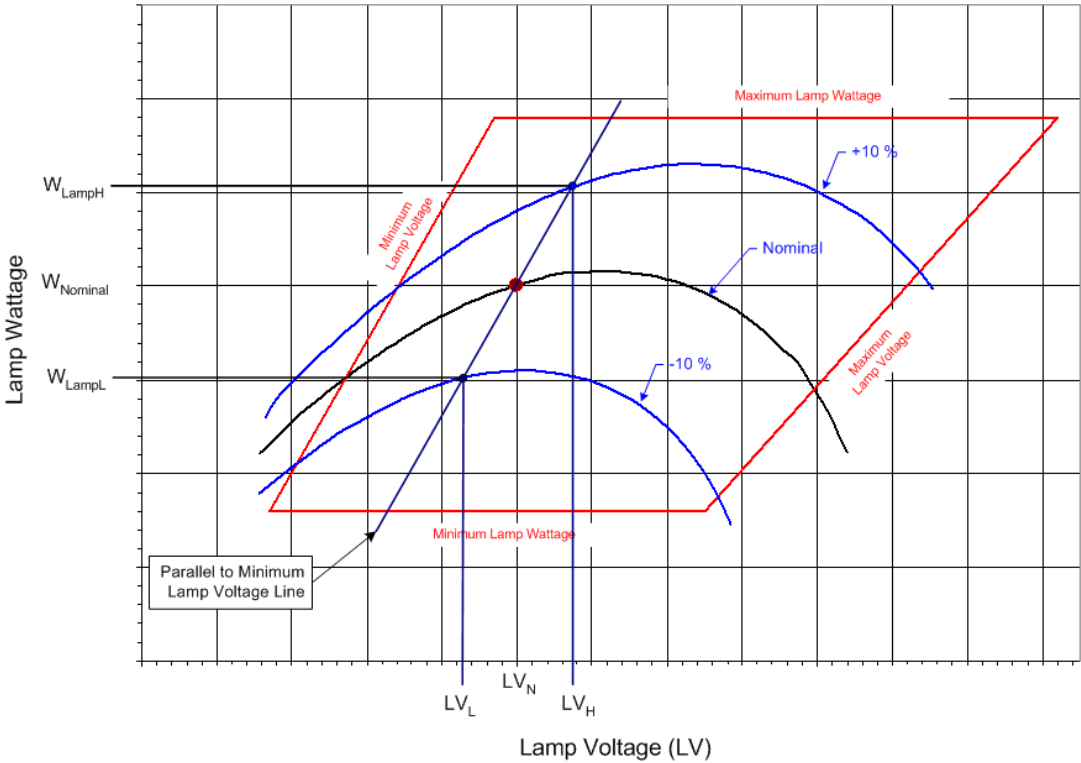
“The ballast shall be a High Pressure Sodium, high power factor, constant wattage auto-regulator, lead type (CWA) for operation on a nominal 240 volt system.”

Revise the second sentence of the second paragraph of Article 1067(a)(5)c. of the Standard Specifications:

“The ballast shall be designed to ANSI Standards and shall be designed and rated for operation on a nominal 240 volt system. The ballast shall provide positive lamp ignition at the input voltage of 216 volts. It shall operate the lamp over a range of input voltages from 216 to 264 volts without damage to the ballast. It shall provide lamp operation within lamp specifications for rated lamp life at input design voltage range. Operating characteristics shall produce output regulation not exceeding the following values:

| Nominal Ballast Wattage | Maximum Ballast Regulation |
|-------------------------|----------------------------|
| 750 | 25% |
| 400 | 26% |
| 310 | 26% |
| 250 | 26% |
| 150 | 24% |
| 70 | 18% |

For this measure, regulation shall be defined as the ratio of the lamp watt difference between the upper and lower operating curves to the nominal lamp watts; with the lamp watt difference taken within the ANSI trapezoid at the nominal lamp operating voltage point parallel to the minimum lamp volt line:



$$\text{Ballast Regulation} = \frac{W_{LampH} - W_{LampL}}{W_{LampN}} \times 100$$

where:

W_{LampH} = lamp watts at +10% line voltage when Lamp voltage = LV_H

W_{LampL} = lamp watts at - 10% line voltage when lamp voltage = LV_L

W_{lampN} = lamp watts at nominal lamp operating voltage = LV_N

| Wattage | Nominal Lamp Voltage, LV _N | LV _L | LV _H |
|---------|---------------------------------------|-----------------|-----------------|
| 750 | 120v | 115v | 125v |
| 400 | 100v | 95v | 105v |
| 310 | 100v | 95v | 105v |
| 250 | 100v | 95v | 105v |
| 150 | 55v | 50v | 60v |
| 70 | 52v | 47v | 57v |

”

Revise the third sentence of the second paragraph of Article 1067(a)(5)c. of the Standard Specifications to read:

“Ballast losses, based on cold bench tests, shall not exceed the following values:

| Nominal Ballast Wattage | Maximum Ballast Losses |
|-------------------------|------------------------|
| 750 | 14.0% |
| 400 | 17.0% |
| 310 | 19.0% |
| 250 | 19.0% |
| 150 | 26.0% |
| 70 | 34.0% |

Ballast losses shall be calculated based on input watts and lamp watts at nominal system voltage as indicated in the following equation:

$$\text{Ballast Losses} = \frac{W_{\text{Line}} - W_{\text{Lamp}}}{W_{\text{Lamp}}} \times 100$$

where:

W_{line} = line watts at nominal system voltage

W_{lamp} = lamp watts at nominal system voltage

Add the following to Article 1067(a)(5)c. of the Standard Specifications:

“Ballast output to lamp. At nominal system voltage and nominal lamp voltage, the ballast shall deliver lamp wattage with the variation specified in the following table. Example: *For a 400w luminaire, the ballast shall deliver 400 watts ±2.5% at a lamp voltage of 100v for the nominal system voltage of 240v which is the range of 390w to 410w.*”

| Nominal Ballast Wattage | Output to lamp variation |
|-------------------------|--------------------------|
| 750 | ± 2.0% |
| 400 | ± 2.5% |
| 310 | ± 2.5% |
| 250 | ± 4.0% |
| 150 | ± 4.0% |
| 70 | ± 4.0% |

Add the following to Article 1067(a)(5)c. of the Standard Specifications:

“Ballast output over lamp life. Over the life of the lamp the ballast shall produce average output wattage of the nominal lamp rating as specified in the following table. Lamp wattage readings shall be taken at 5-volt increments throughout the ballast trapezoid. Reading shall begin at the lamp voltage (L_v) specified in the table and continue at 5 volt increments until the right side of the trapezoid is reached. The lamp wattage values shall then be averaged and shall be within the specified value of the nominal ballast rating. Submittal documents shall include a tabulation of the lamp wattage vs. lamp voltage readings. Example: *For a 400w luminaire, the averaged lamp wattage reading shall not exceed the range of ±3% which is 388 to 412 watts*”

| Nominal Ballast Wattage | LV Readings begin at | Maximum Wattage Variation |
|-------------------------|----------------------|---------------------------|
| 750 | 110v | ± 3% |
| 400 | 90v | ± 3% |
| 310 | 90v | ± 3% |
| 250 | 90v | ± 4% |
| 150 | 50v | ± 4% |
| 70 | 45v | ± 5% |

Revise the first paragraph of Article 1067(a)(7) of the Standard Specifications to read:

“Independent testing of luminaires shall be required whenever the quantity of luminaires of a given wattage and distribution, as indicated on the plans, is 50 or more. For each luminaire type to be so tested, one luminaire plus one luminaire for each 50 luminaires shall be tested. Example: *A plan quantity of 75 luminaires would dictate that 2 to be tested; 135 luminaires would dictate that three be tested.*”

Add the following to Article 1067(a)(7) of the Standard Specifications:

“The Contractor shall be responsible for all costs associated with the specified testing, including but not limited to shipping, travel and lodging costs as well as the

costs of the tests themselves, all as part of the bid unit price for this item. Travel, lodging and other associated costs for travel by the Engineer shall be direct-billed to or shall be pre-paid by the Contractor, requiring no direct reimbursement to the Engineer or the independent witness, as applicable”

Revise Article 1067(a)(7)a. of the Standard Specifications to read:

“Engineer Factory Selection for Independent Lab: The Contractor may select this option if the luminaire manufacturing facility is within the state of Illinois. The Contractor shall propose an independent test laboratory for approval by the Engineer. The selected luminaires shall be marked by the Engineer and shipped to the independent laboratory for tests.”

Revise Article 1067(a)(7)b. of the Standard Specifications to read:

“Engineer Witness of Independent Lab Test: The Contractor may select this option if the independent testing laboratory is within the state of Illinois. The Engineer shall select, from the project luminaires at the manufacturer’s facility or at the Contractor’s storage facility, luminaires for testing by the independent laboratory.”

Add the following to Article 1067(a)(7)c. of the Standard Specifications:

“The independent witness shall as a minimum meet the following requirements:

- ▶ Have been involved with roadway lighting design for at least 15 years.
- ▶ Not have been the employee of a luminaire or ballast manufacturer within the last 5 years.
- ▶ Not associated in any way (plan preparation, construction or supply) with the particular project being tested.
- ▶ Be a member of IESNA in good standing.
- ▶ Provide a list of professional references.

This list is not an all inclusive list and the Engineer will make the final determination as to the acceptability of the proposed independent witness.”

Add the following to Article 1067(a)(7) of the Standard Specifications:

“d. Engineer Factory Selection and Witness of Manufacturer Testing: The Contractor may select this option if the luminaire manufacturing facility is within the state of Illinois. At the Manufacturer’s facility, the Engineer shall select the luminaires to be tested and shall be present during the testing process. The Contractor shall schedule travel by the Engineer to and from the Manufacturer’s laboratory to witness the performance of the required tests.”

Revise the sixth paragraph of Article 1067(c)(1)a. of the Standard Specifications to read:

“The beam of maximum candlepower for luminaires specified or shown to have a ‘medium’ distribution shall be at 70 degrees from the horizontal \pm 2.5 degrees. Submittal information shall identify the angle.”

Revise Article 1067.02(a)(1) of the Standard Specifications to read:

“The lamps shall be of the clear type and shall have a color of 2050° to 2100° Kelvin.”

Add the following table(s) to Article 1067 of the Standard Specifications:

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE
I-290/IL53 Main Line – Calculation Area 1 (near STA. 54+50)

| GIVEN CONDITIONS | | |
|-------------------------|--|-----------|
| ROADWAY DATA | Pavement Width | 60 (ft) |
| | Number of Lanes | 5 |
| | I.E.S. Surface Classification | R3 |
| | Q-Zero Value | .07 |
| LIGHT POLE DATA | Mounting Height | 110 (ft) |
| | Mast Arm Length | 2 (ft) |
| | Pole Set-Back From Edge of Pavement | 60 (ft) |
| LUMINAIRE DATA | Lamp Type | HPS |
| | Lamp Lumens | 110,000 |
| | I.E.S. Vertical Distribution | Medium |
| | I.E.S. Control Of Distribution | Cutoff |
| | I.E.S. Lateral Distribution | Type III |
| | Total Light Loss Factor | 0.07 |
| | Number Of Luminaires Per Tower | See Plans |
| LAYOUT DATA | Spacing | 525 (ft) |
| | Configuration | Opposite |
| | Luminaire Overhang over edge of pavement | N/A (ft) |

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

| PERFORMANCE REQUIREMENTS | | |
|---------------------------------|--|--|
|---------------------------------|--|--|

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

| | | |
|---------------------|---|-----------------------------|
| ILLUMINATION | Ave. Horizontal Illumination, E_{AVE} | 12 Lux (Min) |
| | Uniformity Ratio, E_{AVE}/E_{MIN} | 3.0 (Max) |
| LUMINANCE | Average Luminance, L_{AVE} | 0.8 Cd/m ² (Min) |
| | Uniformity Ratio, L_{AVE}/L_{MIN} | 3.0 (Max) |
| | Uniformity Ratio, L_{MAX}/L_{MIN} | 5.0 (Max) |
| | Veiling Luminance Ratio, L_V/L_{AVE} | 0.3 (Max) |

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE
Frontage Roads/Ramps – Calculation Area 2 (near STA. 54+50)

| GIVEN CONDITIONS | | |
|-------------------------|--|---------------------|
| ROADWAY DATA | Pavement Width | <u>36 (ft)</u> |
| | Number of Lanes | <u>3</u> |
| | I.E.S. Surface Classification | <u>R3</u> |
| | Q-Zero Value | <u>.07</u> |
| LIGHT POLE DATA | Mounting Height | <u>110 (ft)</u> |
| | Mast Arm Length | <u>2 (ft)</u> |
| | Pole Set-Back From Edge of Pavement | <u>80 (ft)</u> |
| LUMINAIRE DATA | Lamp Type | <u>HPS</u> |
| | Lamp Lumens | <u>110,000</u> |
| | I.E.S. Vertical Distribution | <u>Medium</u> |
| | I.E.S. Control Of Distribution | <u>Cutoff</u> |
| | I.E.S. Lateral Distribution | <u>Type III</u> |
| | Total Light Loss Factor | <u>0.07</u> |
| | Number of Luminaires Per Tower | <u>See Plans</u> |
| LAYOUT DATA | Spacing | <u>525 (ft)</u> |
| | Configuration | <u>Single Sided</u> |
| | Luminaire Overhang over edge of pavement | <u>N/A (ft)</u> |

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

| PERFORMANCE REQUIREMENTS | | |
|---------------------------------|--|--|
|---------------------------------|--|--|

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

| | | |
|---------------------|---|-----------------------------------|
| ILLUMINATION | Ave. Horizontal Illumination, E_{AVE} | <u>9.0 Lux (Min)</u> |
| | Uniformity Ratio, E_{AVE}/E_{MIN} | <u>4.0 (Max)</u> |
| LUMINANCE | Average Luminance, L_{AVE} | <u>0.6 Cd/m² (Min)</u> |
| | Uniformity Ratio, L_{AVE}/L_{MIN} | <u>3.5 (Max)</u> |
| | Uniformity Ratio, L_{MAX}/L_{MIN} | <u>6.0 (Max)</u> |
| | Veiling Luminance Ratio, L_V/L_{AVE} | <u>0.4 (Max)</u> |

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE
I-290/IL53 Main Line – Calculation Area 3 (near STA. 85+50)

| GIVEN CONDITIONS | | |
|-------------------------|--|-----------------------------|
| ROADWAY DATA | Pavement Width | <u>92 (ft)</u> |
| | Number of Lanes | <u>6 and 20 (ft) Median</u> |
| | I.E.S. Surface Classification | <u>R3</u> |
| | Q-Zero Value | <u>.07</u> |
| LIGHT POLE DATA | Mounting Height | <u>110 (ft)</u> |
| | Mast Arm Length | <u>2 (ft)</u> |
| | Pole Set-Back From Edge of Pavement | <u>60 (ft)</u> |
| LUMINAIRE DATA | Lamp Type | <u>HPS</u> |
| | Lamp Lumens | <u>110,000</u> |
| | I.E.S. Vertical Distribution | <u>Medium</u> |
| | I.E.S. Control Of Distribution | <u>Cutoff</u> |
| | I.E.S. Lateral Distribution | <u>Type III</u> |
| | Total Light Loss Factor | <u>0.07</u> |
| | Number of Luminaires Per Tower | <u>See Plans</u> |
| LAYOUT DATA | Spacing | <u>500 (ft)</u> |
| | Configuration | <u>Opposite</u> |
| | Luminaire Overhang over edge of pavement | <u>N/A (ft)</u> |

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

| PERFORMANCE REQUIREMENTS | | |
|---------------------------------|--|--|
|---------------------------------|--|--|

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

| | | |
|---------------------|---|-----------------------------------|
| ILLUMINATION | Ave. Horizontal Illumination, E_{AVE} | <u>12.0 Lux (Min)</u> |
| | Uniformity Ratio, E_{AVE}/E_{MIN} | <u>3.0 (Max)</u> |
| LUMINANCE | Average Luminance, L_{AVE} | <u>0.8 Cd/m² (Min)</u> |
| | Uniformity Ratio, L_{AVE}/L_{MIN} | <u>3.0 (Max)</u> |
| | Uniformity Ratio, L_{MAX}/L_{MIN} | <u>5.0 (Max)</u> |
| | Veiling Luminance Ratio, L_V/L_{AVE} | <u>0.3 (Max)</u> |

GROUND ROD

Effective: January 1, 2002

Description. This item shall consist of furnishing, installing and connecting ground rods for the grounding of service neutral conductors and for supplementing the equipment grounding system via connection at poles or other equipment throughout the system. All materials and work shall be in accordance with Article 250 of the NEC.

Materials. Materials shall be according to the following Articles of Section 1000 - Materials

| Item | Article/Section |
|-----------------------------|-----------------|
| (a) Ground Rod..... | 1087.01(b) |
| (b) Copper Ground Wire..... | 1087.01(a) |
| (c) Access Well..... | 1087.01(c) |

CONSTRUCTION REQUIREMENTS

General. All connections to ground rods, structural steel or fencing shall be made with exothermic welds. Where such connections are made to insulated conductors, the connection shall be wrapped with at least 4 layers of electrical tape extended 152.4 mm (six inches) onto the conductor insulation.

Ground rods shall be driven so that the tops of the rod are 609.6 mm (24 inches) below finished grade. Where indicated, ground wells shall be included to permit access to the rod connections.

Where indicated, ground rods shall be installed through concrete foundations.

Where ground conditions, such as rock, preclude the installation of the ground rod, the ground rod may be deleted with the approval of the Engineer.

Where a ground field of "made" electrodes is provided, such as at control cabinets, the exact locations of the rods shall be documented by dimensioned drawings as part of the Record Drawings.

Ground rod connection shall be made by exothermic welds. Ground wire for connection to foundation steel or as otherwise indicated shall be stranded uncoated bare copper in accordance the applicable requirements of ASTM Designation B-3 and ASTM Designation B-8 and shall be included in this item. Unless otherwise indicated, the wire shall not be less than No. 2 AWG.

Where connections are made to epoxy coated reinforcing steel, the epoxy coating shall be sufficiently removed to facilitate the exothermic weld.

Method Of Measurement. Ground rods shall be counted, each. Ground wires and connection of ground rods at poles shall be included in this pay item.

Basis Of Payment. This item shall be paid at the contract unit price each for **GROUND ROD**, of the diameter and length indicated which shall be payment in full for the material and work described herein.

UNDERGROUND RACEWAYS

Effective: June 1, 2003

Revise Article 810.03 of the Standard Specifications to read:

“Installation. All underground conduit shall have a minimum depth of 700 mm (30-inches) below the finished grade.”

Add the following to Article 810.03 of the Standard Specifications:

“All metal conduit installed underground shall be Rigid Metal Conduit unless otherwise indicated on the plans.”

Revise Article 810.05 of the Standard Specifications to read:

“810.05 Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for **CONDUIT IN TRENCH**, of the diameter specified, **RIGID GALVANIZED STEEL** or **CONDUIT PUSHED**, of the diameter specified, **RIGID GALVANIZED STEEL** or **POLYETHYLENE DUCT, BORED AND PULLED** of the type and size specified, or **CONDUIT ENCASED**, of the type, diameter, and number of raceways wide by the number of raceways high specified.”

EXPOSED RACEWAYS

Effective: March 1, 2003

Add the following to Article 811.03(a)(3) of the Standard Specifications:

“Where PVC coated conduit is utilized, all conduit fittings, couplings and clamps shall be PVC coated. All other mounting hardware and appurtenances shall be stainless steel.”

Add the following to Article 811.03(b) of the Standard Specifications:

“The personnel installing the PVC coated conduit must be trained and certified by the PVC coated conduit Manufacturer or Manufacturer’s representative to install PVC coated conduit. Documentation demonstrating this requirement must be submitted for review and approval.”

“All conduit fittings, couplings and clamps shall be PVC coated. All other mounting hardware and appurtenances shall be stainless steel.”

Revise Article 1088.01(a) of the Standard Specifications to read:

“Couplings and fittings shall meet ANSI Standard C80.5 and U.L. Standard 6. Elbows and nipples shall conform to the specifications for conduit. All fittings and couplings for rigid conduit shall be of the threaded type.”

Revise Article 1088.01(a)(1) of the Standard Specifications to read:

“Rigid Steel Conduit. Rigid steel conduit shall be galvanized and manufactured according to UL Standard 6 and ANSI Standard C 80.1.”

Revise Article 1088.01(a)(3) of the Standard Specifications to read:

a. PVC Coated Steel Conduit. The PVC coated rigid metal conduit shall be UL Listed (UL 6). The PVC coating must have been investigated by UL as providing the primary corrosion protection for the rigid metal conduit. Ferrous fittings for general service locations shall be UL Listed with PVC as the primary corrosion protection. Hazardous location fittings, prior to plastic coating shall be UL listed.

b. The PVC coating shall have the following characteristics:

| | |
|----------------------|--|
| Hardness: | 85+ Shore A Durometer |
| Dielectric Strength: | 400V/mil @ 60 Hz |
| Aging: | 1,000 Hours Atlas Weatherometer |
| Temperature | The PVC compound shall conform at 0 F. to Federal Specifications PL-406b, Method 2051, Amendment 1 of 25 September 1952 (ASTM D 746) |
| Elongation: | 200% |

c. The exterior and interior galvanized conduit surface shall be chemically treated to enhance PVC coating adhesion and shall also be coated with a primer before the PVC coating to ensure a bond between the zinc substrate and the PVC coating. The bond strength created shall be greater than the tensile strength of the plastic coating.

- d. The nominal thickness of the PVC coating shall be 1 mm (40 mils). The PVC exterior and urethane interior coatings applied to the conduit shall afford sufficient flexibility to permit field bending without cracking or flaking at temperatures above -1°C (30°F).
- e. An interior urethane coating shall be uniformly and consistently applied to the interior of all conduit and fittings. This internal coating shall be a nominal 2 mil thickness. The interior coating shall be applied in a manner so there are no runs, drips, or pinholes at any point. The coating shall not peel, flake, or chip off after a cut is made in the conduit or a scratch is made in the coating.
- f. The PVC conduit shall pass the following tests:

Exterior PVC Bond test RN1:

Two parallel cuts 13 mm (1/2 inch) apart and 40 mm (1 1/2 inches) in length shall be made with a sharp knife along the longitudinal axis. A third cut shall be made perpendicular to and crossing the longitudinal cuts at one end. The knife shall then be worked under the PVC coating for 13 mm (1/2 inch) to free the coating from the metal.

Using pliers, the freed PVC tab shall be pulled with a force applied vertically and away from the conduit. The PVC tab shall tear rather than cause any additional PVC coating to separate from the substrate.

Boil Test:

Acceptable conduit coating bonds (exterior and interior) shall be confirmed if there is no disbondment after a minimum average of 200 hours in boiling water or exposure to steam vapor at one atmosphere. The RN1 Bond Test and the Standard Method for Measuring Adhesion by Tape Test shall be utilized.

Exterior Adhesion. In accordance with ASTM D870, a 6" length of conduit test specimen shall be placed in boiling water. The specimen shall be periodically removed, cooled to ambient temperature and immediately tested according to the bond test (RN1). When the PVC coating separates from the substrate, the boil time to failure in hours shall be recorded.

Interior Adhesion. In accordance with ASTM D3359, a 6" conduit test specimen shall be cut in half longitudinally and placed in boiling water or directly above boiling water with the urethane surface facing down. The specimen shall be periodically removed, cooled to ambient temperature and tested in accordance with the

Standard Method of Adhesion by Tape Test (ASTM D3359).
When the coating disbonds, the time to failure in hours shall be recorded.

Heat/Humidity Test:

Acceptable conduit coating bonds shall be confirmed by a minimum average of 30 days in the Heat and Humidity Test. The RN1 Bond Test and the Standard Method for Measuring Adhesion by Tape Test shall be utilized.

Exterior Adhesion. In accordance with ASTM D1151, D1735, D2247 and D4585, conduit specimens shall be placed in a heat and humidity environment where the temperature is maintained at 150°F (66°C) and 95% relative humidity. The specimens shall be periodically removed and a bond test (RN1) performed. When the PVC coating separates from the substrate, the exposure time to failure in days shall be recorded.

Interior Adhesion. In accordance with ASTM D3359, conduit specimens shall be placed in a heat and humidity environment where the temperature is maintained at 150°F (66°C) and 95% relative humidity. When the coating disbonds, the time to failure in hours shall be recorded.

Add the following to Article 1088.01(a)(4) of the Standard Specifications:

“All liquid tight flexible metal conduit fittings shall have an insulated throat to prevent abrasion of the conductors.”

Revise Article 811.05 of the Standard Specifications to read:

“**811.05 Basis of Payment.** This work will be paid for at the contract unit price per meter (foot) for **CONDUIT ATTACHED TO STRUCTURE**, of the diameter specified, **RIGID GALVANIZED STEEL** or **CONDUIT ATTACHED TO STRUCTURE**, of the diameter specified, **RIGID GALVANIZED STEEL, PVC COATED.**”

TRENCH AND BACKFILL FOR ELECTRICAL WORK

Effective: January 1, 2002

Revise the first sentence of Article 815.03(a) of the Standard Specifications to read:

“Trench. Trenches shall have a minimum depth of 760 mm (30 in.) or as otherwise indicated on the plans, and shall not exceed 300 mm (12 in.) in width without prior approval of the Engineer.”

Revise Article 1066.05 of the Standard Specifications to read:

“**Underground Cable Marking Tape.** The tape shall be 150 mm (6 in.) wide; consisting of 0.2 mm (8 mil) polyethylene according to ASTM D882, and ASTM D2103.

The tape shall be red with black lettering or red with silver lettering reading “CAUTION – ELECTRICAL LINE BURIED BELOW”.

The tape shall have reinforced metallic detection capabilities consisting of a woven reinforced polyethylene tape with a metallic core or backing.”

UNIT DUCT

Effective: October 1, 2002

Revise the second paragraph of Article 816.03(b) to read:

“The unit duct shall be installed at a minimum depth of 760 mm (30-inches) unless otherwise directed by the Engineer.”

Revise Article 1066.01 to read:

“1066.01 Unit Duct. The unit duct shall be an assembly of insulated conductors which are factory pre-installed in a coilable nonmetallic conduit. The polyethylene duct shall be extruded directly over the cable at the factory in long continuous lengths. The unit duct shall be according to NEC Article 354 and be UL Listed.”

Revise Article 1088.01(c) to read:

“(c) Coilable Nonmetallic Conduit.

Polyethylene Duct. The duct shall be a plastic duct which is intended for underground use and can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance.

The duct shall be made of high density polyethylene which shall meet the requirements of ASTM D 2447, for schedule 40. The duct shall be composed of black high density polyethylene meeting the requirements of ASTM D 3350, Class C, Grade P33. The wall thickness shall be in accordance with Table 2 for ASTM D 2447.

Duct dimensions shall conform to the following table:

| Nom. Duct Diameter | | Nom. Outside Diameter | | Min. Wall Thickness | |
|--------------------|------|-----------------------|-------|---------------------|-------|
| mm | in | mm | in | mm | in |
| 27 | 1 | 33.4 | 1.315 | 3.4 | 0.133 |
| 35 | 1.25 | 42.2 | 1.660 | 3.6 | 0.140 |
| 41 | 1.5 | 48.3 | 1.900 | 3.7 | 0.145 |
| 53 | 2.0 | 60.3 | 2.375 | 3.9 | 0.154 |

Performance Tests. Polyethylene Duct testing procedures and test results shall meet the requirements of ASTM D 3485. Certified copies of the test report shall be submitted to the Engineer prior to the installation of the duct. Duct crush test results shall meet or exceed the following requirements:

| Duct Diameter | | Min. force required to deform sample 50% | |
|---------------|------|--|------|
| mm | in | N | lbs |
| 27 | 1 | 5337 | 1200 |
| 35 | 1.25 | 4937 | 1110 |
| 41 | 1.5 | 4559 | 1025 |
| 53 | 2.0 | 3780 | 850 |

METAL LIGHT POLE, INSTALL ONLY

Effective: April 1, 2005

Description. This item shall consist of retrieving from storage, or transporting a previously removed pole on this contract, and installing a metal light pole, as specified herein, on a pole foundation as indicated. The foundation will be paid for separately. It shall be the responsibility of the Contractor to transport the metal light pole.

Materials. Materials shall be according to the following Articles of Section 1000 - Materials

| Item | Article/Section |
|------------------------------------|-----------------|
| (a) Light Pole Identification..... | 1069.02 |
| (b) Mounting Pad..... | 1069.03 |

CONSTRUCTION REQUIREMENTS

Inspection And Acceptance. The Contractor shall examine the metal light pole in the presence of the Engineer and after accepting them shall be held responsible for preservation of the condition of each metal light pole, as it was at the time of acceptance, until the Final Acceptance Inspection.

Transportation. The Contractor shall transport, handle and store (as applicable) the metal light pole in complete conformance with the manufacturer's recommendations. The Contractor shall make arrangements to transfer the light towers from the State's storage facility located within District 1 on weekdays between the hours of 8:00am and 4:00pm, excluding State holidays applicable to the Department.

Installation. Installation shall be as described in Article 830 except that the light pole shall be set plumb on the foundation without the use of leveling nuts, washers, or shims. The light pole shall have the old identification decals removed and new decals provide as a part of this item.

Method Of Measurement. Metal light poles shall be counted, each installed.

Basis Of Payment. This item shall be paid at the contract unit price each for **LIGHT POLE**, of the type, mounting height, and mast arm (quantity and length) type specified, **INSTALL ONLY**.

LUMINAIRE, INSTALL ONLY

Effective: April 1, 2005

Description. This item shall consist of retrieving from storage and installing a luminaire, as specified herein, and as indicated. The luminaire will be furnished and stored under a previous contract and it shall be the responsibility of the Contractor to transport the luminaire from the storage site to the job site. It shall also be the Contractor's responsibility to furnish a lamp of the specified wattage for each luminaire installed.

Materials. Materials shall be according to the following Articles of Section 1000 - Materials

| Item | Article/Section |
|---------------------------------|-----------------|
| (a) Pole Wire..... | 1066.09 |
| (b) Fuses & Fuseholders..... | 1065.01 |
| (c) Fasteners and Hardware..... | 1088.03 |
| (d) Lamps..... | 1067.02 |

CONSTRUCTION REQUIREMENTS

Inspection And Acceptance. The Contractor shall examine the luminaires in the presence of the Engineer and after accepting them shall be held responsible for preservation of the condition of each luminaire, as it was at the time of acceptance, until the Final Acceptance Inspection.

Transportation. The Contractor shall transport, handle and store (as applicable) the luminaires in complete conformance with the manufacturer's recommendations. The Contractor shall make arrangements to transfer the light towers from the State's storage facility located within District 1 on weekdays between the hours of 8:00am and 4:00pm, excluding State holidays applicable to the Department.

Installation. Installation shall be as described in Article 821.

Method Of Measurement. Luminaires shall be counted, each installed.

Basis Of Payment. This item shall be paid at the contract unit each for **LUMINAIRE**, of the type and wattage indicated, **INSTALL ONLY**, which shall be payment in full for the luminaire installation.

WIRE AND CABLE

Effective: January 1, 2002

Revise the second sentence of the first paragraph of Article 1066.02(a) to read:

“The cable shall be rated at a minimum of 90°C dry and 75°C wet and shall be suitable for installation in wet and dry locations, and shall be resistant to oils and chemicals.”

Revise the second paragraph of Article 1066.02(b) to read:

“Uncoated conductors shall be according to ASTM B3, ICEA S-95-658/NEMA WC70, and UL Standard 44. Coated conductors shall be according to ASTM B 33, ASTM B 8, ICEA S-95-658/NEMA WC70 and UL Standard 44.”

Revise the third paragraph of Article 1066.02(b) to read:

“All conductors shall be stranded. Stranding meeting ASTM B 8, ICEA S-95-658/NEMA WC70 and UL Standard 44. Uncoated conductors meeting ASTM B 3, ICEA S-95-658/NEMA WC70 and UL Standard 44.”

Revise the first sentence of Article 1066.03(a)(1) to read:

“General. Cable insulation designated as XLP shall incorporate cross-linked polyethylene (XLP) insulation as specified and shall meet or exceed the requirements of ICEA S-95-658, NEMA WC70, U.L. Standard 44.”

Add the following to Article 1066.03(a)(1) of the Standard Specifications:

“The cable shall be rated 600 volts and shall be UL Listed Type RHH/RHW/USE.”

Revise the Aerial Electric Cable Properties table of Article 1066.03(a)(3) to read:

Aerial Electric Cable Properties

| Phase Conductor | | | Messenger wire | | |
|-----------------|-----------|------------------------------------|----------------|------------------------|-----------|
| Size AWG | Stranding | Average Insulation Thickness | | Minimum Size AWG | Stranding |
| | | mm | mils | | |
| 6 | 7 | 1.1 | (45) | 6 | 6/1 |
| 4 | 7 | 1.1 | (45) | 4 | 6/1 |
| 2 | 7 | 1.1 | (45) | 2 | 6/1 |
| 1/0 | 19 | 1.5 | (60) | 1/0 | 6/1 |
| 2/0 | 19 | 1.5 | (60) | 2/0 | 6/1 |
| 3/0 | 19 | 1.5 | (60) | 3/0 | 6/1 |
| 4/0 | 19 | 1.5 | (60) | 4/0 | 6/1 |

Revise the first paragraph of Article 1066.03(b) to read:

“EPR Insulation. Cable insulation shall incorporate ethylene propylene rubber (EPR) as specified and the insulation shall meet or exceed the requirements of ICEA S-95-658, NEMA Standard Publication No. WC70, and U.L. Standard 44, as applicable.”

Add the following to Article 1066.03(b) of the Standard Specifications:

“Cable sized No. 2 AWG and smaller shall be U.L. listed Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG shall be U.L. listed Type RHH/RHW/USE.”

Revise Article 1066.04 to read:

“Aerial Cable Assembly. The aerial cable shall be an assembly of insulated aluminum conductors according to Section 1066.02 and 1066.03. Unless otherwise indicated, the cable assembly shall be composed of three insulated conductors and a steel reinforced bare aluminum conductor (ACSR) to be used as the ground conductor. Unless otherwise indicated, the code word designation of this cable assembly is “Palomino”. The steel reinforced aluminum conductor shall conform to ASTM B-232. The cable shall be assembled according to ANSI/ICEA S-76-474.”

Revise the second paragraph of Article 1066.05 to read:

“The tape shall have reinforced metallic detection capabilities consisting of a woven reinforced polyethylene tape with a metallic core or backing.”

Revise Article 1066.08 to read:

“Electrical Tape. Electrical tape shall be all weather vinyl plastic tape resistant to abrasion, puncture, flame, oil, acids, alkalis, and weathering, conforming to Federal Specification MIL-I-24391, ASTM D1000 and shall be listed under UL 510 Standard. Thickness shall not be less than 0.215 mm (8.5 mils) and width shall not be less than 20 mm (3/4-inch).”

LAMPS

Effective: January 1, 2002

Revise Article 1067.02(a)(1) of the Standard Specifications to read:

“The lamps shall be of the clear type and shall have a color of 2050° to 2100° Kelvin.”

BREAKAWAY DEVICES

Effective: April 1, 2005

Revise the first sentence of Article 1070.04(b)(2) of the Standard Specifications to read:

“The device shall be approximately 9 inches high and shall have a large fiberglass or polyethylene access door of a color to match the base finish which shall be held in place with a button-type tamper resistant stainless steel screw or other means approved by the Engineer.”

LIGHT TOWER, INSTALL ONLY

Effective: January 1, 1997

Description. This item shall consist of accepting delivery and installing a light tower, as specified herein, on a pole foundation as indicated. The foundation will be paid for separately. The light tower will be furnished under a previous contract and it shall be the responsibility of the Contractor to coordinate installation and provide storage, at no additional cost, if the towers cannot be installed within the delivery timeframe specified herein..

Materials. Materials shall be according to the following Articles of Section 1000 - Materials

| Item | Article/Section |
|------------------------------------|-----------------|
| (a) Light Pole Identification..... | 1069.02 |

CONSTRUCTION REQUIREMENTS

Tower Delivery and Coordination

The light towers procurement contract indicates the following light tower delivery time frame:

| LIGHT TOWER DELIVERY SCHEDULE | | |
|--------------------------------------|----------------------|---------------------|
| Delivery Time Frame | | Quantity |
| No Earlier Than | No Later Than | 120 Ft. M.H. |
| October 31, 2005 | December 15, 2005 | 52 |

Exact delivery dates within the delivery window shall be closely coordinated with the Engineer and the Procurement Contractor. Delivery before the specified delivery window may be allowed with complete agreement of the Procurement Contractor and approval of the Engineer. The Contractor under this contract shall coordinate light tower installation with the light tower delivery schedule and shall be responsible for any storage of the light towers.

Inspection And Acceptance. The Contractor shall examine the light tower in the presence of the Engineer and after accepting them shall be held responsible for preservation of the condition of each light tower, as it was at the time of acceptance, until the Final Acceptance Inspection.

Transportation. The Contractor shall transport, handle and store (as applicable) the light tower in complete conformance with the manufacturer's recommendations.

Installation. Installation shall be as described in Article 835.

Method Of Measurement. Light towers shall be counted, each installed.

Basis Of Payment. This item shall be paid at the contract unit each for **LIGHT TOWER** of the mounting heights and luminaire mounting positions specified, **INSTALL ONLY**.

BUCK BOOST TRANSFORMER

Effective: April 1, 2005

Description: This item shall consist of furnishing and installing a buck-boost transformer of the size and voltage indicated and enclosure at locations shown on the Contract drawings and as directed by the Engineer.

Materials:

Buck-Boost transformers provided under this pay item shall have a capacity of 750 VA to 2.0KVA as indicated on the lighting system wiring diagrams.

The transformer shall be dry type and tested in accordance with the latest issue of UL 508 and CSA C22.2 No. 47. The insulation shall be rated for class 180 degree C. The average temperature rise (by resistance measurement shall not exceed 115 degree C over a maximum ambient of 40 degree C per ANSI and CSA standards. The conductor material shall be copper. The core shall be fabricated from high quality, high grade electrical steel. The sound level of the transformer shall meet NEMA requirements. The transformer shall be housed in a NEMA type 3R enclosure and shall be coated with a UL approved ASA – 61 Grey finish.

The enclosure shall be a junction box of the size indicated in the plans and shall comply with Article 1088.04 of the Standard Specifications.

Installation:

The transformer shall be mounted in a junction box enclosure or CCTV cabinet as indicated on the Contract drawings or directed by the Engineer. A transformer shall be furnished and installed for each phase circuit. The transformer shall be installed in conformance with the manufacturer requirements.

Measurement.

Buck Boost Transformers shall be measured each for payment regardless of voltage and capacity.

Basis of Payment: This work shall be paid at the contract unit price each for **BUCK-BOOST TRANSFORMER**, which shall be payment in full for the work as described herein which shall be payment in full for the work described herein.

ELECTRIC UTILITY SERVICE CONNECTION (COMED)

Effective: January 1, 2002

Revised February 1, 2005

Description. This item shall consist of payment for work performed by ComEd in providing or modifying electric service as indicated. THIS MAY INVOLVE WORK AT MORE THAN ONE ELECTRIC SERVICE. For summary of the Electrical Service Drop Locations see the schedule contained elsewhere herein.

CONSTRUCTION REQUIREMENTS

General. It shall be the Contractor's responsibility to contact ComEd. The Contractor shall coordinate his work fully with the ComEd both as to the work required and the timing of the installation. No additional compensation will be granted under this or any other item for extra work caused by failure to meet this requirement. **Please contact ComEd, New Business Center Call Center, at 866 NEW ELECTRIC (1-866-639-3532) to begin the service connection process. The Call Center Representatives will create a work order for the service connection. The representative will ask the requestor for information specific to the request. The representative will assign the request based upon the location of project.**

The Contractor should make particular note of the need for the earliest attention to arrangements with ComEd for service. In the event of delay by ComEd, no extension of time will be considered applicable for the delay unless the Contractor can produce written evidence of a request for electric service within 30 days of execution.

Method Of Payment. The Contractor will be reimbursed to the exact amount of money as billed by ComEd for its services. Work provided by the Contractor for electric service will be paid separately as described under ELECTRIC SERVICE INSTALLATION. No extra compensation shall be paid to the Contractor for any incidental materials and labor required to fulfill the requirements as shown on the plans and specified herein.

For bidding purposes, this item shall be estimated as \$7,500

Basis Of Payment. This work will be paid for at the contract lump sum price for **ELECTRIC UTILITY SERVICE CONNECTION** which shall be reimbursement in full for electric utility service charges.

Designers Note: The estimate of cost of service connections for bidding purposes shall be provided by Bureau of Electrical Operations.

LIGHTING CONTROLLER, RADIO CONTROL, DUPLEX TYPE, WITH SCADA AND VIDEO POWER

Effective: April 1, 2005

Description: This work shall consist of furnishing and installing a roadway lighting electrical control cabinet with radio control complete with foundation and wiring for the control of highway lighting. This item shall also include an un-switched 120 volt power circuit to CCTV video cameras as shown on the plans and specified herein. All work shall be according to Section 825 of the Standard Specifications except as follows:

Replace Article 1068.01(c)(2) of the Standard Specifications with the following:

“(2) Finished enclosures: All aluminum enclosures shall be finished.

Surface Preparation: The cabinet, doors and all other parts to be painted will be submerged in each tank of a 3 step iron phosphate conversion technique. After phosphatizing the parts shall be passed through an oven and baked to eliminate any moisture.

Finish coat: Shall be polyester powder paint applied electrostatically to a minimum thickness of 2 mils and baked at 375 degrees for 20 minutes.

Submittal data submitted for approval shall address the requirement for the paint manufacturer’s certification and shall include a standard, single source paint warranty by the paint manufacturer or the controller manufacturer to the Department.”

Revise the first sentence of Article 1068.01(e)(4) of the Standard Specifications to read:

“Contactors shall be electrically operated, mechanically held as specified, with the number of poles required for the service and with operating coil voltage as indicated. The contactor shall have an in-line drive operating mechanism.”

Add the following to Article 825 of the Standard Specifications:

Radio Control Equipment - Hardware

Receiver - Decoder: The radio control module consists of a radio transceiver, digital decoder, and an input/output interface which allows centralized remote radio control of the lighting controller turn-on and turn-off functions. The radio control module must be capable of operation consistent with the existing radio control system, a Motorola MOSCAD Central Station.

The existing control system currently operates over 240 discrete lighting controllers via a securely coded proprietary data scheme. For this reason, the control module must consist of a Motorola MOSCAD-L Modular Remote Unit, model F6843, (small housing), with no less than the following options:

| Motorola Designation | Description |
|-----------------------------|----------------------|
| F6843 (VHF) F6844 (UHF)* | CPU MOSCAD-L ** |
| V436 | Mixed I/O |
| V251 | 240 VAC Power Supply |
| Z857AA | Surge Protection |

** includes (1) three slot module, (1) MOSCAD-L CPU with firmware, (1) mixed I/O module, (1) VHF or UHF MTS 2000 Radio* with DPSK Radio Interface port 3, (1) AC Power Supply/Charger, (1) 3Ah battery, installed in a 14.63 " X 11" X 8.75" NEMA 4 enclosure with instruction manual.

* As directed by the Engineer

The manufacturer's designation by no means relieves the Contractor of providing a fully functional radio system as described herein.

The Radio Control Module shall be programmed for the following operational parameters:

- Transceiver Frequency: to be specified by Engineer
- Carrier Squelch Receive
- Communications Failure Preset:: Normally Open
- Individual Station address: As specified by the Engineer

Antenna:

A thick mount antenna for use (up to ½") mounting surfaces. The antenna shall be mounted by screw adapter (no magnet mounts). The low profile antenna mount shall be equivalent to Allen Telecom – KE 794 antenna Mount Low Profile. Accompanying antenna shall be equivalent to Allen Telecom ASP-7495 (Mosaic BroadBand Low Profile – VHF-UHF ¼ wave 150-512 MHz. Accompanying cable connector from Radio to Antenna shall be of appropriate length and not containing excessive slack.

The antenna shall be centers on the top of the control cabinet. The antenna cable shall be dressed and trimmed for minimal length, allowing sufficient slack of removal of the radio connection for replacement or testing without disruption to the installation. The antenna connector shall be properly soldered to the cable assembly. Great care shall be exercised in the assembly of the antenna connector: excessive heat will destroy the inner insulation, insufficient heat will produce a cold solder connection on the outer shield.

I/O Module:

All MOSCAD motherboard cards shall be configured and installed as per manufacturer's specifications and IDOT specification Lighting SCADA 397. Modules include but are not limited to; CPU, Mixed I/O. All digital inputs terminated on the mixed I/O card shall be dry. Termination points for all digital input points will be reflected on lighting controller wiring diagram or additional wiring schematic provided by the engineer. All digital outputs received from the Mixed I/O card shall be rated at 240 VAC 2A. All digital outputs shall be connected to interposing relays prior to being integrated into the lighting controller wiring logic. The digital outputs shall maintain a momentary closure for approximately 2 seconds.

All wiring termination points shall be tagged using the nomenclature given on the wiring diagram.

Intra-module wiring shall be no less than 18 AWG stranded wire, color coded (American) consistent with battery polarity, and signal. The wire connection to the interpose relays shall be no greater than 14 AWG stranded. All wires connected to the radio modules shall be dressed and tinned prior to insertion, (crimp on connectors will not be allowed for use in the radio system).

A terminal strip separate from the integral radio module and power supply shall be provided to interface power and signal conductors to the lighting controller. Terminals and wiring shall be labeled in accordance with the drawings, and dressed to allow service. The radio module shall be provided with constant 240 VAC power. Power for the MOSCAD system shall be provided by the control power breaker. This is to allow the system to be energized at all times.

Null covers shall be provided for the slots not used. All analog inputs shall be 4-20 mA. All I-O wiring including analog and digital shall be wired as per the enclosed table.

MOSCAD System Control Relay Assembly:

The Contractor shall mount and wire four (4) relays as shown in the wiring diagram. The relays shall be 240V sealed type and, unless otherwise indicated shall have contacts rated at not less than 25 amperes at 240 volts. The power relay for activating the lighting contactors shall have contacts rated to handle the contactor inrush. The relays shall be wired to a marked terminal strip.

Analog Inputs and Transducers:

The panel shall include one voltage transducer for monitoring the line voltage and one current transducer for monitoring the neutral current. Their outputs shall be 4-20 mA DC each and shall be wired to channels 1 and 2 of the Mixed I/O module as shown. The voltage transducer shall be Scientific Columbus Model # VT110 – PAN7 – A4-2 for 480/240 volt single phase systems. The current transducers shall be Kirchler Technologies Model # AT2-420-24L-FT. Both analog inputs shall be wired using shielded cable. Transducer terminals shall be implemented with protective shields for safety.

Radio Control Equipment – MOSCAD Programming

This work shall consist of having the MOSCAD system manufacturer design, implement and test a new RTU on the Lighting SCADA System on all system terminals.

All software work shall be completed by the manufacturer or approved factory licensed sales and service company for the MOSCAD equipment. All licensing shall be provided by the entity completing the work. Licenses are to be held by IDOT.

MOSCAD RTU Configuration And Programming:

The State will provide the Contractor with the software for the MOSCAD configuration. The Contractor shall install the provided software into the MOSCAD unit utilizing a MOSCAD Manufacturer certified VAR.

MOSCAD Service/Client Wonderware Programming:

The Contractor shall advise the Engineer in writing 30 days in advance of when the State supplied software configuration will be required.

MOSCAD FIU CPU Programming:

1. If RTU exists as an Intrac site, it will have to be setup as a MOSCAD site (MOSCAD CPU). If RTU is a new site, it will have to be configured as a MOSCAD site (MOSCAD CPU).

Site configuration, map implementation, screen tagging and other related software configurations shall be included in this item, described elsewhere.

Submittals:

The Motorola VAR shall submit 3 copies of the RTU software, for approval by the IDOT Engineer. Submittal shall consist of RTU; ladder programming, quiescent telemetry and MOSCAD-L configuration files. Submittal will be reviewed by the Engineer and returned noting changes and/or comments.

Staging:

Manufacturer recommendation is for all Central Configuration programming be completed prior to the initial check out/PM of the MOSCAD unit in the field. This is to assure/confirm 2 way radio communications from the field RTU to the Central.

The MOSCAD system shall be tested in conjunction with the controller inspection, prior to field installation. The turn-on and turn-off function shall be tested ten (10) consecutive times utilizing actual signals originating from District 1 Headquarters. Any failures must be cleared before the controller is delivered to the job site.

Testing:

As part of final acceptance testing, all individual I/O points and internal status alarms shall be tested for proper operation and transmission. The transmission shall be confirmed at both the IDOT District 1. H.Q.. And the Electrical Maintenance Contractor's dispatch facility. This full MOSCAD system start-up shall be completed with the Engineer present.

A checklist consisting of testing all physical I/O points and COS alarm reporting shall be submitted to the Engineer. This testing shall confirm all I/O messaging in the field is being received at the Central. In conjunction, Central system must be checked for receiving of appropriate alarms triggered in the field.

Acceptance Transition:

After the appropriate testing has been completed and approved by the Engineer, the new MOSCAD shall be monitored for up to 2 weeks for proper operation. If any problems are to arise, all changes shall be completed at no extra cost. "

Method Of Measurement. Each lighting controller shall be counted as a unit for payment.

Basis Of Payment. This item shall be paid for at the contract unit price each for **LIGHTING CONTROLLER, RADIO CONTROL, DUPLEX TYPE, WITH SCADA AND VIDEO POWER** which shall be payment in full for the controller work, complete, as specified herein.

MODIFY EXISTING LIGHTING CONTROLLER FOR CCTV POWER

Effective: April 1, 2005

Description: This work shall consist of providing an un-switched 120 volt power circuit to an existing lighting controller for CCTV video power as shown on the plans and specified herein. The circuit to be provided is shown in the Lighting Controller, Radio Control, Duplex Type, with SCADA and Video Power detail.

Method Of Measurement. The modification of the existing lighting controller for CCTV power shall be counted as each.

Basis Of Payment. This work shall be paid for at the contract price each for **MODIFY EXISTING LIGHTING CONTROLLER**, which shall be payment for the work as described herein and as indicated in the plans.

MODIFY EXISTING CONNECTION TO SIGN STRUCTURE

Effective: April 1, 2005

Description: This item shall consist of modifying the existing sign lighting presently operating at 277v to operate at 240v. The work shall consist of removing the existing step-down transformers as indicated on the plans and re-configuring the existing wiring as indicated.

Constuction:

The existing transformers shall be removed and shall remain property of the Department and shall be delivered in working order in safe storage packing to the Engineer at a designated location within District 1. The existing wiring shall be modified to ensure proper operation on a 240v circuit.

Measurement.

Modify Existing Connection to Sign Structure shall be measured each for payment.

Basis of Payment: This work shall be paid at the contract unit price each for **MODIFY EXISTING CONNECTION TO SIGN STRUCTURE**, which shall be payment in full for the work as described herein.

MODIFY EXISTING UNDERPASS LIGHTING

Effective: April 1, 2005

Description: This item shall consist of modifying the existing underpass lighting presently operating at 277v to operate at 240v. The work shall consist of providing step-up transformers as indicated on the plans and re-configuring the existing wiring as indicated.

The locations of this work shall be at the following underpass locations:

- Location 1: Higgins Road
- Location 2: Woodfield Road
- Location 3: Golf Road

Materials:

Step-up transformers provided under this pay item shall have a capacity of 1.0KVA unless otherwise indicated on the lighting system wiring diagrams.

The transformer shall be dry type and tested in accordance with the latest issue of UL 508 and CSA C22.2 No. 47. The insulation shall be rated for class 180 degree C. The average temperature rise (by resistance measurement) shall not exceed 115 degree C over a maximum ambient of 40 degree C per ANSI and CSA standards. The conductor material shall be copper.

The core shall be fabricated from high quality, high grade electrical steel. The sound level of the transformer shall meet NEMA requirements. The transformer shall be housed in a NEMA type 3R enclosure and shall be coated with a UL approved ASA – 61 Grey finish.

Installation:

The transformer shall be mounted in a junction box or enclosure as indicated in the plans, and included in this pay item. A transformer shall be furnished and installed for each phase circuit. The transformer shall be installed in conformance with the manufacturer requirements.

Measurement.

Modify Existing Underpass Lighting shall be measured each, per location, for payment.

Basis of Payment: This work shall be paid at the contract unit price each for **MODIFY EXISTING UNDERPASS LIGHTING**, of the location specified, which shall be payment in full for the work as described herein.

REMOVE AND REPLACE LIGHTING UNIT IDENTIFICATION DECAL

Effective: April 1, 2005

1. Description.

This work shall consist of removing and replacing the lighting unit identification decal set for a lighting unit, as specified herein and as directed by the Engineer.

Each pole, light tower and underpass light shall be labeled with the county area, controller and circuit identification letters and numerals as indicated in the plans or as designated by the Engineer. They shall be installed by the Contractor on each lighting unit pole shaft and on the underpass walls, or piers, as shown in the details. Median-mounted poles shall have two sets of identification labeling oriented to allow visibility from travel in either direction.

2. Materials.

Unless otherwise indicated, the letters and numerals for 60 ft. mounting height lighting units and less and underpass lighting units shall be four (4) inches high, black, series "D" as described in the Federal Highway Administration's "Standard Alphabets for Highway Signs". The placement of the numbers shall be coordinated with the accident reference marker and handhole door as applicable. The letters and numerals shall be screened on silver-white, pressure sensitive, reflective, 4-1/2 inch by 4-inch sheeting as described under Section T 602.01 "Reflective Sheeting" in the Illinois Department of Transportation's publication "Standard Specifications for Traffic Control Items".

Lighting systems that are not maintained by the Illinois Department of Transportation shall not be identified with the black and silver color scheme described above. An alternate color scheme, such as black on yellow, shall be used as directed by the Engineer or as indicated in the plans

3. Removal.

The existing lighting unit identification decals shall be removed in a manner which will not damage the pole.

Decals shall be removed as recommended by the decal manufacturer. After the decals have been removed, all residual adhesives shall be removed. Natural finish aluminum light poles shall be machine sanded with 100 grit sand paper to a smooth finish.

Special care shall be taken with painted and anodized poles so that the finish is not damaged. Any damage to the finish shall be repaired to the satisfaction of the Engineer.

4. Installation.

4.1 **General requirements and Standard Aluminum Poles.** Unless otherwise indicated, identification applied to standard natural aluminum poles shall be performed using the following method:

Clean and dry the surface with a cleaning solution approved by the decal manufacturer.

In cold or damp locations, the decal material selection shall be coordinated with the weather conditions to ensure proper bonding.

4.2 **Weathering Steel Poles.** Identification of weathering steel poles shall be made by application of letters and numerals as specified herein to an appropriately sized 1/8-inch thick stainless steel plate which shall be banded to the pole with two stainless steel bands.

4.3 **Painted Poles.** Identification of painted poles shall be made by application of letters and numerals as specified herein via an adhesive approved by the paint manufacturer for the application.

4.4 **Underpass Luminaires.** Identification of luminaires which are not pole mounted, such as underpass luminaires, shall be done using identification brackets. In general, the brackets shall be mounted adjacent to and within one foot of their respective luminaires. The brackets shall be fabricated from one-eighth (1/8) inch aluminum alloy sheet according to the dimensions shown on the plans. The bracket shall be bent so as to present the luminaire identification numbers at a sixty (60) degree angle to the wall. The bracket shall be attached to concrete walls with three (3) 1/4 inch, self drilling, snap-off type galvanized steel concrete anchors

set flush with the wall, or power driven fasteners approved by the Engineer. The brackets shall be offset from the wall with 1/2" aluminum bushings. The luminaire identification numbers shall be applied to the bracket using the method described for identification applied to poles.

- 4.5 **Light Towers.** Unless otherwise indicated, the letters and numerals for light towers, i.e. poles of a mounting height equal to and greater than 70 feet, shall be nine (9) inches high by eight (8) inches wide.
- 4.6 **Illuminated Signs.** Unless otherwise indicated, the letters and numerals for illuminated signs shall be nine (9) inches high by eight (8) inches wide.
- 4.7 **Wood Poles.** Circuit identification shall be made even to temporary poles. When temporary poles are metal, the circuit identification shall be as described elsewhere herein, except that the tags shall be black on yellow. When temporary poles are wood, circuit identification shall be as specified for wood poles.

Circuit identification for wood poles shall be made by the use of weather-resistant reflective letter tags in vertical slide-in holders. Unless otherwise indicated, letter tags shall be reflective, black on yellow, with characters 3-inches high on tags nominally 2 1/2" by 3 5/8" in size. Slide-in holders shall be aluminum and shall have both ends crimped after tags are inserted. The holders shall be attached to the poles with 1 1/2-inch aluminum nails as recommended by the tag manufacturer.

7. Measurement.

The Remove and Replace Lighting Unit Identification Decals shall be measured each for payment as one complete set per lighting unit.

8. Basis of Payment.

This item will be paid for at the contract unit price each for **REMOVE AND REPLACE LIGHTING UNIT IDENTIFICATION DECAL**, which shall be payment in full for all material and work as specified herein.

REMOVAL OF EXISTING LIGHTING CONTROLLER, SALVAGE

Effective: January 1, 2005

Description: This work shall consist of disconnecting, removing, and transportation to the Owner's Electrical Maintenance facility of an existing lighting controller, or designated components thereof, as specified herein and as directed by the Engineer.

CONSTRUCTION REQUIREMENTS

General. Prior to the removal of any equipment, the Contractor shall arrange an inventory inspection with the Engineer. All equipment shall be inspected and logged as to type, size and condition. The Engineer will then direct the Contractor as to that portion of the controller which is deemed salvageable and this may range from the entire controller, complete to none of the controller. If, in the Engineer's judgment, the bulk of the controller is not salvageable, the Contractor shall carefully disconnect and remove the designated salvageable components and those components shall be delivered as described. Items deemed not salvageable by the Engineer shall, upon removal become property of the Contractor and shall then be disposed of off the site.

No removal work shall be permitted without approval from the Engineer. Direct buried underground electric cables need not be removed. Cables which are abandoned shall be cut 304.8 mm (one foot) below ground level. Cables in unit duct may be removed from the duct and become property of the Contractor. Duct shall be abandoned and cut 304.8 mm (one foot) below ground level.

Except as otherwise indicated, the cabinet, control equipment, and all associated hardware and appurtenances, including the breaker box and safety switch, shall remain the property of the Owner and shall be delivered to the Owner or the Owner's electrical maintenance facility.

Unless otherwise directed by the Engineer, the concrete foundation shall be removed to at least 609.6 mm (two feet) below grade and shall become the property of the Contractor and disposed of off the job site. The underground conduits and cables shall be separated from the foundation at 762.0 mm (2.5 feet) below grade and abandoned. The space caused by the removal shall be backfilled with trench backfill in accordance the Standard Specifications.

Any damage resulting from the removal and/or transportation of the cabinet, control equipment, and associated hardware, shall be repaired to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer. The Engineer shall be the sole judge to determine the extent of damage.

Method of Measurement. Each lighting controller, and all associated control equipment, which is removed and delivered to storage shall be counted as a unit for payment.

Basis of Payment: This item shall be paid for at the contract unit price each for **REMOVAL OF EXISTING LIGHTING CONTROLLER AND SALVAGE**, which shall be payment in full for the work described herein.

CLOSED CIRCUIT DOME VIDEO CAMERA (MATERIAL ONLY)

Effective: February 25, 2005

1. Description.

This item shall consist of furnishing an integrated Closed-Circuit Television (CCTV) Dome Camera Assembly as described herein and as indicated in the Plans.

2. Definitions:

| | |
|--------------------------------------|--|
| CCTV Dome Camera | The complete camera assembly including the camera, PTZ mechanism, upper and lower dome housings, and any mounts. |
| Dome, lower dome, dome bubble | Clear dome (bubble) on the lower portion of the CCTV dome camera which the camera views through |
| Dome housing, upper dome | The upper portion of the CCTV dome cameras which houses the camera and PTZ Mechanism. |
| PTZ | The motorized Pan, Tilt and Zoom mechanism |
| Camera | The color camera |

3. Materials.

3.1 General. The CCTV Dome Color Camera shall be a rugged, non-pressurized, outdoor surveillance domed camera system. The CCTV Dome Camera shall be designed to perform over a wide range of environmental and lighting conditions and automatically switches from color daytime to monochrome nighttime operation. For compatibility with the existing CCTV cameras installed on this expressway, the dome cameras shall be manufactured by Phillips/Bosch or equal approved by the Engineer. The equivalent shall comply with all the requirements herein and shall provide the same operation/functionality as the installed cameras without the use of any external devices for the modification/translation of video and PTZ commands.

All equipment and materials used shall be standard components that are regularly manufactured and utilized in the manufacturer's system.

The manufacturer shall be ISO 14001 Certified. The manufacturer's quality system shall be in compliance with the I.S./ISO 9001/EN 29001, QUALITY SYSTEM. The manufacturer shall provide a three year (3) warranty. The manufacturer shall pay inbound and outbound shipping charges during the warranty period for products returned as warranty claims. The manufacturer shall also provide an advance exchange program for warranty claims.

The warranty period shall begin on the date of final acceptance of the video distribution system. This warranty shall include repair or replacement of all failed components via a factory authorized repair facility. All items sent to the repair facility for repair shall be returned within two weeks of the date of receipt at the facility. The repair facility location shall be in the United States. Any extended warranty coverage required to comply with the specified warranty period shall be provided as a part of this pay item at no additional cost to the State.

- 3.2 Physical construction. The CCTV Dome Camera shall be provided in a NEMA 4X or IP66 certified, rugged, weather-resistant package. The CCTV Dome Camera shall also comply with the following requirements:

| Environmental | Requirement |
|-----------------------|----------------|
| IP Rating | IP 66 |
| Weight (max.) | 14 lbs |
| Overall Dimensions | 10" dia. x 14" |
| Humidity | 0 to 100% |
| Operating temperature | -40°C to 50°C |
| Mount | 1 ½" NPT |

The CCTV dome camera shall be equipped with a fan and heater controlled by a thermostat. The heater shall prevent internal fogging of the lower dome throughout the operating temperature range of the camera.

An optional rugged clear dome bubble shall be available from the CCTV camera manufacturer. The rugged dome shall be made from 3mm thick polycarbonate, designed to meet stringent strength standards without compromising optical clarity. The dome, by itself, shall withstand a 100 foot-pound impact. This energy is equivalent to that of a 10 lb sledgehammer being dropped from a height of 10 feet. The dome, when installed in the CCTV camera, shall exceed the UL 1598 horizontal impact standard for lighting fixtures, by a factor of 10. The submittal needs to indicate compliance with this requirement.

- 3.3 Power. The CCTV Dome Camera shall be designed to operate from a 120v power source. The appropriate power supply, if required for the CCTV Dome Camera to operate, shall be included as a part of this item. The power requirements for the camera shall comply with the following:

| Electrical | Requirement |
|-----------------------------|--------------|
| Voltage | 18 to 30 VAC |
| Load | 25 VA |
| Heater Load | 45 VA |
| Listing | UL Listed |
| FCC | Class B |
| Surge & Lighting Protection | Yes |

3.4 Camera.

The CCTV Dome Camera shall incorporate a solid state CDD imaging camera with the following requirements.

- 3.4.1 The camera shall automatically switch from daylight color operation to a higher sensitivity nighttime monochrome mode when light levels fall below a user adjustable threshold level.
- 3.4.2 The camera shall provide a selectable slow shutter (frame integration) function that increases the camera's sensitivity up to 50 times by reducing the shutter speed. Selectable slow shutter speeds shall be 1/60 sec., 1/30 sec., 1/15 sec., 1/8 sec., 1/4 sec., 1/2 sec., 1 sec., and fully automatic.
- 3.4.3 Digital image stabilization shall be provided using electronic compensation that filters out vibrations caused by wind and other environmental conditions.

The camera shall also comply with the following requirements:

| Camera | Requirement |
|--|--|
| Imager | 1/4" CCD or smaller |
| Effective Pixels | 724H x 494V |
| Zoom Lens Power (without digital enhancement) | 25x |
| Aperture | f1.6 to f2.7 |
| Focus | Auto / Manual |
| Iris | Auto / Manual |
| Maximum Field of View Horizontal | 45° |
| Video Output | 1.0v +/- 0.07v |
| Gain Control | Auto / off |
| Synchronization | Internal / AC line lock, phase adj. via remote control, V-Sync |
| Digital Zoom | 10x |
| Horizontal Resolution | >470 lines |
| Signal – Noise Ratio | >50dB |
| White Balance | Auto / Manual |
| Shutter Speed | 1/2 to 1/30,000 |

| Min Illumination | | Values in lux |
|------------------|-----------|---------------|
| Color | Fast Shut | 2.00 |
| | Slow Shut | 0.15 |
| B&W | Fast Shut | 0.3 |
| | Slow Shut | 0.017 |

3.5 PTZ Mechanical

The CCTV dome camera shall have an integrated motorized PTZ mechanism as specified herein and shall be compatible and coordinated with the control system described elsewhere herein. The camera's 360° pan rotation shall be divided into 16 independent sectors with 16-character titles per sector. Any or all of the 16 sectors may be blanked from the operator. In addition to the blanking function, a privacy masking feature shall be provided that allows creation of up to six (6) rectangular masks that prohibit areas of the field of view from being seen even if the camera is panned, tilted, or zoomed.

| Mechanical (Dome Drive) | | Requirement |
|--------------------------------|------|---------------------|
| Pan | | 360° |
| Tilt | | +2° to -92° |
| Continuous PTZ Operation | | Yes |
| Pre-position speed | Pan | 360°/sec |
| | Tilt | 200°/sec |
| Accuracy | Pan | +/- 0.5° |
| Variable speed | Pan | 80°/sec or 150°/sec |
| | Tilt | 40°/sec |

3.6 Functionality

Camera Commands

- 3.6.1 The camera shall allow the storage of up to 99 preset scenes with each preset programmable for 16 character titles. A tour function shall be available to consecutively display each of the preset scenes for a programmed dwell time. Any or all of the presets may be included or excluded from the tour.
- 3.6.2 The camera shall be capable of recording two (2) separate tours of an operator's keyboard movements consisting of, tilt, and zoom activities for a total combined duration time of 15 minutes. Recorded tours can be continuously played back.
- 3.6.3 When an operator stops manual control of the camera, and a programmed period of time is allowed to expire, the camera will execute one of the following programmable options: 1) return to preset #1 or 2) return to the automated tour previously executed or 3) do nothing and remain at the present position.
- 3.6.4 The camera shall ensure that any advanced commands required to program the camera are accessed via three levels of password protection ranging from low to high security.

- 3.6.5 The camera system shall provide a feature that automatically rotates, or pivots, the camera to simplify tracking of a person walking directly under the camera.
- 3.6.6 The camera's 360° pan rotation shall be divided into 16 independent sectors with 16-character titles per sector. Any or all of the 16 sectors may be blanked from the operator.
- 3.6.7 In addition to the blanking function, a privacy masking feature shall be provided that allows creation of up to six (6) rectangular masks that prohibit areas of the field of view from being seen even if the camera is panned, tilted, or zoomed

| Visual Effects | Requirement |
|---|--------------------|
| Sectors/Zones | 8 |
| Titling | 20 characters |
| Max Presets | 99 |
| Motion Detection | Yes |
| Password Protection | Yes |
| On Screen Configuration Menus | Yes |
| Image Stabilization | Yes |
| Preset Tour / max presets | |
| Recorded Variable PTZ Tour | 2 |
| Auto Flip | Yes |
| Auto Return to preset after operator inactivity | Yes |
| Window Blanking | |
| Quantity | 6 |
| Grey out | Yes |
| Alarms | Yes |

- 3.6.8 The manufacturer shall fully document and provide to the Department the communication protocol implemented by the CCTV dome camera. This protocol shall be open and allow third-party development of control software. If the current protocol is not NTCIP compliant, the manufacturer shall supply upgrades to make the software compliant in the future at no cost to the Department.
- 3.6.9 Diagnostic software shall be provided with each CCTV camera which shall allow all camera functions accessible via a Windows XP based PC. A RS232 cable, or a USB cable if available, shall be provided to connect to CCTV dome camera assembly. A copy of the diagnostic software shall be supplied for each CCTV camera. The program shall be capable of

configuring and controlling the CCTV dome camera assembly and its functions (position, zoom, focus, iris, power, color balance, etc.) from within it. This includes storing and recalling preset positions for fast system configuration.

3.7 Interface

Control System. Camera commands shall be transmitted over twisted pair, RS 232, RS 422 and RS 485. The method of transmission shall be user selectable.

The camera shall provide four (4) normally open or normally closed alarm input contacts and one (1) relay output. Any or all of the input contacts may be programmed upon activation to automatically move the camera to any preposition location, close the output relay for a programmed period of time, and display an alarm indication on the on-screen display of the display monitor.

4. Testing.

The Contractor shall test each CCTV Dome Camera Assembly as required elsewhere herein. Upon successful completion of the testing, the CCTV camera may be counted for payment.

5. Product Support.

The manufacturer shall provide technical support via email, fax and toll-free telephone. The above forms of support shall be provided Monday through Friday, 8:00am to 8:00pm EST.

6. Measurement.

Closed-Circuit Television (CCTV) Dome Cameras shall be counted as each upon successful completion of the testing describer herein for payment.

7. Basis of Payment.

This item will be paid for at the contract unit price each for **CLOSED CIRCUIT DOME TELEVISION CAMERA (MATERIAL ONLY)**, which shall be payment in full for all material and work as specified herein.

FIBER OPTIC INNERDUCT

Effective: April 1, 2005

1. Description.

This item shall consist of furnishing, installing, splicing, connecting and demonstrating continuity of fiber optic cable innerduct of sizes specified herein and as shown on the contract drawings. The innerduct shall be High Density Polyethylene.

3. Materials.

3.1 General:

The duct shall be a plastic duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance.

The duct shall be made of high density polyethylene which shall meet the requirements of ASTM D 3035. The innerduct material shall be composed of high density polyethylene meeting the requirements of PE334470E/C as defined in ASTM D3350.

Submittal information shall demonstrate compliance with the details of these requirements.

3.2 Dimensions:

Duct dimensions shall conform to the standards listed in ASTM D3035, SDR-11. Submittal information shall demonstrate compliance with these requirements.

| Nominal Size (Diameter) | Inside Diameter (minimum) | Outside Diameter (Average) | Wall Thickness (Min.) | Bend Radius (minimum) | Pull Strength | Weight Average (lbs/100ft.) |
|-------------------------|---------------------------|----------------------------|-----------------------|-----------------------|---------------|-----------------------------|
| 1" | 1.030" | 1.315" | 0.120" | 14" | 500 | 19 |
| 1.25" | 1.313" | 1.660" | 0.151" | 17" | 750 | 31 |
| 1.5" | 1.506" | 1.900" | 0.173" | 19" | 1000 | 40 |
| 2" | 1.885" | 2.375" | 0.216" | 24" | 1600 | 60 |

3.3 Marking:

As specified in NEMA Standard Publication No. TC-7, the duct shall be clearly and durably marked at least every 10 feet with the material designation (HDPE for high density polyethylene), nominal size of the duct, and the name and/or trademark of the manufacturer.

3.4 Color:

Innerduct shall be colored as follows or as directed by the Engineer.

| Usage Designation | Color |
|--|--------|
| Fiber Optic Trunk Cable (Ducts containing cables of 96 fibers) | Orange |
| Fiber Optic Distribution Cable (Ducts containing cables of 6 or 4 fibers) | Blue |

4. Installation.

4.1 Pulling Tension.

Pulling tension of the duct shall be monitored throughout the pull and pulling tension shall not exceed those listed in the table or the specific manufacturer maximum pulling tensions as indicated in the catalog cut submittals. Failure to monitor the pulling tension will result in non-payment of that particular duct span and the span may be reinstalled with new duct at no additional cost to the State. Lubricants used shall be compatible with the duct.

4.2 Junction boxes.

Where duct passes through junction and/or pull boxes, the duct shall remain continuous unless a break is specifically indicated in the plans or as directed by the Engineer.

4.3 Handholes.

Where duct passes through handholes, the duct shall be looped uncut within the handhole unless otherwise indicated on the Plans or directed by the Engineer.
Bends.

Minimum bending radius shall be in accordance with the above table or the manufacturer's recommended radius, whichever is larger. Bends shall be made so that the duct will not be damaged and the internal diameter of the duct will not be effectively reduced. The degrees of bend in one duct run shall not exceed 360° between termination points.

4.4 In Trench

Where duct is installed in trench, it shall be placed in the bottom of the trench after all loose stones have been removed and all protruding stones have been removed or covered with backfill material as directed by the Engineer.

Where duct is shown to be installed in trench, it shall be installed at a depth not less than 30 inches unless otherwise indicated or specifically directed by the Engineer.

Where the specification for trench and backfill permits plowing in lieu of trench and backfill, the unit duct may be plowed into place. Unless otherwise indicated or specifically approved by the Engineer, plowing of unit duct shall lay the duct in place and shall not pull the duct through the length of the cut behind a bullet-nose mandrel or similar apparatus. In all cases, plowing operations shall be non-injurious to the duct.

4.5 In Raceway

Where duct is installed in raceways, lubricating compounds shall be used where necessary to assure smooth installation.

4.6 Encased in Concrete

Concrete shall be class SI complying with Section 720 of the Standard Specifications.

Steel Reinforcement Bars. Steel reinforcement bars shall comply with Section 706.10 of the Standard Specifications.

Underground concrete-encased conduit shall be supported on interlocking plastic spacers specifically designed for the purpose spaced along the length of the run as recommended by the manufacturer. Spacing between raceways within a common duct bank shall be not less than 2 inches. The interlocking spacers shall be used at a minimum interval of 8 ft.

Concrete cover overall shall not be less than 3 inches all around the encased run. Space below the conduit, and concrete fill shall be assured. Care shall be exercised during concrete placement to assure that there are no voids, so that spacers are undisturbed, and so that conduit joints stay secure and unbroken. Concrete shall be deflected during placement to minimize the possible damage to or movement of the conduits.

Conduit encased in concrete shall have steel reinforcing where installed below roadway or other paved vehicle areas (including shoulder) and the reinforcement shall extend not less than 5 feet additional from the edge of pavement unless otherwise indicated. Steel reinforcement shall not be less than No. 4 bars at corners and otherwise spaced on 12-inch centers, tied with No. 4 bars on 12-inch centers.

The Engineer shall examine all conduit joints for compliance with section 5 of this specification before concrete is poured.

4.7 Embedded

Conduit embedded in structure shall be supported on interlocking plastic spacers specifically designed for the purpose spaced along the length of the run as recommended by the manufacturer. Spacing between raceways within a common structure shall be not less than 2 inches. The interlocking spacers shall be used at a minimum interval of 8 ft.

Concrete cover overall shall not be less than 3 inches all around the embedded run. Space below the conduit, and concrete fill shall be assured. Care shall be exercised during concrete placement to assure that there are no voids, so that spacers are undisturbed, and so that conduit joints stay secure and unbroken. Concrete shall be deflected during placement to minimize the possible damage to or movement of the conduits.

The Engineer shall examine all conduit joints for compliance with section 5 of this specification before concrete is poured.

5. Joints

5.1 All HDPE duct to HDPE duct joints shall be made with an approved duct fusion splicing device.

5.2 HDPE coilable non-metallic conduit to non-HDPE coilable non-metallic conduit joints shall be either made with an approved mechanical connector or with a chemical compound. Both methods must be specifically designed for joining HDPE coilable non-metallic conduit. Minimum pullout force for the chemical compound shall be as listed in the following table.

| Nominal Size | | Pullout Force | |
|--------------|------|---------------|-------|
| mm | in | N | Lbs |
| 31.75 | 1.25 | 2400 | 540 |
| 38.1 | 1.50 | 2535 | 570 |
| 50.8 | 2.0 | 3335 | 750 |
| 63.5 | 2.5 | 4445 | 1,000 |
| 76.2 | 3.0 | 6225 | 1,400 |
| 101.6 | 4.0 | 8890 | 2,000 |

7. Measurement.

The duct shall be measured for payment in linear feet in place as described herein. Measurements shall be made in straight lines between horizontal changes in direction between the centers of the terminating points (poles, cabinets, junction boxes). Vertical measurement of the duct shall be as follows:

For runs terminating at junction boxes and/or control cabinets, the vertical measurement shall be taken from the bottom of the trench, or horizontal raceway, to a point 18-inches beyond the center of the junction box or control cabinet.

For runs terminating at poles, the vertical measure shall be taken from the bottom of the trench, or horizontal raceway, to a point 18-inch beyond the center of the light pole handhole regardless of light pole mounting method

Innerduct installed in excess of the limits describes herein shall not be paid for.

8. Basis of Payment.

This item will be paid for at the contract unit price per foot for **FIBER OPTIC INNERDUCT**, of the size of duct as indicated, which shall be payment in full for all material and work as specified herein.

CLOSED-CIRCUIT TELEVISION CABINET

Effective: April 1, 2005

Description. The Contractor shall provide a closed-circuit television cabinet on a high mast light tower as shown in the plans and specified herein.

Materials.

General. The Contractor shall furnish the following items as specified.

CCTV Cabinet. The CCTV Cabinet shall be a Hoffman Enclosures Model A20H1610SS6LP, Electromate Enclosures Model E-20H1610SSLP, or approved equal. The cabinet shall be NEMA 4X compliant.

The nominal dimensions of the cabinet shall be 20 inches high by 16 inches wide by 10 inches deep.

The cabinet shall be fabricated of 14 gauge Type 304 or Type 316L stainless steel. All seams shall be continuously welded and ground smooth with no holes or knockouts. The cabinet shall be fabricated with a rolled lip around three sides of the door and on all sides of the enclosure openings to exclude liquids and contaminants. A stainless steel door clamp assembly shall assure a watertight seal. A seamless gasket shall be included to assure a watertight and dust-tight seal.

The cabinet shall have provisions for padlocking in the closed position. The lock shall be Corbin #2 and two keys shall be supplied to the Department with each lock. The keys shall be removable in the locked position only.

A data pocket of high impact thermoplastic material shall be provided. The nominal dimensions of this pocket shall be 12 inches by 12 inches.

Collar studs shall be provided for mounting the stainless steel backboard panel.

The cabinet shall be unpainted. Cover, sides, top, and bottom shall have a smooth brushed finish.

The cabinet shall mount on the high-mast lighting towers, using the fabricated bolt pattern.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall prepare and submit a shop drawing detailing the complete closed-circuit television cabinet installation. The shop drawings shall identify the installation and specifications of all components to be supplied, for approval of the Engineer.

The Contractor shall install the CCTV cabinet as indicated in the Plans. The Contractor shall verify the mounting criteria and dimensions based upon the tower or pole being provided. Any adjustments in the dimensions for the mounting brackets shall be approved by the Engineer.

Basis of Payment. This work shall be paid for at the contract unit price each for **CLOSED CIRCUIT TELEVISION CABINET** as specified.

CCTV DOME CAMERA HIGH MAST TOWER INSTALLATION

Effective: April 1, 2005

Description. This work consists of installing and coordinating the installation of a CCTV dome camera and high mast tower luminaire power cable replacement.

Submittals. The Contractor shall submit shop drawings for the camera mounting adapter, and all components used for the installation. The shop drawings shall include installation of the electrical and fiber optic components within the video signal processing and power cabinet. The drawings shall include cabinet plans and schematics with each cable and conductor labeled as they will be in the enclosure, and special care taken to show the routing of the fiber optic cable to avoid bending the fiber optic cable to a radius smaller than recommended by the fiber optic cable manufacturer.

Materials. The CCTV dome camera to be mounted on the high mast tower ring is furnished separately under CLOSED CIRCUIT TELEVISION DOME CAMERA (MATERIAL ONLY).

The camera mounting bracket shall consist of standard PVC coated rigid steel conduit and PVC coated conduit bodies.

The camera mounting bracket, counterweight, and dome camera shall all have provisions for attaching a safety chain.

The special cable luminaire power conductors shall be terminated identically to the standard cable except that the video power cable shall be equipped with a plug and socket, Amphenol 97-3106A-12DS-3P or approved equal. The video signal cable shall terminate into a standard 75 ohm BNC connector and plug. The existing power cable connectors (plugs & sockets) on the luminaire ring as well as the connectors (plugs & sockets) at the tower base shall be replaced under this pay item.

CONSTRUCTION REQUIREMENTS

A form 7 PVC coated galvanized steel type LB conduit body shall be connected to the luminaire ring tenon via an 8-inch long threaded on one end section of 2½" diameter PVC coated galvanized steel conduit. This section of conduit shall have 4 set screws to secure the mount to the tenon. The other end of the LB shall have a 2½" diameter to 1½" diameter reducer installed to facilitate the installation of a 12" section of 1½" diameter PVC rigid steel conduit which in turn is connected to the CCTV camera. These sizes and dimensions are included as guides, and the actual mount shall be fully coordinated with the tenon arm and CCTV camera. The length of vertical conduit shall be sized such that the top of the lower dome of the CCTV camera is lower than the lowest point of any luminaire installed on the luminaire ring.

The connection of the 1½" diameter vertical conduit to the camera shall be made in accordance with the camera manufacturer's directions with respect to conduit sealing.

Adjustment of the counterweight, if needed, shall be included as a part of this item to ensure that the luminaire ring remains level.

The dome camera mounting bracket shall be installed on the high mast tower ring under the supervision of the Engineer. The camera shall be attached to the luminaire ring by a safety chain that is completely independent of the joints and fasteners that normally connect them together and to the luminaire ring. The safety chain shall be rated to support at a minimum 10 times the combined weight of all three components.

The special high mast tower CCTV/lighting power cable shall be installed in place of the standard high mast tower luminaire cable.

The standard lighting power cable, if furnished with the light tower, shall be returned to the Engineer in its original packaging. At existing towers, the standard lighting power cable shall be removed, coiled and shall be returned to the Engineer.

It shall be the Contractor's responsibility to request the required length(s) of CCTV/lighting power cable from the Engineer at least fifteen (15) working days in advance of date needed. The request shall include the calculation(s) that was used to arrive at the cable length. The calculation shall clearly indicate the required cable length and any slack. Excessive slack will not be allowed. After the cable request is approved, the Contractor shall be responsible for the transportation of the cable from State Stock to the job site.

The special cable shall be trained and attached in an identical fashion to the standard cable. All connections at the luminaire ring shall be made inside the luminaire ring junction box and inside the camera mounting bracket. The end of the cable inside the tower shall be connected to the power connector, the video power and signal cables to the pigtail connectors extending from the video equipment cabinet.

Coordination. This item shall be closely coordinated with the CCTV dome camera, light tower installation, and the CCTV cabinet equipment.

Configuration and testing. The operation of the CCTV dome camera shall be tested as part of the testing required under Closed Circuit Television Dome Camera. All equipment shall be tested and verified as operational in accordance with the manufacturer's specifications and so that the video signal is produced and control of the camera from a remote location enabled to the satisfaction of the Engineer.

Method of Measurement. CCTV Dome Camera High Mast Tower Installation will be counted as each upon successful completion of the testing described herein for payment.

Basis of Payment. This work will be paid for at the contract unit price each for **CCTV DOME CAMERA HIGH MAST TOWER INSTALLATION**, which shall be payment in full for all material and work as specified herein.

CLOSED CIRCUIT TELEVISION CABINET EQUIPMENT

Effective Date: April 1, 2005

Description. The Contractor will furnish and install closed-circuit television cabinet equipment in a closed-circuit television cabinet as shown on the plans.

Materials.

CCTV Cabinet Equipment

Stainless Steel Panel. The cabinet shall be furnished with a stainless steel panel. This panel shall have nominal dimensions of 17 inches by 13 inches. It shall mount on the collar studs fabricated with the CCTV cabinet.

Fiber Optic Video Transceiver Pair. The CCTV Cabinet Equipment shall include a matched pair fiber optic video transceiver pair as described herein. To maintain compatibility with the previously installed transceivers on this roadway, the transceiver pair shall be manufacturer by Meridian Technologies, Series DV-1W 1MPS, or approved equal by the Engineer. The Approved equal shall be 100% interchangeable with the existing units.

Fiber Optic Video Transmitter. The fiber optic video transmitter shall provide simplex transmission of NTSC video from the CCTV cabinet and duplex communications of camera-control, asynchronous data. Optic video and data transmission shall use one single mode fiber operating in the 1310/1550 nm windows using simple wavelength division multiplexing.

Mechanical and environmental requirements include the following:

| | |
|------------------------------|------------------------------------|
| Nominal dimensions: | 7 inches by 5 inches by 1.5 inches |
| Operating Temperature Range: | -40°C to +70°C (minimum) |
| Storage Temperature Range: | -40°C to +75°C (minimum) |
| Relative Humidity Range | 0% to 95% (non-condensing) |
| MTBF | 75,000 hours (minimum) |

Optical requirements include:

| | |
|--------------------------|---|
| Connector: | ST |
| Optical Power Budget: | 15 dB (minimum) using 9/125 μ m single mode fiber |
| Operational Wavelengths: | WDM using 1310/1550 nm and a single fiber |

Video/data requirements include:

| | |
|-----------------------|--|
| Video connector | BNC |
| Data connector: | 9-pin EIA RS-232, 25-pin EIA RS-232 connector, or terminal block |
| Data rates | 1200-9600 bps, asynchronous |
| Input signal | 0.5 – 2.0 V pk-pk (1 V nominal)/75 ohms impedance |
| Bandwidth | 5 Hz – 7.0 MHz (minimum) |
| Differential Gain | $\leq 5\%$ |
| Differential Phase | $\leq 5^\circ$ |
| Tilt | $\leq 1\%$ |
| Signal-to-Noise Ratio | 50 dB with 10 dB of attenuation |

The equipment shall operate from 120 VAC and include a power supply manufactured by the transceiver manufacturer. Power requirements shall not exceed 15 watts.

The fiber optic video Receiver. The receiver shall receive optical simplex transmission of NTSC video from the CCTV cabinet and shall provide duplex optical communications of camera-control, asynchronous data. Optic video and data transmission shall use one single mode fiber operating in the 1310/1550 nm windows using simple wavelength division multiplexing.

Mechanical and environmental requirements include the following:

| | |
|------------------------------|------------------------------------|
| Nominal dimensions: | 7 inches by 5 inches by 1.5 inches |
| Operating Temperature Range: | 0°C to +70°C (minimum) |
| Storage Temperature Range: | 0°C to +75°C (minimum) |
| Relative Humidity Range | 0% to 95% (non-condensing) |
| MTBF | 75,000 hours (minimum) |

Optical requirements include:

| | |
|--------------------------|---|
| Connector: | ST |
| Optical Power Budget | 15 dB (minimum) using 9/125 μ m single mode fiber |
| Operational Wavelengths: | WDM using 1310/1550 nm and a single fiber |

Video requirements include:

| | |
|-----------------------|---|
| Connector | BNC |
| Input signal | 0.5–2.0 V pk-pk (1 V nominal)/75 ohms impedance |
| Bandwidth | 5 Hz – 7.0 MHz (minimum) |
| Differential Gain | $\leq 5\%$ |
| Differential Phase | $\leq 5^\circ$ |
| Tilt | $\leq 1\%$ |
| Signal-to-Noise Ratio | 50 dB with 10 dB of link attenuation |

The receivers shall operate from 120 VAC. One 7 slot, 19" rack mount chassis with power supply shall be included in this item to be installed at the Nordic Communications Hut. Only one chassis shall be provided for the total quantity of equipment cabinets.

Closed Circuit Television Camera Power Supply. The Closed Circuit Television Camera Power Supply shall supply power to the camera dome assembly. The requirements include:

| | |
|------------------------------|--------------------------|
| Input voltage | 120 VAC $\pm 10\%$ |
| Output voltage | 24 VAC $\pm 10\%$ |
| Operating Temperature Range: | -40°C to +70°C (minimum) |
| Storage Temperature Range: | -40°C to +75°C (minimum) |

The power supply shall include an AC power indicator with power on/off switch. All outputs shall be fused. The power supply shall be sized for the dome units being supplied, considering pan/tilt, heating, and blower requirements, and shall not be less than 100 VA.

Over-voltage Protection. Over-voltage protection shall be provided on the power conductors, camera control conductors, and the video cables. The specific protection is based on the elements being protected.

Incoming Power Protection. The incoming power shall be protected with a filtering surge protector that absorbs power line noise and switching transients. The specified performance shall be as follows:

| | | |
|----------------------------|-------------|--|
| Peak current | | 20 kA (8x20 μ s waveshape) |
| Life Test | | 5% change |
| Clamp voltage | | 280 V typical @ 20 kA |
| Response time | ≤ 5 ns | |
| Continuous service current | | 10 amps max. 120 VAC/60 Hz |
| Operating Temperature | | -40°C to +75°C (minimum) |
| Nominal dimensions | | 7.15 inches by 3.13 inches by 2.3 inches |

Video Cable Protection. The coaxial cable from the camera shall be protected with gas tubes and silicon avalanche devices. The units shall include re-settable fuses to protect against sneak currents. Specific requirements include:

| | | |
|-------------------------|-------------|---|
| Frequency | | 0 to 20 MHz |
| Peak surge current | | 20 kA (8x20 μ s waveshape) |
| Technology | | Hybrid, solid-state |
| Attenuation | | 0.1 dB at 10 MHz |
| Response time | ≤ 1 ns | |
| Protection | | Line-to-shield |
| Input/output connectors | BNC | |
| Impedance | | 75 ohms |
| Temperature range | | -40°C to +75°C (minimum) |
| Humidity | | 0% to 95% (non-condensing) |
| Clamping voltage | | 6 V |
| Nominal dimensions | | 4.5 inches by 1.5 inches by 1.25 inches |

The video cable protector shall be UL listed.

Camera Control Cable Protection. The camera control cable protector shall protect the RS-422/RS-485 signal leads going to the camera dome assembly. Specific requirements include:

| | | |
|-------------------------|--|--|
| Technology | | Hybrid, solid-state |
| Response time | | ≤ 5 ns |
| Protection | | Line-to-ground |
| Input/output connectors | | terminal block |
| Temperature range | | -40°C to +75°C (minimum) |
| Humidity | | 0% to 95% (non-condensing) |
| Clamping voltage | | 7.25 V (maximum); ≤ 7.0 V (typical) |
| Nominal dimensions | | 4.5 inches by 3.3 inches by 1.8 inches |

The protector shall protect a minimum of four conductors. [Transmit Data (2 wires) and Receiver Data (2 wires)]

The Contractor shall include all necessary wires and cables necessary to interconnect the components of the CCTV cabinet. The Contractor shall provide a furcation kit to break-out, protect the individual fibers of the 6-fiber cable. The Contractor shall install ST-type connectors on these fibers.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall prepare and submit a shop drawing detailing the complete closed-circuit television cabinet equipment installation. The shop drawings shall identify the installation and specifications of all components to be supplied, for approval of the Engineer. Particular emphasis shall be given to the cabling and the interconnection of all of the components.

The Contractor shall demonstrate a prototype assembly using the proposed components. This demonstration shall take place at a Contractor selected and Engineer approved location. These conformance tests shall be completed prior to the delivery of any completed assemblies to the project site. Any deviations from these specifications that are identified during this testing shall be corrected prior to shipment of the assembly to the project site.

Appropriate connectors shall be furnished and installed to interface the in-cabinet components to the integrated dome camera assembly. The Contractor shall mount the in-cabinet components in the equipment cabinet and connect them to AC power, communications, and video feeds.

Testing. The Contractor shall test each installed CCTV Cabinet Equipment. The test shall be conducted from the field cabinet using the standard communication protocol and a laptop computer. The Contractor shall verify that the camera can be fully exercised and moved through the entire limits of Pan, Tilt, Zoom, Focus and Iris adjustments, using both the manual control and presets. In addition, a video monitor and an oscilloscope shall verify that the video signal meets or exceeds the specified requirements.

The Contractor shall repeat the test at the communications shelter associated with the CCTV camera. This test confirms the distribution portion of the video circuit, that is, the portion of the circuit from the CCTV camera to the digital video encoder.

The Contractor shall maintain a log of all testing and the corresponding results. A representative of the Contractor and a representative of the Engineer shall sign the log as witnessing the results. Records of all tests shall be submitted to the Engineer prior to accepting the installation.

Documentation. One copy of all operations and maintenance manuals for each CCTV component shall be delivered for each assembly installed. In addition, full documentation for all software and associated protocols shall be supplied to the Department on a 3.5-inch floppy disk(s) and a CD-ROM. The Department reserves the right to provide this documentation to other parties who may be Contracted with in order to provide overall integration or maintenance of this item.

Warranty. The Contractor shall warranty all materials and workmanship including labor for a period of two years after the completion and acceptance of the installation, unless other warranty requirements prevail. The warranty period shall begin when the Contractor completes all construction obligations related to this item and when the components for this item have been accepted, which shall be documented as the final completion date in the construction

status report. This warranty shall include repair and/or replacement of all failed components via a factory authorized depot repair service. All items sent to the depot for repair shall be returned within two weeks of the date of receipt at the facility. The depot location shall be in the United States. Repairs shall not require more than two weeks from date of receipt and the provider of the warranty shall be responsible for all return shipping costs.

The depot maintainer designated for each component shall be authorized by the original manufacturer to supply this service. A warranty certificate shall be supplied for each component from the designated depot repair site indicating the start and end dates of the warranty. The certificate shall be supplied at the conclusion of the system acceptance test and shall be for a minimum of two years after that point. The certificate shall name the Department as the recipient of the service. The Department shall have the right to transfer this service to other private parties who may be Contracted to perform overall maintenance of the facility.

Method of Measurement. CLOSED-CIRCUIT TELEVISION CABINET EQUIPMENT shall be measured for payment each of the actual number of closed-circuit television cabinet equipment furnished, installed, tested, and accepted.

Basis of Payment. Payment shall be made at the contract unit price for each **CLOSED CIRCUIT TELEVISION CABINET EQUIPMENT** including all equipment, material, testing, documentation, and labor as specified in the contract documents for this bid item. No payment shall be made until a satisfactory video picture and PTZ control is demonstrated to be operational the Nordic Hut to the Engineer.

FIBER OPTIC CABLE

Effective: April 1, 2005

Description. The Contractor shall furnish and install loose-tube, single-mode, fiber optic cable of the number of fibers specified as shown in the plans and as directed by the Engineer.

Other ancillary components, required to complete the fiber optic cable plant, including but not limited to, moisture and water sealants, cable caps, fan-out kits, etc., shall be included in the cost of fiber optic cable and will not be paid for separately.

Materials The single-mode, fiber optic cable shall incorporate a loose, buffer-tube design. The cable shall be qualified to the requirements of RUS 7 CFR1755.900 (PE-90) for a single sheathed, non-armored cable, and shall be new, unused and of current design and manufacture.

The cables shall use dispersion unshifted fibers. The optical and physical characteristics of the un-cabled fibers shall include:

- Core Diameter 8.3 μm (nominal)
- Numerical Aperture 0.14
- Zero Dispersion Wavelength 1300-1322 nm
- Zero Dispersion Slope 0.092 ps/(nm²*km) (maximum)
- Cladding Diameter 125.0 \pm 0.7 μm
- Core-Clad Concentricity 0.05 μm maximum
- Cladding Non-Circularity 1% maximum
- Coating Diameter 245 \pm 10 μm
- Coating-Cladding Concentricity 12 μm maximum
- Mode Field Diameter 9.2 μm \pm 0.4 μm at 1310nm
- Mode Field Diameter 10.4 μm \pm 0.5 μm at 1550nm
- Dispersion 18.0 ps/(nm*km) maximum at 1550nm

The number of fibers in each cable shall be as specified on the plans.

For cables with more than 12 fibers, the core construction shall consist of individual buffer tubes, each containing 12 fibers. These buffer tubes shall be stranded around a dielectric central strength member using a reverse oscillation process. For cables containing 12 fibers or less, the core shall use a unitube construction with either 6 or 12 fibers in a single tube.

The maximum attenuation of any cabled fiber shall not exceed 0.4 dB/km at 1310 nm and shall not exceed 0.3 dB/km at 1550 nm.

The cable shall be capable of withstanding a minimum-bending radius of 20 times its outer diameter during installation and 10 times its outer diameter during operation without changing the characteristics of the optical fibers.

The cable shall meet all of specified requirements under the following conditions:

- Shipping/storage temperature: -58° F to +158° F (-50° C to +70° C)
- Installation temperature: -22° F to +158° F (-30° C to +70° C)
- Operating temperature: -40° F to +158° F (-40° C to +70° C)
- Relative humidity from 0% to 95%, non-condensing

Optical Patch Cords and Pigtails. The optical patch cords and pigtails shall comply with the following:

- The optical patch cords furnished under this contract shall consist of a section of single fiber, jacketed cable equipped with optical connectors at both ends.
- The factory installed connector furnished as part of the optical patch cords and pigtails shall meet or exceed the requirements for approved connectors specified herein.
- The fiber portion of each patch cord and pigtail shall be a single, jacketed fiber with optical properties identical to the optical cable furnished under this contract.
- The twelve fiber single-mode fiber optic cable shall be installed as a pigtail with factory installed ST compatible connectors.
- The patch cords shall comply with Telcordia GR-326-CORE

Connectors. The optical connectors shall comply with the following:

- All connectors will be factory installed ST compatible connectors. Field installed connectors shall not be allowed.
- Maximum attenuation 0.4dB, typical 0.2dB.
- No more than 0.2dB increase in attenuation after 1000 insertions.
- Attenuation of all connectors will be checked and recorded at the time of installation with an insertion test minimum 5 times checked with an OTDR.
- All fibers shall be connectorized at each end.
- All fibers shall terminate at a fiber patch panel
- Unused fibers will be protected with a plastic cap to eliminate dust and moisture.
- Termination shall be facilitated by splicing factory OEM pigtails on the end of the
- Bare fiber utilizing the fusion splicing method. Pigtails shall be one meter in length.

CONSTRUCTION REQUIREMENTS

Experience Requirements.

Personnel involved in the installation, splicing and testing of the fiber optic cables shall meet the following requirements:

- A minimum of three (3) years experience in the installation of fiber optic cables, including fusion splicing, terminating and testing single mode fibers.
- Install two systems where fiber optic cables are outdoors in conduit and where the systems have been in continuous satisfactory operation for at least two years. The Contractor shall submit as proof, photographs or other supporting documents, and the names, addresses and telephone numbers of the operating personnel who can be contacted regarding the installed fiber optic systems.
- One fiber optic cable system (which may be one of the two in the preceding paragraph), which the Contractor can arrange for demonstration to the Department representatives and the Engineer.

Installers shall be familiar with the cable manufacturer's recommended procedures for installing the cable. This shall include knowledge of splicing procedures for the fusion splicer being used on this project and knowledge of all hardware such as breakout (furcation) kits and splice closures. The Contractor shall submit documented procedures to the Engineer for approval and to be used by Construction inspectors.

Personnel involved in testing shall have been trained by the manufacturer of the fiber optic cable test equipment to be used, in fiber optic cable testing procedures. Proof of this training shall be submitted to the Engineer for approval. In addition, the Contractor shall submit documentation of the testing procedures and a copy of the test equipment operation manual for approval by the Engineer.

Installation in Raceways.

The Contractor shall provide a cable-pulling plan, identifying where the cable will enter the underground system and the direction of pull. This plan will address locations where the cable is pulled out of a handhole, coiled in a figure eight, and pulled back into the hand hole. The plan shall address the physical protection of the cable during installation and during periods of downtime. The cable-pulling plan shall be provided to the Engineer for approval a minimum of 15 working days prior to the start of installation. The Engineer's approval shall be for the operation on the freeway and does not include an endorsement of the proposed procedures. The Contractor is responsible for the technical adequacy of the proposed procedures.

During cable pulling operations, the Contractor shall ensure that the minimum bending of the cable is maintained during the unreeling and pulling operations. Entry guide chutes shall be used to guide the cable into the handhole conduit ports. Lubricating compound shall be used to minimize friction. Corner rollers (wheels), if used, shall not have radii less than the minimum installation-bending radius of the cable. A series array of smaller wheels can be used for accomplishing the bend if the cable manufacturers specifically approve the array.

The pulling tension shall be continuously measured and shall not be allowed to exceed the maximum tension specified by the manufacturer of the cable. Fuse links and breaks can be used to ensure that the cable tensile strength is not exceeded. The pulling system shall have an audible alarm that sounds whenever a pre-selected tension level is reached. Tension levels shall be recorded continuously and shall be given to the Engineer.

The cable shall be pulled into the conduit as a single component, absorbing the pulling force in all tension elements. The central strength member and Aramid yarn shall be attached directly to the pulling eye during cable pulling. "Basket grip" or "Chinese-finger type" attachments, which only attach to the cable's outer jacket, shall not be permitted. A breakaway swivel, rated at 95% of the cable manufacturer's approved maximum tensile loading, shall be used on all pulls. When simultaneously pulling fiber optic cable with other cables, separate grooved rollers shall be used for each cable.

To minimize the exposure of the backbone cable and to facilitate the longer lengths of fiber optic cable, the Contractor shall use a "blown cable" (pneumatically assisted) technique to place the fiber optic cable.

Construction Documentation Requirements

Installation Practices for Outdoor Fiber Optic Cable Systems

The Contractor shall examine the proposed cable plant design. At least one month prior to starting installation of the fiber optic cable plant, the Contractor shall prepare and submit to the Engineer for review and approval, ten (10) copies of the Contractor's "Installation Practices for Outdoor Fiber Optic Cable Systems" manual. This manual shall address the Contractor's proposed practices covering all aspects of the fiber optic cable plant. This submittal shall include all proposed procedures, list of installation equipment, and splicing and test equipment. Test and quality control procedures shall be detailed as well as procedures for corrective action.

Operation and Maintenance Documentation

After the fiber optic cable plant has been installed, ten (10) complete sets of Operation and Maintenance Documentation shall be provided. The documentation shall, as a minimum, include the following:

- Complete and accurate as-built diagrams showing the entire fiber optic cable plant including locations of all splices.
- Final copies of all approved test procedures
- Complete performance data of the cable plant showing the losses at each splice location and each terminal connector.
- Complete parts list including names of vendors.

Testing Requirements

The Contractor shall submit detailed test procedures for approval by the Engineer. All fibers shall be tested bi-directionally at both 1310 nm and 1550 nm with both an Optical Time Domain Reflectometer (OTDR) and a power meter and optical source. For testing, intermediate breakout fibers may be concatenated and tested end-to-end. Any discrepancies between the measured results and these specifications will be resolved to the satisfaction of the Engineer.

The Contractor shall provide the date, time and location of any tests required by this specification to the Engineer at least 5 days before performing the test. Upon completion of the cable installation, splicing, and termination, the Contractor shall test all fibers for continuity, events above 0.1 dB, and total attenuation of the cable. The test procedure shall be as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter shall conduct the installation test. The Technician is directed to conduct the test using the standard operating procedures defined by the manufacturer of the test equipment. All fibers installed shall be tested in both directions.

The method of connectivity between the OTDR and the cable shall be a factory patch cord of a length equal to the "dead zone" of the OTDR. Optionally, the Technician can use a factory "fiber box" of 328 ft (100 m) minimum with no splices within the box. The tests shall be conducted at 1310 and 1550 nm for all fibers.

At the completion of the test, the Contractor shall provide two copies of documentation of the test results to the Project Engineer. The test documentation shall be submitted as both a bound copy and a CDROM and shall include the following:

Cable & Fiber Identification:

- Cable ID
- Cable Location - beginning and end point
- Fiber ID, including tube and fiber color
- Operator Name
- Date & Time

- Setup Parameters
- Wavelength
- Pulse width (OTDR)
- Refractory index (OTDR)
- Range (OTDR)
- Scale (OTDR)
- Setup Option chosen to pass OTDR “dead zone”

Test Results:

- OTDR Test
- Total Fiber Trace
- Splice Loss/Gain
- Events > 0.10 dB
- Measured Length (Cable Marking)
- Total Length (OTDR)
- Optical Source/Power Meter Total Attenuation (dB/km)

The OTDR test results file format must be Bellcore/Telcordia compliant according to GR-196-CORE Issue 2, OTDR Data Standard, GR 196, Revision 1.0, GR 196, Revision 1.1, GR 196, Revision 2.0 (SR-4731)

These results shall be provided in tabular form. The following shall be the criteria for the acceptance of the cable:

The test results shall show that the dB/km loss does not exceed +3% of the factory test or 1% of the cable's published production loss. However, no event shall exceed 0.10 dB. If any event is detected above 0.10 dB, the Contractor shall replace or repair the fiber including that event point.

The total loss of the cable (dB), less events, shall not exceed the manufacturer's production specifications as follows: 0.5 dB/km at both 1310 and 1550 nm.

If the total loss exceeds these specifications, the Contractor shall replace or repair that cable run at the no additional cost to the state, both labor and materials. Elevated attenuation due to exceeding the pulling tension during installation shall require the replacement of the cable run at the at no additional cost to the State, including labor and materials.

Splicing Requirements

Splices shall be made at locations shown on the Plans. Any other splices shall be permitted only with the approval of the Engineer.

All optical fibers shall be spliced as indicated on the Plans. If no information is provided, mainline splices will concatenate the fibers from the two cable segments, that is, the colors of the buffer tubes and fibers shall be the same across the splice. For splices that breakout the individual fibers, the fibers shall be spliced in accordance with the Plans.

Slack Storage of Fiber Optic Cables.

As part of these items, slack fiber shall be supplied as necessary to allow splicing the fiber optic cables in a controlled environment, such as a splicing van or tent. After splicing has been completed, the slack fiber shall be stored underground in handholes or in the raised base adapters of ground mounted cabinets.

Where identified on the plans, or as directed by the Engineer, additional lengths of fiber shall be stored, as maintenance coils. The aggregate lengths of the maintenance coils and the slack fiber will be used to repair and maintain the fiber optic cable.

Fiber optic cable shall be tagged inside handholes with yellow tape containing the text: "CAUTION - FIBER OPTIC CABLE." In addition, permanent tags, as approved by the engineer, shall be attached to all cable in a hand hole or other break-out environment. These tags shall be stainless steel, nominally 0.75" by 1.72", and permanently embossed. These tags shall be attached with stainless steel straps, and shall identify the cable number, the number of fibers, and the specific fiber count. Tags and straps shall be Panduit or approved equal.

Label the destination of each trunk cable onto the cable in each handhole, vault or cable termination panel.

Method of Measurement Fiber optic cable will be measured for payment in feet in place installed and tested. Fiber optic cable will be measured horizontally and vertically between the changes in direction, including slack cable. The cable length in the foundation of a termination or splice point will be accounted as 6 feet or the actual installed length which ever is less. The entire lengths of cables installed in buildings will be measured for payment

Basis of Payment This work will be paid for at the contract unit price per foot for **FIBER OPTIC CABLE** of the type, size, and number of fibers specified. Payment shall not be made until the cable is installed, spliced and tested in compliance with these special provisions.

FIBER OPTIC SPLICE

Effective: April 1, 2005

Description. The Contractor will splice optical fibers from different cable sheaths and protect them with a splice closure at the locations shown on the Plans. Fiber splicing consists of in-line fusion splices for all fibers described in the cable plan at the particular location.

Two splices are identified. A mainline splice includes all fibers in the cable sheath. In a lateral splice, the buffer tubes in the mainline cable are dressed out and those fibers identified on the plans are accessed in and spliced to lateral cables.

Materials.

Splice Closures. Splice Closures shall be designed for use under the most severe conditions such as moisture, vibration, impact, cable stress and flex temperature extremes as demonstrated by successfully passing the factory test procedures and minimum specifications listed below:

Physical Requirements. The closures shall provide ingress for up to four cables in a butt configuration. The closure shall prevent the intrusion of water without the use of encapsulates.

The closure shall be capable of accommodating splice organizer trays that accept mechanical, or fusion splices. The splice closure shall have provisions for storing fiber splices in an orderly manner, mountings for splice organizer assemblies, and space for excess or un-spliced fiber. Splice organizers shall be re-enterable. The splice case shall be UL rated.

Closure re-entry and subsequent reassembly shall not require specialized tools or equipment. Further, these operations shall not require the use of additional parts.

The splice closure shall have provisions for controlling the bend radius of individual fibers to a minimum of 38 mm (1.5 in.).

Factory Testing.

Compression Test. The closure shall not deform more than 10% in its largest cross-sectional dimension when subjected to a uniformly distributed load of 1335 N at temperatures of –18 and 38 degrees Celsius (0 and 100 degrees Fahrenheit). The test shall be performed after stabilizing at the required temperature for a minimum of two hours. It shall consist of placing an assembled closure between two flat parallel surfaces, with the longest closure dimension parallel to the surfaces. The weight shall be placed on the upper surface for a minimum of 15 minutes. The measurement shall then be taken with weight in place.

Impact Test. The assembled closure shall be capable of withstanding an impact of 28 N-M at temperatures of –18 and 38 degrees Celsius (0 and 100 degrees Fahrenheit). The test shall be performed after stabilizing the closure at the required temperature for a minimum of 2 hours. The test fixture shall consist of 9 kg (20 lb) cylindrical steel impacting head with a 50 mm (2 in.) spherical radius at the point where it contacts the closure. It shall be dropped from a height of 305 mm (12 in.). The closure shall not exhibit any cracks or fractures to the housing that would preclude it from passing the water immersion test. There shall be no permanent deformation to the original diameter or characteristic vertical dimension by more than 5%.

Cable Gripping and Sealing Testing. The cable gripping and sealing hardware shall not cause an increase in fiber attenuation in excess of 0.05 dB/fiber @ 1550 nm when attached to the cables and the closure assembly. The test shall consist of measurements from six fibers, one from each buffer tube or channel, or randomly selected in the case of a single fiber bundle. The measurements shall be taken from the test fibers before and after assembly to determine the effects of the cable gripping and sealing hardware on the optical transmission of the fibers.

Vibration Test. The splice organizers shall securely hold the fiber splices and store the excess fiber. The fiber splice organizers and splice retaining hardware shall be tested per EIA Standard FOTP-II, Test Condition 1. The individual fibers shall not show an increase in attenuation in excess of 0.1 dB/fiber.

Water Immersion Test. The closure shall be capable of preventing a 3 m (10 ft) water head from intruding into the splice compartment for a period of 7 days. Testing of the splice closure is to be accomplished by the placing of the closure into a pressure vessel and filling the vessel with tap water to cover the closure. Apply continuous pressure to the vessel to maintain a hydrostatic head equivalent 3 m (10 ft) on the closure and cable. This process shall be continued for 30 days. Remove the closure and open to check for the presence of water. Any intrusion of water in the compartment containing the splices constitutes a failure.

Certification. It is the responsibility of the Contractor to insure that either the manufacturer, or an independent testing laboratory has performed all of the above tests, and the appropriate documentation has been submitted to the Department. Manufacturer certification is required for the model(s) of closure supplied. It is not necessary to subject each supplied closure to the actual tests described herein.

CONSTRUCTION REQUIREMENTS

The closure shall be installed according to the manufacturer's recommended guidelines. For mainline splices, the cables shall be fusion spliced. 45 days prior to start of the fiber optic cabling installation, the Contractor shall submit the proposed locations of the mainline splice points for review by the Department.

The Contractor shall prepare the cables and fibers in accordance with the closure and cable manufacturers' installation practices. A copy of these practices shall be provided to the Engineer 21 days prior to splicing operations.

Using a fusion splicer, the Contractor shall optimize the alignment of the fibers and fuse them together. The Contractor shall recoat the fused fibers and install mechanical protection over them.

Upon completing all splicing operations for a cable span, the Contractor shall measure the mean bi-directional loss at each splice using an Optical Time Domain Reflectometer. This loss shall not exceed 0.1 dB.

The Contractor shall measure the end-to-end attenuation of each fiber, from connector to connector, using an optical power meter and source. This loss shall be measured at from both directions and shall not exceed 0.5 dB per installed kilometer of single mode cable. Measurements shall be made at both 1300 and 1550 nm for single mode cable. For multimode cable, power meter measurements shall be made at 850 and 1300 nm. The end-to-end attenuation shall not exceed 3.8 dB/installed kilometers at 850nm or 1.8 dB per installed kilometer at 1300nm for multimode fibers.

As directed by the Engineer, the Contractor at no additional cost to the Department shall replace any cable splice not satisfying the required objectives.

The Contractor shall secure the Splice Closure to the side of the splice facility using cable support brackets. All cables shall be properly dressed and secured to rails or racks within the manhole. No cables or enclosures will be permitted to lie on the floor of the splice facility. Cables that are spliced inside a building will be secured to the equipment racks or walls as appropriate and indicated on the Plans.

Method of Measurement. Fiber optic splice of the type specified will be measured as each, completely installed and tested with all necessary splices completed within the enclosure, and the enclosure secured to the wall of the splice facility.

Basis of Payment. This item shall be paid at the contract unit price each for **FIBER OPTIC SPLICE, LATERAL** or **FIBER OPTIC SPLICE, MAINLINE** of the type specified, which shall be payment in full for the work, complete, as specified herein.

CCTV DISTRIBUTION SUBSYSTEM

Effective: April 1, 2005

1. Description.

The CCTV Distribution Subsystem shall be generally configured as indicated on the plans to collect video images and connect control from field mounted cameras to the Nordic Road Communications Hut and at the District 1 Communications Center. The work under this Special Provision shall include subsystem integration, complete, coordinated submittals as specified, staged installation and activation, complete record documentation, system maintenance during construction, all as specified.

The system shall utilize existing CCTV elements to the extent indicated but shall otherwise include all materials and equipment necessary to provide a complete operating system. Cameras that are provided under this contract are specified as separate pay items and the connection of these cameras is covered under separate pay item work. The work under this Special Provision includes the coordination with camera equipment provided under this contract and coordination with existing CCTV equipment as indicated, including adjustments of or supplements to the remote equipment as may be required, but in general, the CCTV Distribution System work shall encompass physical interface to electrical power, fiber optic cable, relocation of equipment at the Nordic Road Hut and existing devices as indicated at the Nordic Road communications Hut.

Unless otherwise indicated, all existing CCTV equipment and systems that are removed from service shall remain property of the Department and shall be appropriately removed and delivered in working order in safe storage packing to the Engineer at a designated location within District 1.

2. **Coordination with other Pay Items.**

The system shall be provided as a complete, integrated whole. All wiring, cabling and other provisions necessary to connect and integrate components within each location shall be include.

3. **Interconnecting Wiring.**

All wiring, cabling, and other provisions necessary to connect the installed system package to power panel boards, fiber optic patch panels, grounding systems, etc. at the Nordic hut location shall be included as part of this item

4. **Maintenance of Existing CCTV System.**

Maintenance of the existing CCTV System shall be transferred from the ASMC (Advanced Systems Maintenance Contract) to the contractor from the time that access to the existing system is needed for field installation of the system expansion until final acceptance of the expanded system.

The existing system shall remain in essentially continuous operation, with limited downtime as approved in advance, in writing, by the Engineer.

5. **Materials**

5.1 **Coaxial Cable.** The coax cable shall be a Belden 1694A precision video cable, or approved equal complying with the following specifications. The center conductor shall be a 18 AWG, Solid Bare Copper conductor, the insulation shall be Gas Injected Foam High Density Polyethylene, and the shield shall consist of an Aluminum Foil-Polyester outer shield with 100% shield coverage plus tinned copper Braid Shield with 95% shield coverage. For installations in shelters, the jacket material shall be Polyvinyl Chloride, suitable for indoor and outdoor-aerial applications.

For installation at the District 1 Communications Center, the coaxial cable shall be plenum rated in accordance with NEC 800-51(a). The coax shall be equivalent to Belden 1695A 0071000.

Applicable Specifications: UL/NEC CMR, C(UL) CEC CMG. Flame Resistance: UL 1666 Vertical Shaft, CSA T4.

Electrical Characteristics:

| | |
|--|------------------------------|
| Impedance: | 75 +/- 1.5 ohms |
| Inductance: | 0.106 microH/ft. |
| Capacitance Conductor Shield: | 16.2 pF/ft. (nominal) |
| Velocity Of Propagation: | 82 % (nominal) |
| Delay: | 1.24 nS/ft. (nominal) |
| Nom. Conductor Dc Resistance @ Deg. C: | 206.4 ohms/1000 ft. |
| Nom. Shield Dc Resistance @ 20 Deg. C: | 2.8 ohms/1000 ft. |
| Return Loss: | 23dB minimum, 5 - 850 MHz |
| | 21dB minimum, 851 – 3000 MHz |
| Max. Operating Voltage: | not less than 300 Vrms (UL) |

| Nominal Attenuation | | | | |
|----------------------------|-----------|--|------|-----------|
| MHz | dB/100 ft | | MHz | dB/100 ft |
| 1.0 | .24 | | 180 | 2.42 |
| 3.6 | .45 | | 270 | 2.97 |
| 5.0 | .54 | | 360 | 3.43 |
| 7.0 | .63 | | 540 | 4.25 |
| 10.0 | .72 | | 720 | 4.95 |
| 67.5 | 1.57 | | 750 | 5.00 |
| 71.5 | 1.60 | | 1000 | 5.89 |
| 88.5 | 1.75 | | 1500 | 7.33 |
| 100.0 | 1.84 | | 2000 | 8.57 |
| 135.0 | 2.10 | | 2250 | 9.14 |
| 143.0 | 2.16 | | 3000 | 10.67 |

Physical Characteristics:

| | |
|----------------------------|---|
| Temperature Rating: | - 30 TO + 75 DEG. C |
| Min. Bend Radius: | 10x cable O.D. or 2.75" |
| Max. Pulling Tension: | 69 LBS |
| Nom. Weight/1000 ft: | 40 LBS |
| Jacket Color: | BLACK for CMG cable; violet for CMP cable |
| Applicable Specifications: | UL/NEC: CMR/CMP C(UL)/CEC: CMG |
| Flame Resistance: | UL: 1666 VERTICAL SHAFT CSA: FT4 |

Coaxial connectors shall be BNC or as required by the equipment to which the cables connect. The connectors shall be attached to the cable by crimping or by a cord-grip clamping action. Connectors shall be plated for corrosion resistance and good electrical connections. All BNC connectors shall be physically designed to fit the specified cable without adaptation and shall have a characteristic impedance of 75 ohms. Connectors with a characteristic impedance of 50 ohms are not acceptable and shall be replaced by the Contractor at no additional cost to the State.

Connectors shall be Amphenol part number 31-70000 or approved equal.

- 5.2 **Interconnecting Wiring.** All wiring, cabling, and other provisions necessary to connect the installed system package to power panel boards, fiber optic patch panels, grounding systems, etc. at each nodal location shall also be included as part of this item. Where the plans indicate wire and cable that exceeds immediate installed system use, the spare cables shall be labeled and terminated, and where terminated at equipment rack locations, the lengths of any spares shall be first approved by the Engineer as suitable for extension to future equipment in the line-up.
- 5.3 **Video Distribution Amplifiers.** Video distribution amplifiers shall be high performance, high impedance design with an input loop-through connection. The amplifier shall include adjustable signal gain, peaking/sharpness controls, and cable equalization. The distribution amplifiers shall meet the following requirements:

| Requirement | Criteria |
|--------------------------|---|
| Bandwidth | 29MHz (-3dB) minimum |
| Gain | -3dB to +3dB adjustable (0.7Vp-p to 1.5Vp-p output when input level is 1.0Vp-p) |
| Input levels | 0.4v to 2.0v with no offset at unity gain |
| Connectors | BNC |
| Impedance | 75 Ohms |
| Return Loss | greater than 35dB at 5 MHz |
| Differential Phase Error | +/- 0.1° to 5 Mhz |
| Differential Phase Error | +/- 0.1% to 5 Mhz |
| Frequency Response | +/- 0.1 dB to 5Mhz |
| Input connections | 1 composite video |
| Output connections | four (4) minimum, as indicated on plans, one (1) composite loop-through |

The distribution amplifiers shall be rack mounted in 3 RU rack mounted frame with an integral power supply. Multiple single channel video distribution amplifiers placed on or fastened to a rack mount shelf will not be acceptable. Corded modular power supplies will also be unacceptable.

- 5.4 **In-rack video display clusters.** The modular maintenance video display clusters shall have four 4-inch (diagonal measure), active matrix LCD displays with signal loop-through in a 2U rack-mount frame. Each display shall be 480 x 234 pixels and shall be NTSC compatible with individual color, tint, and brightness controls. The dot pitch of the displays shall be 0.171mm x 0.264mm. Each display shall have a minimum brightness of 300 cd/m². The modular maintenance video display clusters shall be Marshall Electronics model V-R44P or approved equal.

The entire display rack cluster shall have one common on/off switch for all video cluster rack displays. The switch may be mounted in the front panel of a 1RU shelf with the individual power supplies secured to the shelf or as otherwise approved by the Engineer. All components must be properly rated for the loads involved.

- 5.5 **Fiber Optic CWDM Chassis and Power Supply.**

Chassis. The chassis shall provide support for rack mounting the specified CWDM cards. The chassis shall be compatible with EIA 19" rack mount standards, and be 4RU high (7.0 "). The 4RU chassis 21 slot chassis shall support any combination of up cards requiring up to 18 slots with 1 power supply, or 15 slots and 2 independent, automatically redundant power supplies. The chassis shall have Power, System, and Network indicators for status information, and support the network management system for monitoring system operation. The chassis shall support an optional PC-based management system for monitoring and logging operating status and conditions. The units shall operate over a -40°C to +74°C temperature range, and have an MTBF of >100,000 hours, be CE marked, manufactured by an ISO 9001 company, and include a lifetime warranty.

The chassis shall support cards in a manner that allows all electrical and optical connections to be made from the front of the card, and to allow hot-swapping of cards without affecting operation of other cards in the chassis. The chassis shall include reversible mounting ears enabling front or rear mounting. Vertical flow-through ventilation shall be incorporated in the chassis design.

Power monitoring: Multicolor LED indicates all power supplies within spec; one or more power supplies out of spec; no power supplies operating. System monitoring: Multicolor LED indicates no card faults or presence of one or more card faults. Network monitoring: LED blinks when an installed Network Management System card is polled by Network Management Software.

Power Supply. The Power Supply shall mount in any 3 slots of the chassis and provide 6VDC output power to the backplane of the chassis. The power supply shall be available with an optional fan. Up to two power supplies may be installed in any one chassis to provide dual redundant power sharing or primary/secondary backup operation. The power supply shall have trimpot adjustment of output voltage, and include front panel jacks to monitor output voltage, raw power supply voltage, output current and internal temperature. It shall include indicators for Over Current, Voltage Fault, Over Temperature, and Fan Failure. The power supplies shall be compatible with input voltages of 100-240 VAC and 50-60 Hz., operate over a -40° C to +74°C temperature range per with reduced specifications at temperatures over 50° C, and operate with 0% to 95% non-condensing humidity. The units shall be have an MTBF of >100,000 hours, be UL and CSA listed, CE marked, manufactured by an ISO 9001 company, and offer a lifetime warranty.

The DC output shall be isolated, allowing use of redundant power supplies operated in parallel. The unit shall be manufactured with a circuit card having UL 94 V0 FR4 ratings and meeting relevant IPC standards. The unit shall be listed under UL.

The power supply shall be rated for operation with input voltages from 100 to 240 VAC. Minimum power output shall be as follows:

| Item | Requirement |
|---------------------------------------|---------------------------------------|
| Output Voltage | 6 VDC |
| Max. output current at 50° C | 24A |
| Max. output current at 74° C | 13.5A |
| UL Rated Max. output current at 50° C | 24A |
| UL Rated Max. output current at 50° C | 13.5A |
| Alarms | V_{out} , I_{out} , Temp, and Fan |

One power supply shall be provided for each chassis.

5.6 **Fiber Optic 8-Channel Video and Data Transmitter/Receiver Cards.**

General. The fiber optic transmitter/receiver pair shall transport eight channels of high quality composite real time video NTSC, PAL, or SECAM video using 10-bit digital PCM coding in one direction over one fiber without use of any video compression in one direction over one optical wavelength with data. Data transmission shall be as follows: Units designated to transport data shall transport 8 simplex video and four channels duplex data and one channel simplex data over 1 optical wavelength using digital transmission techniques. Units not specifically designated to transport data shall transport 8 simplex video channels and five channels of simplex data over one optical wavelength using digital transmission techniques. The unit shall support a PC-based management system for monitoring and logging of operational status and condition. The units shall be CWDM compatible as detailed elsewhere herein.

All fiber optic transmission units shall be from the same manufacturer. For compatibility with existing installed equipment and maintenance facilitation, the units shall be manufactured by Optelecom Inc. Approved equal equipment of other manufacturers may used only where the substitutes are mechanically, electrically, and optically identical and interchangeable with the specified units.

The units shall occupy 2 slots in the standard 19-inch rack chassis and shall be hot swappable, allowing the insertion or removal of the unit while power is applied to the chassis without damage or affecting other cards installed in the same chassis. A 4 rack unit (RU) high chassis, with 21 single slot capacity shall hold up to nine 2 slot units and 1 power supply.

Video. The transmitter unit shall have a power, sync, loop and no sync indicators, and the receiver shall have error, sync and no CD indicators to provide visual indication of system status. The video inputs shall be via BNC connector, with the following video specifications:

- 75 ohms input/output impedance
- video bandwidth of 2 Hz to 6.5Mhz (-3 dB)
- SNR of ≥ 67 dB weighted per RS250C standards over the entire optical budget.
- Differential Gain $\leq 0.7\%$
- Differential Phase $\leq 0.7^\circ$
- Encoding: 10 bit linear PCM encoding and decoding for each video channel.
- Manual gain or video level adjustments shall not be required for setup or operation.
- 1.44 Gbps bit rate over fiber.
- 15 MHz sampling rate.

Optical. The units shall be available in both multimode and single mode versions. Fiber optic connectors shall be ST type. Single mode units shall also be available in CWDM versions with a separate fiber for the reverse data channel. Unless specifically indicated elsewhere, single mode, CWDM units shall be provided. The following wavelengths (in nm) shall be available: 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610, 1270, 1290, 1310, 1330, 1350, 1370, 1390, 1410, 1430, and 1450. The optical budget shall be a minimum 23 db (T to R) and minimum 23 db (R to T).

Enviormental. The units shall operate over a -40° C to +74°C temperature range, 0% to 95% non-condensing humidity range and shall have an MTBF of >100,000 hours. The Manufacturer shall be an ISO 9001 certified company, and offer a lifetime warranty. The cards shall be manufacturer in accordance with UL 94 V0 FR4. The individual units shall have self-resetting solid-state current limiting devices to prevent a single-point failure from becoming a system failure.

Data Transmission. Units designated as data transport units shall have the following data transmission capabilities/functions:

| Data Ch. Number | Function | Connection |
|-----------------|--|---|
| 1 | Duplex (bi-directional) RS485 two wire, DC to 115.2 kbps | RJ12 |
| 2 | Duplex (bi-directional) RS232, TX and RX (3 wire), DC to 115.2 kbps | These two ports share an RJ45 connector |
| 3 | Duplex (bi-directional) switch-selectable RS422 2- or 4-wire, RS485 2 or 4 wire, DC to 115.2 kbps, or Manchester PTZ (Bosch compatible) 32 kbps | |
| 4 | Simplex RS422, clock and data (15 Mbps), asynchronous (DC to 1.5 Mbps), clock sourced by transceiver. Supports add-on audio/data interface cards | RJ45 |
| 5 | Duplex RS422, clock and data (15 Mbps), asynchronous (DC to 1.5 Mbps), clock sourced by transceiver. Supports add-on audio/data interface cards | RJ45 |

Units not specifically designated as data transport units shall have the following minimum data transmission capabilities/functions:

| Data Ch. Number | Function | Connection |
|-------------------------|---|---|
| 1 (RS485) | Simplex RS485 2-wire (DC to 115.2 kbps) | RJ12 |
| 2-3 (DATA) | Two simplex data channels: one RS232 and one switch selectable RS422 or RS485 2-wire (DC to 115.2 kbps) or Manchester PTZ (American Dynamics or Burle compatible) | These two ports share an RJ45 connector |
| 4-5 (HS AUX SIMPLEX) | Two simplex high-speed RS422, clock and data (15 Mbps), asynchronous (DC to 1.5 Mbps), clock sourced by transceiver. Supports add-on audio/data interface cards. | 2 RJ45 connectors |

5.7 Fiber Optic CWDM Multiplexer/Demultiplexer cards

General. The fiber optic Multiplexer/Demultiplexer cards shall

The units shall support a PC-based management system for monitoring and logging of operational status and condition.

All fiber optic cards used in the CWDM system shall be from the same manufacturer. For compatibility with existing installed equipment and maintenance facilitation, the units shall be manufactured by Optelecom Inc. Approved equal equipment of other manufacturers may used only where the substitutes are mechanically, electrically, and optically identical and interchangeable with the specified units.

The Fiber Optic Coarse Wave Division Multiplexer/Demultiplexer (CWDM) shall combine or split 2, 4, 6, or 16 wavelengths as required for CWDM optical fiber transmission systems, and shall support an additional 1310 nm channel in either direction. The units shall be rack mount and be mechanically compatible with video multiplexer/demultiplexer equipment specified elsewhere herein.

The units (except for the 16+1 channel which shall occupy a full 1RU space with an integral power supply) shall occupy 2 slots in the standard 19-inch rack chassis and be hot swappable, allowing the insertion or removal of the unit while power is applied to the chassis without damage or affecting other cards installed in the same chassis. A 4 rack unit (RU) high chassis, with 21 single slot capacity shall hold up to nine 2 slot units and 1 power supply.

Optical. Fiber optic connectors shall be ST type. The units shall support the following wavelengths:

| Number of Optical Channels per card | Optical Wavelengths (in nm) |
|-------------------------------------|--|
| 2 + 1 data | 1310, 1550, 1570 |
| 4 + 1 data | 1310, 1510, 1530, 1550, 1570 |
| 6 + 1 data | 1310, 1510, 1530, 1550, 1570, 1590, 1610 |
| 8 + 1 data | 1270, 1290, 1310, 1330, 1350, 1370, 1410, 1430, and 1450 |
| 16 + 1 data | 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610, 1270, 1290, 1310, 1330, 1350, 1370, 1390, 1410, 1430, and 1450 |

The cards shall have a CWDM channel directivity of >40 dB and an adjacent channel isolation of >30 dB.

Insertion losses shall be as follows:

| Optical Channels per card | | Insertion Loss (dB) | |
|---------------------------|----|---------------------|---------|
| | | Typical | Maximum |
| 2 + 1 data | Tx | 2.75 | 3.75 |
| | Rx | 3.0 | 4.0 |
| 4 + 1 data | Tx | 3.25 | 4.25 |
| | Rx | 3.5 | 4.5 |
| 6 + 1 data | Tx | 3.75 | 4.75 |
| | Rx | 4.0 | 5.0 |
| 8 + 1 data | Tx | 3.0 | 5.5 |
| | Rx | 3.0 | 5.5 |
| 16 + 1 data | Tx | 3.0 | 5.5 |
| | Rx | 3.0 | 5.5 |
| Return Channel (1310) | | 1.0 | 1.5 |

Environmental. The units shall operate over a -40° C to +74°C temperature range, 0% to 95% non-condensing humidity range and shall have an MTBF of >100,000 hours. The Manufacturer shall be an ISO 9001 certified company, and offer a lifetime warranty. The cards shall be manufacturer in accordance with UL 94 V0 FR4. The individual units shall have self-resetting solid-state current limiting devices to prevent a single-point failure from becoming a system failure.

6. Final Documentation.

The system shall not be complete until the delivery and approval of final documentation of the installed system. Documentation shall be provided in both hard-copy and electronic format. Hard copy documentation shall be in triplicate in heavy-duty piano-hinge binders or other rugged bindings as approved by the Engineer, and each lot of documentation shall be in rugged plastic or metal storage containers suitable for future access of materials. Electronic format documentation shall be PDF on CD media, in duplicate, and in a rugged positive-closure hard-shell container.

Documentation shall include but not be limited to approved copies of all submittal material complete with any modifications and corrections made in the course of construction, all test plans and test results, bid drawings marked to indicate all changes and field adjustments made in the course of construction, and all installation and maintenance manuals.

The Contractor shall provide a maintenance history for each piece of electronic equipment provided on this project. This history shall include the equipment type, model and serial numbers, date of manufacture, date and location of installation, date of all associated tests required by these Special Provisions and the performance of the equipment during these tests. Any maintenance activity performed on the unit because of a failure shall be documented, and shall include: an explanation of all failures, date that the equipment was removed from a cabinet, the repairs that were made, the date and nature of any tests made to check the correct operation of the unit, and the date and the location where the unit was reinstalled in the field.

7. Method of Measurement.

The CCTV distribution subsystem shall be counted for payment when furnished and installed, connected, field tested and accepted. A 33% payment will be allowed when all sub-systems are installed. An additional 33% payment will be allowed for individual sub-systems as they are installed and made operational. The remaining payment will be allowed when all sub-systems have been installed, connected and passed installed operational testing and when all documentation has been completed, delivered and approved by the Engineer

8. Basis of Payment.

This item will be paid for at the contract unit price each for **CCTV DISTRIBUTION SUBSYSTEM**, which shall be payment in full for all material and work as specified herein.

ELECTRIC CABLE NO. 19, 25 PAIR (INSTALL ONLY)

Effective: May 2, 2005

Description. This item shall consist of retrieving from State Stock and installing cable in accordance with applicable sections of Article 817 of the Standard Specification for Road and Bridge Construction.

Revise Article 817.02 to read:

“The Contractor shall request to pick up the cable from state stock no later than 72 hours prior to pick up date.”

Installation shall be in accordance with Article 817.03 with the following addition:

“The cable shall be installed in 1-¼” Inner duct or as otherwise noted in plans.

There shall be two splices, one in a junction box 5 feet south of Algonquin Rd. and one in a handhole approximately 1200 feet south of Golf Rd. The splices shall be waterproof. The splices shall be a Korshem-HT & T Headguard 900 43/8-450 or approved equal. Any other splices shall be approved by the Engineer.

The Contractor shall perform a continuity test prior to and after installation. These tests shall be done in the presence of the Engineer.

The Contractor shall leave 5 ft. of slack in each handhole.”

Revise Article 817.05 to read:

“This work will be paid for at the contract unit price per foot installed for ELECTRIC CABLE, NO. 19, 25 PAIR (INSTALL ONLY) which shall include all work as described herein.”

CONCRETE ADMIXTURES (BDE)

Effective: January 1, 2003

Revised: July 1, 2004

Revise Article 1020.05(b) of the Standard Specifications to read:

“(b) Admixtures. Except as specified, the use of admixtures to increase the workability or to accelerate the hardening of the concrete will be permitted only when approved in writing by the Engineer. The Department will maintain an Approved List of Concrete Admixtures. When the Department permits the use of a calcium chloride accelerator, it shall be according to Article 442.02, Note 5.

When the atmosphere or concrete temperature is 18 °C (65 °F) or higher, a retarding admixture meeting the requirements of Article 1021.03 shall be used in the Class BD Concrete and portland cement concrete bridge deck overlays. The amount of retarding admixture to be used will be determined by the Engineer. The proportions of the ingredients of the concrete shall be the same as without the retarding admixture except that the amount of mixing water shall be reduced, as may be necessary, in order to maintain the consistency of the concrete as required. In addition, a high range water-reducing admixture shall be used in Class BD Concrete. The amount of high range water-reducing admixture will be determined by the Engineer. At the option of the Contractor, a water-reducing admixture may be used. Type I cement shall be used.

For Class PC and PS Concrete, a retarding admixture may be added to the concrete mixture when the concrete temperature is 18 °C (65 °F) or higher. Other admixtures may be used when approved by the Engineer, or if specified by the contract. If an accelerating admixture is permitted by the Engineer, it shall be the non-chloride type.

At the Contractor’s option, admixtures in addition to an air-entraining admixture may be used for Class PP-1 concrete. The accelerator shall be the non-chloride type. If a water-reducing or retarding admixture is used, the cement factor may be reduced a maximum 18 kg/cu m (0.30 hundredweight/cu yd). If a high range water-reducing admixture is used, the cement factor may be reduced a maximum 36 kg/cu m (0.60 hundredweight/cu yd). Cement factor reductions shall not be cumulative when using multiple admixtures. An accelerator shall always be added prior to a high range water-reducing admixture, if both are used.

If Class C fly ash or ground granulated blast-furnace slag is used in Class PP-1 concrete, a water-reducing or high range water-reducing admixture shall be used. However, the cement factor shall not be reduced if a water-reducing, retarding, or high range water-reducing admixture is used. In addition, an accelerator shall not be used.

For Class PP-2 or PP-3 concrete, a non-chloride accelerator followed by a high range water-reducing admixture shall be used, in addition to the air-entraining admixture. For Class PP-3 concrete, the non-chloride accelerator shall be calcium nitrite.

For Class PP-2 or PP-3 concrete, the Contractor has the option to use a water-reducing admixture. A retarding admixture shall not be used unless approved by the Engineer. A water-reducing, retarding, or high range water-reducing admixture shall not be used to reduce the cement factor.

When the air temperature is less than 13 °C (55 °F) for Class PP-1 or PP-2 concrete, the non-chloride accelerator shall be calcium nitrite.

For Class PP-4 concrete, a high range water-reducing admixture shall be used in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture. An accelerator shall not be used. For stationary or truck mixed concrete, a retarding admixture shall be used to allow for haul time. The Contractor has the option to use a mobile portland cement concrete plant according to Article 1103.04, but a retarding admixture shall not be used unless approved by the Engineer. A water-reducing, retarding, or high range water-reducing admixture shall not be used to reduce the cement factor.

If the Department specifies a calcium chloride accelerator for Class PP-1 concrete, the maximum chloride dosage shall be 1.0 L (1.0 quart) of solution per 45 kg (100 lb) of cement. The dosage may be increased to a maximum 2.0 L (2.0 quarts) per 45 kg (100 lb) of cement if approved by the Engineer. If the Department specifies a calcium chloride accelerator for Class PP-2 concrete, the maximum chloride dosage shall be 1.3 L (1.3 quarts) of solution per 45 kg (100 lb) of cement. The dosage may be increased to a maximum 2.6 L (2.6 quarts) per 45 kg (100 lb) of cement if approved by the Engineer.

For Class PV, MS, SI, RR, SC and SH concrete, at the option of the Contractor, or when specified by the Engineer, a water-reducing admixture or a retarding admixture may be used. The amount of water-reducing admixture or retarding admixture permitted will be determined by the Engineer. The air-entraining admixture and other admixtures shall be added to the concrete separately, and shall be permitted to intermingle only after they have separately entered the concrete batch. The sequence, method and equipment for adding the admixtures shall be approved by the Engineer. The water-reducing admixture shall not delay the initial set of the concrete by more than one hour. Type I cement shall be used.

When a water-reducing admixture is added, a cement factor reduction of up to 18 kg/cu m (0.30 hundredweight/cu yd), from the concrete designed for a specific slump without the admixture, will be permitted for Class PV, MS, SI, RR, SC and SH concrete. When an approved high range water-reducing admixture is used, a cement factor reduction of up to 36 kg/cu m (0.60 hundredweight/cu yd), from a specific water cement/ratio without the admixture, will be permitted based on a 14 percent minimum water reduction. This is applicable to Class PV, MS, SI, RR, SC and SH concrete. A

cement factor below 320 kg/cu m (5.35 hundredweight/cu yd) will not be permitted for Class PV, MS, SI, RR, SC and SH concrete. A cement factor reduction will not be allowed for concrete placed underwater. Cement factor reductions shall not be cumulative when using multiple admixtures.

For use of admixtures to control concrete temperature, refer to Articles 1020.14(a) and 1020.14(b).

The maximum slumps given in Table 1 may be increased to 175 mm (7 in.) when a high range water-reducing admixture is used for all classes of concrete except Class PV and PP.”

Revise Section 1021 of the Standard Specifications to read:

“SECTION 1021. CONCRETE ADMIXTURES”

1021.01 General. Admixtures shall be furnished in liquid form ready for use. The admixtures may be delivered in the manufacturer's original containers, bulk tank trucks or such containers or tanks as are acceptable to the Engineer. Delivery shall be accompanied by a ticket which clearly identifies the manufacturer and trade name of the material. Containers shall be readily identifiable to the satisfaction of the Engineer as to manufacturer and trade name of the material they contain.

Prior to inclusion of a product on the Department's Approved List of Concrete Admixtures, the manufacturer shall submit a report prepared by an independent laboratory accredited by the AASHTO Accreditation Program. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications.

Tests shall be conducted using materials and methods specified on a "test" concrete and a "reference" concrete, together with a certification that no changes have been made in the formulation of the material since the performance of the tests. Per the manufacturer's option, the cement content for all required tests shall either be according to applicable specifications or 335 kg/cu m (5.65 cwt/cu yd). Compressive strength test results for six months and one year will not be required.

In addition to the report, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The test and reference concrete mixture shall contain a cement content of 335 kg/cu m (5.65 cwt/cu yd). The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by the AASHTO Accreditation Program.

Prior to the approval of an admixture, the Engineer may conduct all or part of the applicable tests on a sample that is representative of the material to be furnished. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 335 kg/cu m (5.65 cwt/cu yd). For freeze-thaw testing, the Department will perform the test according to Illinois Modified AASHTO T 161, Procedure B.

The manufacturer shall include in the submittal the following information according to ASTM C 494; the average and manufacturing range of specific gravity, the average and manufacturing range of solids in the solution, and the average and manufacturing range of pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

When test results are more than seven years old, the manufacturer shall re-submit the infrared spectrophotometer trace and the report prepared by an independent laboratory accredited by the AASHTO Accreditation Program.

All admixtures, except chloride-based accelerators, shall contain no more than 0.3 percent chloride by mass (weight).

1021.02 Air-Entraining Admixtures. Air-entraining admixtures shall conform to the requirements of AASHTO M 154.

If the manufacturer certifies that the air-entraining admixture is an aqueous solution of Vinsol resin that has been neutralized with sodium hydroxide (caustic soda), testing for compliance with the requirements may be waived by the Engineer. In the certification, the manufacturer shall show complete information with respect to the formulation of the solution, including the number of parts of Vinsol resin to each part of sodium hydroxide. Before the approval of its use is granted, the Engineer will test the solution for its air-entraining quality in comparison with a solution prepared and kept for that purpose.

1021.03 Retarding and Water-Reducing Admixtures. The admixture shall comply with the following requirements:

- (a) The retarding admixture shall comply with the requirements of AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) The water-reducing admixture shall comply with the requirements of AASHTO M 194, Type A.
- (c) The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).

When a Type F or Type G high range water-reducing admixture is used, water-cement ratios shall be a minimum of 0.32.

Type F or Type G admixtures may be used, subject to the following restrictions:

For Class MS, SI, RR, SC and SH concrete, the water-cement ratio shall be a maximum of 0.44.

The Type F or Type G admixture shall be added at the jobsite unless otherwise directed by the Engineer. The initial slump shall be a minimum of 40 mm (1 1/2 in.) prior to addition of the Type F or Type G admixture, except as approved by the Engineer.

When a Type F or Type G admixture is used, retempering with water or with a Type G admixture will not be allowed. An additional dosage of a Type F admixture, not to exceed 40 percent of the original dosage, may be used to retemper concrete once, provided set time is not unduly affected. A second retempering with a Type F admixture may be used for all classes of concrete except Class PP and SC, provided that the dosage does not exceed the dosage used for the first retempering, and provided that the set time is not unduly affected. No further retempering will be allowed.

Air tests shall be performed after the addition of the Type F or Type G admixture.

1021.04 Set Accelerating Admixtures. The admixture shall comply with the requirements of AASHTO M 194, Type C (accelerating) or Type E (water reducing and accelerating)”

80094

CURING AND PROTECTION OF CONCRETE CONSTRUCTION (BDE)

Effective: January 1, 2004

Revise the second and third sentences of the eleventh paragraph of Article 503.06 of the Standard Specifications to read:

“Forms on substructure units shall remain in place at least 24 hours. The method of form removal shall not result in damage to the concrete.”

Delete the twentieth paragraph of Article 503.22 of the Standard Specifications.

Revise the “Unit Price Adjustments” table of Article 503.22 of the Standard Specifications to read:

| “UNIT PRICE ADJUSTMENTS | |
|---|----------------------------------|
| Type of Construction | Percent Adjustment in Unit Price |
| For concrete in substructures, culverts (having a waterway opening of more than 1 sq m (10 sq ft)), pump houses, and retaining walls (except concrete pilings, footings and foundation seals): When protected by: Protection Method II Protection Method I | 115% 110% |
| For concrete in superstructures: When protected by: Protection Method II Protection Method I | 123% 115% |
| For concrete in footings: When protected by: Protection Method I, II or III | 107% |
| For concrete in slope walls: When protected by: Protection Method I | 107%” |

Delete the fourth paragraph of Article 504.05(a) of the Standard Specifications.

Revise the second and third sentences of the fifth paragraph of Article 504.05(a) of the Standard Specifications to read:

“All test specimens shall be cured with the units according to Article 1020.13.”

Revise the first paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

“Curing and Low Air Temperature Protection. The curing and protection for precast, prestressed concrete members shall be according to Article 1020.13 and this Article.”

Revise the first sentence of the second paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

“For curing, air vents shall be in place, and shall be so arranged that no water can enter the void tubes during the curing of the members.”

Revise the first sentence of the third paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

“As soon as each member is finished, the concrete shall be covered with curing material according to Article 1020.13.”

Revise the eighth paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

“The prestressing force shall not be transferred to any member before the concrete has attained the compressive strength of 28,000 kPa (4000 psi) or other higher compressive release strength specified on the plans, as determined from tests of 150 mm (6 in.) by 300 mm (12 in.) cylinders cured with the member according to Article 1020.13. Members shall not be shipped until 28-day strengths have been attained and members have a yard age of at least 4 days.”

Delete the third paragraph of Article 512.03(a) of the Standard Specifications.

Delete the last sentence of the second paragraph of Article 512.04(d) of the Standard Specifications.

Revise the “Index Table of Curing and Protection of Concrete Construction” table of Article 1020.13 of the Standard Specifications to read:

| “INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION | | | |
|--|--|--------------------|---|
| TYPE OF CONSTRUCTION | CURING METHODS | CURING PERIOD DAYS | LOW AIR TEMPERATURE PROTECTION METHODS |
| Cast-in-Place Concrete: ^{11/} | | | |
| Pavement | | | |
| Shoulder | 1020.13(a)(1)(2)(3)(4)(5) ^{3/ 5/} | 3 | 1020.13(c) |
| Base Course | | | |
| Base Course Widening | 1020.13(a)(1)(2)(3)(4)(5) ^{1/ 2/} | 3 | 1020.13(c) |
| Driveway | | | |
| Median | | | |
| Curb | | | |
| Gutter | 1020.13(a)(1)(2)(3)(4)(5) ^{4/ 5/} | 3 | 1020.13(c) ^{16/} |
| Curb and Gutter | | | |
| Sidewalk | | | |
| Slope Wall | | | |
| Paved Ditch | | | |
| Catch Basin | | | |
| Manhole | 1020.13(a)(1)(2)(3)(4)(5) ^{4/} | 3 | 1020.13(c) |
| Inlet | | | |
| Valve Vault | | | |
| Pavement Patching | 1020.13(a)(1)(2)(3)(4)(5) ^{2/} | 3 ^{12/} | 1020.13(c) |
| Pavement Replacement | 1020.13(a)(1)(2)(3)(4)(5) ^{1/ 2/} | 3 | 442.06(h) and 1020.13(c) |
| Railroad Crossing | 1020.13(a)(3)(5) | 1 | 1020.13(c) |
| Piles | 1020.13(a)(3)(5) | 7 | 1020.13(e)(1)(2)(3) |
| Footings | | | |
| Foundation Seals | 1020.13(a)(1)(2)(3)(4)(5) ^{4/6/} | 7 | 1020.13(e)(1)(2)(3) |
| Substructure | 1020.13(a)(1)(2)(3)(4)(5) ^{1/7/} | 7 | 1020.13(e)(1)(2)(3) |
| Superstructure (except deck) | 1020.13(a)(1)(2)(3)(5) ^{8/} | 7 | 1020.13(e)(1)(2) |
| Deck | 1020.13(a)(5) | 7 | 1020.13(e)(1)(2) ^{17/} |
| Retaining Walls | 1020.13(a)(1)(2)(3)(4)(5) ^{1/7/} | 7 | 1020.13(e)(1)(2) |
| Pump Houses | 1020.13(a)(1)(2)(3)(4)(5) ^{1/} | 7 | 1020.13(e)(1)(2) |
| Culverts | 1020.13(a)(1)(2)(3)(4)(5) ^{4/6/} | 7 | 1020.13(e)(1)(2) ^{18/} |
| Other Incidental Concrete | 1020.13(a)(1)(2)(3)(5) | 3 | 1020.13(c) |
| Precast Concrete: ^{11/} | | | |
| Bridge Beams | | | |
| Piles | | | |
| Bridge Slabs | 1020.13(a)(3)(5) ^{9/10/} | As required. | ^{13/} 504.06(c)(6), 1020.13(e)(2) ^{19/} |
| Nelson Type Structural Member | | | |
| All Other Precast Items | 1020.13(a)(3)(4)(5) ^{2/9/10/} | As required. | ^{14/} 504.06(c)(6), 1020.13(e)(2) ^{19/} |
| Precast, Prestressed Concrete: ^{11/} | | | |
| All Items | 1020.13(a)(3)(5) ^{9/10/} | Until strand | 504.06(c)(6), 1020.13(e)(2) ^{19/} tensioning is released. ^{15/} |

Notes-General:

- 1/ Type I, membrane curing only
- 2/ Type II, membrane curing only
- 3/ Type III, membrane curing only
- 4/ Type I, II and III membrane curing
- 5/ Membrane curing will not be permitted between November 1 and April 15.
- 6/ The use of water to inundate footings, foundation seals or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 7 °C (45 °F) or higher.
- 7/ Asphalt Emulsion for Waterproofing may be used in lieu of other curing methods when specified and permitted according to Article 503.18.
- 8/ On non-traffic surfaces which receive protective coat according to Article 503.19, a linseed oil emulsion curing compound may be used as a substitute for protective coat and other curing methods. The linseed emulsion curing compound will be permitted between April 16 and October 31 of the same year, provided it is applied with a mechanical sprayer according to Article 1101.09 (b), and meets the material requirements of Article 1022.07.
- 9/ Steam curing (heat and moisture) is acceptable and shall be accomplished by the method specified in Article 504.06(c)(6).
- 10/ A moist room according to AASHTO M 201 is acceptable for curing.
- 11/ If curing is required and interrupted because of form removal for cast-in-place concrete items, precast concrete products, or precast prestressed concrete products, the curing shall be resumed within two hours from the start of the form removal.
- 12/ Curing maintained only until opening strength is attained, with a maximum curing period of three days.
- 13/ The curing period shall end when the concrete has attained the mix design strength. The producer has the option to discontinue curing when the concrete has attained 80 percent of the mix design strength or after seven days. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.
- 14/ The producer shall determine the curing period or may elect to not cure the product. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.
- 15/ The producer has the option to continue curing after strand release.
- 16/ When structural steel or structural concrete is in place above slope wall, Article 1020.13(c) shall not apply. The protection method shall be according to Article 1020.13(e)(1).
- 17/ When Article 1020.13(e)(2) is used to protect the deck, the housing may enclose only the bottom and sides. The top surface shall be protected according to Article 1020.13(e)(1).
- 18/ For culverts having a waterway opening of 1 sq m (10 sq ft) or less, the culverts may be protected according to Article 1020.13(e)(3).
- 19/ The seven day protection period in the first paragraph of Article 1020.13(e)(2) shall not apply. The protection period shall end when curing is finished. For the third paragraph of Article 1020.13(e)(2), the decrease in temperature shall be according to Article 504.06(c)(6)."

Add the following to Article 1020.13(a) of the Standard Specifications:

“(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry cotton mats. The cotton mats shall be placed in a manner which will not mar the concrete surface. A texture resulting from the cotton mat material is acceptable. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. For bridge decks, a foot bridge shall be used to place and wet the cotton mats.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without marring the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 1.2 m (4 ft) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets.

For construction items other than bridge decks, soaker hoses or a continuous wetting system will not be required if the alternative method keeps the cotton mats wet. Periodic wetting of the cotton mats is acceptable.

For areas inaccessible to the cotton mats on bridge decks, curing shall be according to Article 1020.13(a)(3).”

Revise the first paragraph of Article 1020.13(c) of the Standard Specifications to read:

“Protection of Portland Cement Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 0 °C (32 °F), or lower, or if the actual temperature drops to 0 °C (32 °F), or lower, concrete less than 72 hours old shall be provided at least the following protection:”

Delete Article 1020.13(d) and Articles 1020.13(d)(1),(2),(3),(4) of the Standard Specifications.

Revise the first five paragraphs of Article 1020.13(e) of the Standard Specifications to read:

“Protection of Portland Cement Concrete Structures From Low Air Temperatures. When the official National Weather Service Forecast for the construction area predicts a low below 7 °C (45 °F), or if the actual temperature drops below 7 °C (45 °F), concrete less than 72 hours old shall be provided protection. Concrete shall also be provided protection when placed during the winter period of December 1 through March 15. Concrete shall not be placed until the materials, facilities and equipment for protection are approved by the Engineer.

When directed by the Engineer, the Contractor may be required to place concrete during the winter period. If winter construction is specified, the Contractor shall proceed with the construction, including concrete, excavation, pile driving, steel erection and all appurtenant work required for the complete construction of the item, except at times when weather conditions make such operations impracticable.

Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced by the Contractor at his/her own expense.”

Add the following at the end of the third paragraph of Article 1020.13(e)(1) of the Standard Specifications:

“The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period.”

Revise the second sentence of the first paragraph of Article 1020.13(e)(2) of the Standard Specifications to read:

“The Contractor shall provide means for checking the temperature of the surface of the concrete or air temperature within the housing during the protection period.”

Delete the last sentence of the first paragraph of Article 1020.13(e)(3) of the Standard Specifications.

Add the following Article to Section 1022 of the Standard Specifications:

“1022.06 Cotton Mats. Cotton mats shall consist of a cotton fill material, minimum 400 g/sq m (11.8 oz/sq yd), covered with unsized cloth or burlap, minimum 200 g/sq m (5.9 oz/sq yd), and be tufted or stitched to maintain stability.

Cotton mats shall be in a condition satisfactory to the Engineer. Any tears or holes in the mats shall be repaired.

Add the following Article to Section 1022 of the Standard Specifications:

“1022.07 Linseed Oil Emulsion Curing Compound. Linseed oil emulsion curing compound shall be composed of a blend of boiled linseed oil and high viscosity, heavy bodied linseed oil emulsified in a water solution. The curing compound shall meet the requirements of a Type I, II, or III according to Article 1022.01, except the drying time requirement will be waived. The oil phase shall be 50 ± 4 percent by volume. The oil phase shall consist of 80 percent by mass (weight) boiled linseed oil and 20 percent by mass (weight) Z-8 viscosity linseed oil. The water phase shall be 50 ± 4 percent by volume.”

Revise Article 1020.14 of the Standard Specifications to read:

“1020.14 Temperature Control for Placement. Temperature control for concrete placement shall conform to the following requirements:

- (a) Temperature Control other than Structures. The temperature of concrete immediately before placing, shall be not less than 10 °C (50 °F) nor more than 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

Plastic concrete temperatures up to 35 °C (96 °F), as placed, may be permitted provided job site conditions permit placement and finishing without excessive use of water on and/or overworking of the surface. The occurrence within 24 hours of unusual surface distress shall be cause to revert to a maximum 32 °C (90 °F) plastic concrete temperature.

Concrete shall not be placed when the air temperature is below 5 °C (40 °F) and falling or below 2 °C (35 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to not less than 20 °C (70 °F) nor more than 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

For pavement patching, refer to Article 442.06(e) for additional information on temperature control for placement.

- (b) Temperature Control for Structures. The temperature of concrete as placed in the forms shall be not less than 10 °C (50 °F) nor more than 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits. When insulated forms are used, the temperature of the concrete mixture shall not exceed 25 °C (80 °F). If the Engineer determines that heat of hydration might cause excessive temperatures in the concrete, the concrete shall be placed at a temperature between 10 °C (50 °F) and 15 °C (60 °F), per the Engineer's instructions. When concrete is placed in contact with previously placed concrete, the temperature of the concrete may be increased as required to offset anticipated heat loss.

Concrete shall not be placed when the air temperature is below 7 °C (45 °F) and falling or below 4 °C (40 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to not less than 20 °C (70 °F) nor more than 65 °C (150 °F).

The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

(c) Temperature. The concrete temperature shall be determined according to ASTM C 1064."

80114

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

Effective: September 1, 2000

Revised: June 2, 2005

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

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

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract 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 contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

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

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined 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 10.00 % 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.

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.

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 not responsive.

- (a) In order to assure the timely award of the contract, the as-read low bidder shall 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 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 not responsive. In the event the bid is declared not responsive 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.

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, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. 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.

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 bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.

- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
 - (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
 - (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.
 - (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines that the bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided 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, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). 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 not responsive.

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 Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (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 Bureau of Small Business Enterprises 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 Bureau and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau 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, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the Regional 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.

PARTIAL PAYMENTS (BDE)

Effective: September 1, 2003

Revise Article 109.07 of the Standard Specifications to read:

“109.07 Partial Payments. Partial payments will be made as follows:

- (a) Progress Payments. At least once each month, the Engineer will make a written estimate of the amount of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than \$1000.00 will be approved for payment other than the final payment.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved. Furthermore, progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c).

- (b) **Material Allowances.** At the discretion of the Department, payment may be made for materials, prior to their use in the work, when satisfactory evidence is presented by the Contractor. Satisfactory evidence includes justification for the allowance (to expedite the work, meet project schedules, regional or national material shortages, etc.), documentation of material and transportation costs, and evidence that such material is properly stored on the project or at a secure location acceptable and accessible to the Department.

Material allowances will be considered only for nonperishable materials when the cost, including transportation, exceeds \$10,000 and such materials are not expected to be utilized within 60 days of the request for the allowance. For contracts valued under \$500,000, the minimum \$10,000 requirement may be met by combining the principal (material) product of no more than two contract items. An exception to this two item limitation may be considered for any contract regardless of value for items in which material (products) are similar except for type and/or size.

Material allowances shall not exceed the value of the contract items in which used and shall not include the cost of installation or related markups. Amounts paid by the Department for material allowances will be deducted from estimates due the Contractor as the material is used. Two-sided copies of the Contractor's cancelled checks for materials and transportation must be furnished to the Department within 60 days of payment of the allowances or the amounts will be reclaimed by the Department."

80116

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000

Revised: September 1, 2003

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts no later than 30 days from the receipt of each payment made to the Contractor.

State law addresses the timing of payments to be made to subcontractors. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, generally requires that when a Contractor receives any payment from the Department, the Contractor is required to make corresponding, proportional payments to each subcontractor performing work within 15 calendar days after receipt of the state payment. Section 7 of the State Prompt Payment Act further provides that interest in the amount of 2% per month, in addition to the payment due, shall be paid to any subcontractor by

the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors throughout the contracting chain.

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

As progress payments are made to the Contractor in accordance with Article 109.07 of the Standard Specifications for Road and Bridge Construction, the Contractor shall make a corresponding partial payment within 15 calendar days to each subcontractor in proportion to the work satisfactorily completed by each subcontractor. The proportionate amount of partial payment due to each subcontractor shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors shall be paid in full within 15 calendar days after the subcontractor's work has been satisfactorily completed. The Contractor shall hold no retainage from the subcontractors.

This Special Provision does not create any rights in favor of any subcontractor against the State of Illinois or authorize any cause of action against the State of Illinois on account of any payment, nonpayment, delayed payment or interest claimed by application of the State Prompt Payment Act. The Department will neither determine the reasonableness of any cause for delay of payment nor enforce any claim to payment, including interest. Moreover, the Department will not approve any delay or postponement of the 15 day requirement. State law creates remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond in accordance with the Public Construction Bond Act, 30 ILCS 550.

80022

PERSONAL PROTECTIVE EQUIPMENT (BDE)

Effective: July 1, 2004

All personnel, excluding flaggers, working outside of a vehicle (car or truck) within 7.6 m (25 ft) of pavement open to traffic shall wear a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments. Other types of garments may be substituted for the vest as long as the garments have manufacturers tags identifying them as meeting the ANSI Class 2 requirement.

80130

PORTLAND CEMENT (BDE)

Effective: January 1, 2005

Replace the first sentence of the second paragraph of Article 1001.01 of the Standard Specifications with the following:

“For portland cement according to ASTM C 150, the addition of up to 5.0 percent limestone by mass (weight) to the cement will not be permitted. Also, the total of all organic processing additions shall not exceed 1.0 percent by mass (weight) of the cement and the total of all inorganic processing additions shall not exceed 4.0 percent by mass (weight) of the cement.”

80139

PORTLAND CEMENT CONCRETE (BDE)

Effective: November 1, 2002

Add the following paragraph after the fourth paragraph of Article 1103.01(b) of the Standard Specifications:

“The truck mixer shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Add the following paragraph after the first paragraph of Article 1103.01(c) of the Standard Specifications:

“The truck agitator shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Add the following paragraph after the first paragraph of Article 1103.01(d) of the Standard Specifications:

“The nonagitator truck shall be approved before use according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

Revise the first sentence of the first paragraph of Article 1103.02 of the Standard Specifications to read:

“The plant shall be approved before production begins according to the Bureau of Materials and Physical Research’s Policy Memorandum, “Approval of Concrete Plants and Delivery Trucks”.”

80083

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: April 2, 2005

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting in accordance with Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

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

80143

ILLINOIS DEPARTMENT OF LABOR

PREVAILING WAGES FOR COOK COUNTY EFFECTIVE JUNE 2005

The Prevailing rates of wages are included in the Contract proposals which are subject to Check Sheet #5 of the Supplemental Specifications and Recurring Special Provisions. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and Check Sheet #5 of the Contract, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

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

Cook County Prevailing Wage for June 2005

| Trade Name | RG | TYP | C | Base | FRMAN | *M-F>8 | OSA | OSH | H/W | Pensn | Vac | Trng |
|----------------------|----|-----|---|--------|--------|--------|-----|-----|-------|-------|-------|-------|
| ===== | == | == | = | ===== | ===== | ===== | === | === | ===== | ===== | ===== | ===== |
| ASBESTOS ABT-GEN | | ALL | | 29.000 | 29.750 | 1.5 | 1.5 | 2.0 | 6.310 | 3.440 | 0.000 | 0.170 |
| ASBESTOS ABT-MEC | | BLD | | 23.300 | 24.800 | 1.5 | 1.5 | 2.0 | 3.640 | 5.520 | 0.000 | 0.000 |
| BOILERMAKER | | BLD | | 36.820 | 40.140 | 2.0 | 2.0 | 2.0 | 6.920 | 6.260 | 0.000 | 0.210 |
| BRICK MASON | | BLD | | 32.050 | 35.260 | 1.5 | 1.5 | 2.0 | 5.650 | 6.340 | 0.000 | 0.440 |
| CARPENTER | | ALL | | 34.320 | 35.820 | 1.5 | 1.5 | 2.0 | 5.560 | 4.860 | 0.000 | 0.490 |
| CEMENT MASON | | ALL | | 35.400 | 36.650 | 2.0 | 1.5 | 2.0 | 5.430 | 4.400 | 0.000 | 0.150 |
| CERAMIC TILE FNSHER | | BLD | | 25.450 | 0.000 | 2.0 | 1.5 | 2.0 | 5.000 | 4.350 | 0.000 | 0.100 |
| COMM. ELECT. | | BLD | | 30.890 | 33.390 | 1.5 | 1.5 | 2.0 | 5.600 | 5.270 | 0.000 | 0.700 |
| ELECTRIC PWR EQMT OP | | ALL | | 33.950 | 39.550 | 1.5 | 1.5 | 2.0 | 6.570 | 8.120 | 0.000 | 0.170 |
| ELECTRIC PWR GRNDMAN | | ALL | | 26.480 | 39.550 | 1.5 | 1.5 | 2.0 | 5.130 | 6.330 | 0.000 | 0.140 |
| ELECTRIC PWR LINEMAN | | ALL | | 33.950 | 39.550 | 1.5 | 1.5 | 2.0 | 6.570 | 8.120 | 0.000 | 0.170 |
| ELECTRICIAN | | ALL | | 34.650 | 37.250 | 1.5 | 1.5 | 2.0 | 8.100 | 6.430 | 0.000 | 0.750 |
| ELEVATOR CONSTRUCTOR | | BLD | | 38.995 | 43.870 | 2.0 | 2.0 | 2.0 | 7.275 | 3.420 | 2.340 | 0.370 |
| FENCE ERECTOR | | ALL | | 24.840 | 26.090 | 1.5 | 1.5 | 2.0 | 6.650 | 6.740 | 0.000 | 0.000 |
| GLAZIER | | BLD | | 30.000 | 31.000 | 1.5 | 2.0 | 2.0 | 6.090 | 8.450 | 0.000 | 0.500 |
| HT/FROST INSULATOR | | BLD | | 31.650 | 33.400 | 1.5 | 1.5 | 2.0 | 7.260 | 8.360 | 0.000 | 0.230 |
| IRON WORKER | | ALL | | 34.850 | 36.350 | 2.0 | 2.0 | 2.0 | 8.220 | 10.27 | 0.000 | 0.270 |
| LABORER | | ALL | | 29.000 | 29.750 | 1.5 | 1.5 | 2.0 | 6.310 | 3.440 | 0.000 | 0.170 |
| LATHER | | BLD | | 34.320 | 35.820 | 1.5 | 1.5 | 2.0 | 5.560 | 4.860 | 0.000 | 0.490 |
| MACHINIST | | BLD | | 34.540 | 36.290 | 2.0 | 2.0 | 2.0 | 3.200 | 4.100 | 2.380 | 0.000 |
| MARBLE FINISHERS | | ALL | | 25.050 | 0.000 | 1.5 | 1.5 | 2.0 | 5.220 | 6.340 | 0.000 | 0.570 |
| MARBLE MASON | | BLD | | 32.050 | 35.260 | 1.5 | 1.5 | 2.0 | 5.650 | 6.340 | 0.000 | 0.570 |
| MILLWRIGHT | | ALL | | 34.320 | 35.820 | 1.5 | 1.5 | 2.0 | 5.560 | 4.860 | 0.000 | 0.490 |
| OPERATING ENGINEER | | BLD | 1 | 37.600 | 41.600 | 2.0 | 2.0 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| OPERATING ENGINEER | | BLD | 2 | 36.300 | 41.600 | 2.0 | 2.0 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| OPERATING ENGINEER | | BLD | 3 | 33.750 | 41.600 | 2.0 | 2.0 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| OPERATING ENGINEER | | BLD | 4 | 32.000 | 41.600 | 2.0 | 2.0 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| OPERATING ENGINEER | | FLT | 1 | 42.700 | 42.700 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.000 |
| OPERATING ENGINEER | | FLT | 2 | 41.200 | 42.700 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.000 |
| OPERATING ENGINEER | | FLT | 3 | 36.650 | 42.700 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.000 |
| OPERATING ENGINEER | | FLT | 4 | 30.500 | 42.700 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.000 |
| OPERATING ENGINEER | | HWY | 1 | 35.800 | 39.800 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| OPERATING ENGINEER | | HWY | 2 | 35.250 | 39.800 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| OPERATING ENGINEER | | HWY | 3 | 33.200 | 39.800 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| OPERATING ENGINEER | | HWY | 4 | 31.800 | 39.800 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| OPERATING ENGINEER | | HWY | 5 | 30.600 | 39.800 | 1.5 | 1.5 | 2.0 | 6.050 | 4.850 | 1.800 | 0.600 |
| ORNAMNTL IRON WORKER | | ALL | | 32.300 | 34.050 | 2.0 | 2.0 | 2.0 | 6.650 | 9.690 | 0.000 | 0.750 |
| PAINTER | | ALL | | 32.100 | 36.110 | 1.5 | 1.5 | 1.5 | 5.550 | 4.900 | 0.000 | 0.340 |
| PAINTER SIGNS | | BLD | | 25.530 | 28.660 | 1.5 | 1.5 | 1.5 | 2.600 | 2.040 | 0.000 | 0.000 |
| PILEDRIVER | | ALL | | 34.320 | 35.820 | 1.5 | 1.5 | 2.0 | 5.560 | 4.860 | 0.000 | 0.490 |
| PIPEFITTER | | BLD | | 35.000 | 37.000 | 1.5 | 1.5 | 2.0 | 6.410 | 5.600 | 0.000 | 0.650 |
| PLASTERER | | BLD | | 31.000 | 32.500 | 1.5 | 1.5 | 2.0 | 5.240 | 6.100 | 0.000 | 0.400 |
| PLUMBER | | BLD | | 37.100 | 39.100 | 1.5 | 1.5 | 2.0 | 6.250 | 3.440 | 0.000 | 0.590 |
| ROOFER | | BLD | | 31.950 | 33.950 | 1.5 | 1.5 | 2.0 | 5.470 | 2.950 | 0.000 | 0.330 |
| SHEETMETAL WORKER | | BLD | | 33.400 | 36.070 | 1.5 | 1.5 | 2.0 | 6.460 | 7.850 | 0.000 | 0.590 |
| SIGN HANGER | | BLD | | 23.750 | 24.600 | 1.5 | 1.5 | 2.0 | 3.880 | 2.000 | 0.000 | 0.000 |
| SPRINKLER FITTER | | BLD | | 34.500 | 36.500 | 1.5 | 1.5 | 2.0 | 7.000 | 5.550 | 0.000 | 0.500 |
| STEEL ERECTOR | | ALL | | 34.850 | 36.350 | 2.0 | 2.0 | 2.0 | 8.220 | 10.27 | 0.000 | 0.270 |
| STONE MASON | | BLD | | 32.050 | 35.260 | 1.5 | 1.5 | 2.0 | 5.650 | 6.340 | 0.000 | 0.440 |
| TERRAZZO FINISHER | | BLD | | 26.200 | 0.000 | 1.5 | 1.5 | 2.0 | 5.750 | 4.750 | 0.000 | 0.220 |
| TERRAZZO MASON | | BLD | | 30.050 | 32.550 | 1.5 | 1.5 | 2.0 | 5.750 | 6.150 | 0.000 | 0.120 |
| TILE MASON | | BLD | | 31.000 | 34.000 | 2.0 | 1.5 | 2.0 | 5.000 | 5.350 | 0.000 | 0.180 |
| TRAFFIC SAFETY WRKR | | HWY | | 22.800 | 24.400 | 1.5 | 1.5 | 2.0 | 3.078 | 1.875 | 0.000 | 0.000 |
| TRUCK DRIVER | E | ALL | 1 | 28.050 | 28.700 | 1.5 | 1.5 | 2.0 | 4.500 | 3.300 | 0.000 | 0.000 |
| TRUCK DRIVER | E | ALL | 2 | 27.150 | 27.550 | 1.5 | 1.5 | 2.0 | 4.200 | 3.200 | 0.000 | 0.000 |
| TRUCK DRIVER | E | ALL | 3 | 27.350 | 27.550 | 1.5 | 1.5 | 2.0 | 4.200 | 3.200 | 0.000 | 0.000 |
| TRUCK DRIVER | E | ALL | 4 | 27.550 | 27.550 | 1.5 | 1.5 | 2.0 | 4.200 | 3.200 | 0.000 | 0.000 |
| TRUCK DRIVER | W | ALL | 1 | 27.900 | 28.450 | 1.5 | 1.5 | 2.0 | 5.350 | 3.100 | 0.000 | 0.000 |

| | | | | | | | | | | | | |
|--------------|---|-----|---|--------|--------|-----|-----|-----|-------|-------|-------|-------|
| TRUCK DRIVER | W | ALL | 2 | 28.050 | 28.450 | 1.5 | 1.5 | 2.0 | 5.350 | 3.100 | 0.000 | 0.000 |
| TRUCK DRIVER | W | ALL | 3 | 28.250 | 28.450 | 1.5 | 1.5 | 2.0 | 5.350 | 3.100 | 0.000 | 0.000 |
| TRUCK DRIVER | W | ALL | 4 | 28.450 | 28.450 | 1.5 | 1.5 | 2.0 | 5.350 | 3.100 | 0.000 | 0.000 |
| TUCKPOINTER | | BLD | | 33.500 | 34.500 | 1.5 | 1.5 | 2.0 | 4.210 | 5.840 | 0.000 | 0.400 |

Legend:

M-F>8 (Overtime is required for any hour greater than 8 worked each day, Monday through Friday.)

OSA (Overtime is required for every hour worked on Saturday)

OSH (Overtime is required for every hour worked on Sunday and Holidays)

H/W (Health & Welfare Insurance)

Pensn (Pension)

Vac (Vacation)

Trng (Training)

Explanations

COOK COUNTY

TRUCK DRIVERS (WEST) - That part of the county West of Barrington Road.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial/Decoration Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration such as the day after Thanksgiving for Veterans Day. If in doubt, please check with IDOL.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor

surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

COMMUNICATIONS ELECTRICIAN - Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound vision production and reproduction, telephone and telephone interconnect, facsimile, data apparatus, coaxial, fibre optic and wireless equipment, appliances and systems used for the transmission and reception of signals of any nature, business, domestic, commercial, education, entertainment, and residential purposes, including but not limited to, communication and telephone, electronic and sound equipment, fibre optic and data communication systems, and the performance of any task directly related to such installation or service whether at new or existing sites, such tasks to include the placing of wire and cable and electrical power conduit or other raceway work within the equipment room and pulling wire and/or cable through conduit and the installation of any incidental conduit, such that the employees covered hereby can complete any job in full.

MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all rigging for heavy work, the handling of all material that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installation of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone, granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and exteriors and customarily known as stone in the trade), carrara, sanionyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and exterior which sare installed in a similar manner.

TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

TRAFFIC SAFETY

Work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary lane markings, and the installation and removal of temporary road signs.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - EAST & WEST

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; TEamsters Unskilled dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

OPERATING ENGINEERS - BUILDING

Class 1. Mechanic; Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson attachment; Batch Plant; Benoto; Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver; Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, one, two and three Drum; Hoists, Two

Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes; Squeeze Cretes-screw Type Pumps; Raised and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-form Paver; Straddle Buggies; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Bobcat (over 3/4 cu. yd.); Boilers; Brick Forklift; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Greaser Engineer; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, inside Freight Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rock Drill (self-propelled); Rock Drill (truck mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination - Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators - (Rheostat Manual Controlled); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 small Electric Drill Winches; Bobcat (up to and including 3/4 cu. yd.).

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

OPERATING ENGINEERS - FLOATING

Class 1. Craft foreman (Master Mechanic), diver/wet tender, engineer (hydraulic dredge).

Class 2. Crane/backhoe operator, mechanic/welder, assistant engineer (hydraulic dredge), leverman (hydraulic dredge), and diver tender.

Class 3. Deck equipment operator (machineryman), maintenance of crane (over 50 ton capacity) or backhoe (96,000 pounds or more), tug/launch operator, loader, dozer and like equipment on barge, breakwater wall, slip/dock or scow, deck machinery, etc.

Class 4. Deck equipment operator (machineryman/fireman), (4 equipment units or more) and crane maintenance 50 ton capacity and under or backhoe weighing 96,000 pounds or less, assistant tug operator.

OPERATING ENGINEERS - HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Craft Foreman; Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines; ABG Paver; Backhoes with Caisson attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Hammerhead, Linden, Peco & Machines of a like nature; Crete Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dowell machine with Air Compressor; Dredges; Field Mechanic-Welder; Formless Curb and Gutter Machine; Gradall and Machines of a like nature; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Mounted; Hoists, One, Two and Three Drum; Hydraulic Backhoes; Backhoes with

shear attachments; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Roto Mill Grinder; Slip-Form Paver; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Trenching Machine; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole; Drills (Tunnel Shaft); Underground Boring and/or Mining Machines; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Greaser Engine; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; All Locomotives, Dinky; Pump Cretes; Squeeze Cretes-Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Scoops - Tractor Drawn; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper; Scraper - Prime Mover in Tandem (Regardless of Size); Tank Car Heater; Tractors, Push, Pulling Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Fireman on Boilers; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper - Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Hydro-Blaster; Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Tractaire; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. Bobcats (all); Brick Forklifts, Oilers.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 618/993-7271 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.