

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 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 "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 an **Authorization to Bid or Not for Bid Report**, approved by the Central Bureau of Construction that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Authorization to Bid or Not for Bid Report** 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 bidders check IDOT's website at <http://www.dot.il.gov/desenv/delett.html> before submitting final bid information.

IDOT IS NOT RESPONSIBLE FOR ANY E-MAIL 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 Timothy.Garman@illinois.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

ADDENDUMS AND REVISIONS TO THE PROPOSAL FORMS

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

RETURN WITH BID

132

Proposal Submitted By
Name
Address
City

Letting January 21, 2011

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. 62093
DUPAGE County
Section (4Y&22-3)R-2
District 1 Construction Funds
Route FAU 3537**

PLEASE MARK THE APPROPRIATE BOX BELOW:

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

Prepared by	
Checked by	S

(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. In addition, this proposal contains new statutory requirements applicable to the use of subcontractors and, in particular, includes the State Required Ethical Standards Governing Subcontractors to be signed and incorporated into all subcontracts.

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 "**Authorization to Bid or Not for Bid**" form, 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 **Authorization to Bid or Not for Bid Report**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Authorization to Bid or Not for Bid Report** will indicate the reason for denial. If a contractor has requested to bid but has not received a **Authorization to Bid or Not for Bid Report**, 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
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RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

Taxpayer Identification Number (Mandatory) _____ a

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

**Contract No. 62093
DUPAGE County
Section (4Y&22-3)R-2
Route FAU 3537
District 1 Construction Funds**

Interchange reconstruction, traffic signals, lighting and other work on US 20 (Lake Street) at York Road, I-290 and Walnut Street to York Road in Elmhurst.

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, addenda, 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	\$3,000,000	to	\$5,000,000	\$150,000
\$10,000	to	\$50,000	\$5,000,000	to	\$7,500,000	\$250,000
\$50,000	to	\$100,000	\$7,500,000	to	\$10,000,000	\$400,000
\$100,000	to	\$150,000	\$10,000,000	to	\$15,000,000	\$500,000
\$150,000	to	\$250,000	\$15,000,000	to	\$20,000,000	\$600,000
\$250,000	to	\$500,000	\$20,000,000	to	\$25,000,000	\$700,000
\$500,000	to	\$1,000,000	\$25,000,000	to	\$30,000,000	\$800,000
\$1,000,000	to	\$1,500,000	\$30,000,000	to	\$35,000,000	\$900,000
\$1,500,000	to	\$2,000,000	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. **AUTHORITY TO DO BUSINESS IN ILLINOIS.** Section 20-43 of the Illinois Procurement Code (30 ILCS 500/20-43) provides that a person (other than an individual acting as a sole proprietor) must be a legal entity authorized to do business in the State of Illinois prior to submitting the bid.

9. **The services of a subcontractor will or may be used.**

Check box Yes
 Check box No

For known subcontractors with subcontracts with an annual value of more than \$25,000, the contract shall include their name, address, and the dollar allocation for each subcontractor.

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 62093

State Job # - C-91-533-00
 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
A2002008	T-AESCUL FLV YSB 2 BB	EACH	34.000				
A2002916	T-CELTIS OCCID 2	EACH	50.000				
A2005016	T-GYMNOCLA DIO 2	EACH	31.000				
A2005032	T-GYMNOCLA DIO 6H BB	EACH	18.000				
A2006416	T-QUERCUS ALBA 2	EACH	15.000				
A2006516	T-QUERCUS BICOL 2	EACH	29.000				
A2006616	T-QUERCUS IMBR 2	EACH	44.000				
A2006716	T-QUERCUS MACR 2	EACH	72.000				
A2007666	T-TAXODIUM DIS CL 6'	EACH	35.000				
B2001666	T-CRATAE CRU-I SF 6'	EACH	34.000				
B2005466	T-PRUN VR SH CL 6'	EACH	26.000				
B2006364	T-SYRG RET IS CL 5'	EACH	110.000				
C2005936	S-RHUS GLABRA 3'	EACH	700.000				
D2002472	E-PINUS FLX VWP 6'	EACH	65.000				
D2002772	E-PINUS NIGRA 6'	EACH	40.000				

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XX001249	ORNAMENTAL FENCE	FOOT	800.000				
XX003418	ELCBL C SERV 4 2C	FOOT	1,401.000				
X0300057	MAN TA 6D T1FCL R-PLT	EACH	2.000				
X0301728	CONC COLLAR SPECIAL	CU YD	1.000				
X0322141	REM TEMP WOOD POLE	EACH	20.000				
X0322433	LT TOWER SERVICE PAD	EACH	7.000				
X0322440	DIG LOOP DET SEN U 2C	EACH	2.000				
X0322442	TONE EQ 3 FRE REC PRG	EACH	3.000				
X0322443	TONE EQ 3 FREQ TR PRG	EACH	3.000				
X0322444	TONE EQ POWER SUPPLY	EACH	1.000				
X0322445	TONE EQ MOUNT FRAME	EACH	1.000				
X0322446	CAB HOUSING EQU TY 3	EACH	1.000				
X0322727	POLY DUCT 1 1/4	FOOT	10.000				
X0322859	WEED CONTR PRE-EM GRN	POUND	150.000				
X0323364	ELCBL C 19 6/C	FOOT	618.000				

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X0323412	REM EX SERV INSTALL	EACH	1.000				
X0325041	REM/REP LT UNIT DECAL	EACH	7.000				
X0325205	MONODIRECT REFLT TY C	EACH	40.000				
X0326134	AER CBL 3-1/C2A MWR	FOOT	4,222.000				
X0326148	TEMP WP 60 CL4 15 MA	EACH	3.000				
X0327003	BLOCKWALL RECONSTRUCT	L SUM	1.000				
X0327004	TEMP WP 60 CL 4	EACH	20.000				
X0327005	BREAKER MAIN	EACH	2.000				
X0327006	ROADWAY LT POLE IO	EACH	4.000				
X0327007	PED LIGHT POLE IO	EACH	4.000				
X4022000	TEMP ACCESS- COM ENT	EACH	9.000				
X6700410	ENGR FLD OFF A SPL	CAL MO	18.000				
X7011005	TR CONT-PROT TEMP DET	L SUM	1.000				
X7011015	TR C-PROT EXPRESSWAYS	L SUM	1.000				
X8040310	ELECT SERV DISCONNECT	EACH	1.000				

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X8050010	SERV INSTALL GRND MT	EACH	1.000				
X8050015	SERV INSTALL POLE MT	EACH	1.000				
X8160415	UD #6 #2 & #6G 2 POLY	FOOT	329.000				
X8216290	LUM SV HOR MT 50W IO	EACH	12.000				
X8216295	LUM SV HOR MT 150W IO	EACH	4.000				
X8420500	REM LT TOWER SALV	EACH	1.000				
X8620020	UNINTER POWER SUPPLY	EACH	2.000				
X8710020	FOCC62.5/125 MM12SM12	FOOT	4,011.000				
X8730027	ELCBL C GROUND 6 1C	FOOT	3,399.000				
X8730250	ELCBL C 20 3C TW SH	FOOT	820.000				
X8850102	INDUCTION LOOP	FOOT	53.000				
X8900040	MOD TMP TR SIG INSTAL	EACH	1.000				
Z0001050	AGG SUBGRADE 12	SQ YD	33,558.000				
Z0005308	BOX CULVERT REMOV	FOOT	120.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				

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Z0018500	DRAINAGE STR CLEANED	EACH	2.000				
Z0022800	FENCE REMOVAL	FOOT	4,000.000				
Z0030250	IMP ATTN TEMP NRD TL3	EACH	15.000				
Z0030850	TEMP INFO SIGNING	SQ FT	348.000				
Z0033020	LUM SFTY CABLE ASMBLY	EACH	3.000				
Z0033028	MAINTAIN LIGHTING SYS	CAL MO	8.000				
Z0033046	RE-OPTIMIZE SIG SYS 2	EACH	2.000				
Z0033060	PREFORM DETECT LOOP	FOOT	550.000				
Z0033090	ELCBL C TRACER 14 1C	FOOT	3,959.000				
Z0033092	ELCBL C 18 4C TW SH	FOOT	121.000				
Z0056608	STORM SEW WM REQ 12	FOOT	177.000				
Z0062456	TEMP PAVEMENT	SQ YD	11,535.000				
Z0073510	TEMP TR SIGNAL TIMING	EACH	2.000				
20100110	TREE REMOV 6-15	UNIT	100.000				
20100210	TREE REMOV OVER 15	UNIT	200.000				

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20200100	EARTH EXCAVATION	CU YD	30,813.000				
20201200	REM & DISP UNS MATL	CU YD	510.000				
20700420	POROUS GRAN EMB SUBGR	CU YD	510.000				
20800150	TRENCH BACKFILL	CU YD	1,204.000				
21101615	TOPSOIL F & P 4	SQ YD	24,627.000				
21101630	TOPSOIL F & P 8	SQ YD	36,324.000				
21101685	TOPSOIL F & P 24	SQ YD	4,288.000				
25000210	SEEDING CL 2A	ACRE	6.000				
25000400	NITROGEN FERT NUTR	POUND	538.000				
25000500	PHOSPHORUS FERT NUTR	POUND	538.000				
25000600	POTASSIUM FERT NUTR	POUND	538.000				
25001800	SEEDING CL 4 MOD	ACRE	7.500				
25100630	EROSION CONTR BLANKET	SQ YD	65,238.000				
25200110	SODDING SALT TOLERANT	SQ YD	1,590.000				
25200200	SUPPLE WATERING	UNIT	25.000				

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28000250	TEMP EROS CONTR SEED	POUND	5,392.000				
28000305	TEMP DITCH CHECKS	FOOT	635.500				
28000315	AGG DITCH CHECKS	TON	22.000				
28000400	PERIMETER EROS BAR	FOOT	13,713.500				
28000510	INLET FILTERS	EACH	25.000				
28001000	AGGREGATE - EROS CONT	TON	30.000				
28100107	STONE RIPRAP CL A4	SQ YD	11.000				
28200200	FILTER FABRIC	SQ YD	11.000				
31101200	SUB GRAN MAT B 4	SQ YD	107.000				
31101600	SUB GRAN MAT B 8	SQ YD	44.000				
35300500	PCC BSE CSE 10	SQ YD	415.000				
35400500	PCC BASE CSE W 10	SQ YD	357.000				
35501302	HMA BASE CSE 4 1/2	SQ YD	707.000				
40600100	BIT MATLS PR CT	GALLON	71.000				
40600635	LEV BIND MM N70	TON	106.000				

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40600982	HMA SURF REM BUTT JT	SQ YD	133.000				
40601005	HMA REPL OVER PATCH	TON	33.000				
40603240	P HMA BC IL19.0 N90	TON	408.000				
40603595	P HMA SC "F" N90	TON	568.000				
42000506	PCC PVT 10 1/4 JOINTD	SQ YD	24,461.000				
42001300	PROTECTIVE COAT	SQ YD	34,525.000				
42300400	PCC DRIVEWAY PAVT 8	SQ YD	287.000				
42400200	PC CONC SIDEWALK 5	SQ FT	3,012.000				
44000100	PAVEMENT REM	SQ YD	29,615.000				
44000161	HMA SURF REM 3	SQ YD	3,983.000				
44000200	DRIVE PAVEMENT REM	SQ YD	341.000				
44000500	COMB CURB GUTTER REM	FOOT	9,839.000				
44000600	SIDEWALK REM	SQ FT	2,875.000				
44002212	HMA RM OV PATCH 3	SQ YD	201.000				
44003100	MEDIAN REMOVAL	SQ FT	19,817.000				

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44004000	PAVED DITCH REMOVAL	FOOT	227.000				
44004250	PAVED SHLD REMOVAL	SQ YD	6,083.000				
44201741	CL D PATCH T2 8	SQ YD	11.000				
44201745	CL D PATCH T3 8	SQ YD	17.000				
44201747	CL D PATCH T4 8	SQ YD	147.000				
44300200	STRIP REF CR CON TR	FOOT	1,778.000				
48101200	AGGREGATE SHLDS B	TON	1,217.000				
48300505	PCC SHOULDERS 10 1/4	SQ YD	5,717.000				
50105220	PIPE CULVERT REMOV	FOOT	108.000				
50300225	CONC STRUCT	CU YD	35.000				
50800205	REINF BARS, EPOXY CTD	POUND	1,632.000				
54001038	BOX CUL END SEC C38	EACH	1.000				
54010502	PCBC 5X2	FOOT	109.000				
54213657	PRC FLAR END SEC 12	EACH	5.000				
54213663	PRC FLAR END SEC 18	EACH	1.000				

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 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
54213669	PRC FLAR END SEC 24	EACH	5.000				
5422D018	P CUL CL D 2 18 TEMP	FOOT	320.000				
550A0050	STORM SEW CL A 1 12	FOOT	987.000				
550A0070	STORM SEW CL A 1 15	FOOT	246.000				
550A0090	STORM SEW CL A 1 18	FOOT	431.000				
550A0120	STORM SEW CL A 1 24	FOOT	433.000				
550A0340	STORM SEW CL A 2 12	FOOT	211.000				
550A0360	STORM SEW CL A 2 15	FOOT	146.000				
550A4000	SS CL A 1 EQRS 18	FOOT	506.000				
55039700	SS CLEANED	FOOT	100.000				
55100400	STORM SEWER REM 10	FOOT	53.000				
55100500	STORM SEWER REM 12	FOOT	882.000				
55100700	STORM SEWER REM 15	FOOT	502.000				
56109210	WATER VALVES ADJUST	EACH	5.000				
56400100	FIRE HYDNNTS TO BE MVD	EACH	3.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

62093

State Job # - C-91-533-00
 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
56500600	DOM WAT SER BOX ADJ	EACH	5.000				
60100060	CONC HDWL FOR P DRAIN	EACH	13.000				
60107600	PIPE UNDERDRAINS 4	FOOT	3,166.000				
60108100	PIPE UNDERDRAIN 4 SP	FOOT	241.000				
60207105	CB TC T3F&G	EACH	1.000				
60207205	CB TC T4F&G	EACH	1.000				
60207905	CB TC T11F&G	EACH	3.000				
60208240	CB TC T24F&G	EACH	5.000				
60214000	RD CB 4 DIA T3F&G	EACH	7.000				
60214714	RD CB 4 DIA T24F&G	EACH	12.000				
60218400	MAN TA 4 DIA T1F CL	EACH	1.000				
60224500	RD MAN 4 DIA T1F OL	EACH	3.000				
60224600	RD MAN 4 DIA T1F CL	EACH	2.000				
60225100	RD MAN 4 DIA T8G	EACH	5.000				
60225300	RD MAN 5 DIA T1F OL	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

62093

State Job # - C-91-533-00
 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
60225900	RD MAN 5 DIA T8G	EACH	2.000				
60226200	RD MAN 6 DIA T1F CL	EACH	4.000				
60237470	INLETS TA T24F&G	EACH	7.000				
60255500	MAN ADJUST	EACH	5.000				
60258000	MAN RECONST SPL	EACH	1.000				
60261540	INLETS ADJ NEW T24F&G	EACH	1.000				
60500040	REMOV MANHOLES	EACH	3.000				
60500050	REMOV CATCH BAS	EACH	4.000				
60500060	REMOV INLETS	EACH	14.000				
60500065	REMOV INLETS SPL	EACH	5.000				
60600095	CLASS SI CONC OUTLET	CU YD	5.000				
60600605	CONC CURB TB	FOOT	2,420.000				
60603800	COMB CC&G TB6.12	FOOT	2,764.000				
60605000	COMB CC&G TB6.24	FOOT	8,683.000				
60618320	CONC MEDIAN SURF 6	SQ FT	5,238.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

62093

State Job # - C-91-533-00
 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
60619600	CONC MED TSB6.12	SQ FT	91.000				
60620000	CONC MED TSB6.24	SQ FT	6,750.000				
63000001	SPBGR TY A 6FT POSTS	FOOT	769.000				
63100045	TRAF BAR TERM T2	EACH	2.000				
63100167	TR BAR TRM T1 SPL TAN	EACH	2.000				
63200310	GUARDRAIL REMOV	FOOT	4,210.000				
66400305	CH LK FENCE 6	FOOT	5,828.000				
66407600	CH LK GATES 6X12 DBL	EACH	1.000				
66900200	NON SPL WASTE DISPOSL	CU YD	1.000				
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000				
66900530	SOIL DISPOSAL ANALY	EACH	1.000				
67100100	MOBILIZATION	L SUM	1.000				
70101800	TRAF CONT & PROT SPL	L SUM	1.000				
70103815	TR CONT SURVEILLANCE	CAL DA	60.000				
70106800	CHANGEABLE MESSAGE SN	CAL MO	6.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 62093

State Job # - C-91-533-00
 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
70300210	TEMP PVT MK LTR & SYM	SQ FT	109.000				
70300220	TEMP PVT MK LINE 4	FOOT	12,895.000				
70300240	TEMP PVT MK LINE 6	FOOT	1,830.000				
70300280	TEMP PVT MK LINE 24	FOOT	45.000				
70300510	PAVT MARK TAPE T3 L&S	SQ FT	290.000				
70300520	PAVT MARK TAPE T3 4	FOOT	37,707.000				
70300530	PAVT MARK TAPE T3 5	FOOT	855.000				
70300540	PAVT MARK TAPE T3 6	FOOT	3,260.000				
70300550	PAVT MARK TAPE T3 8	FOOT	550.000				
70300570	PAVT MARK TAPE T3 24	FOOT	132.000				
70301000	WORK ZONE PAVT MK REM	SQ FT	16,068.000				
70400100	TEMP CONC BARRIER	FOOT	800.000				
70400200	REL TEMP CONC BARRIER	FOOT	800.000				
70500100	TEMP SPBGR TY A	FOOT	335.000				
70500615	TEMP TR BAR TERM T1	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

62093

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 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
72000100	SIGN PANEL T1	SQ FT	22.000				
72000200	SIGN PANEL T2	SQ FT	25.000				
72000300	SIGN PANEL T3	SQ FT	712.000				
72400100	REMOV SIN PAN ASSY TA	EACH	31.000				
72400200	REMOV SIN PAN ASSY TB	EACH	4.000				
72400330	REMOV SIGN PANEL T3	SQ FT	144.000				
72400500	RELOC SIN PAN ASSY TA	EACH	1.000				
72700100	STR STL SIN SUP BA	POUND	4,169.000				
72900100	METAL POST TY A	FOOT	406.000				
72900200	METAL POST TY B	FOOT	978.000				
73400100	CONC FOUNDATION	CU YD	15.000				
73600100	REMOV OH SIN STR-SPAN	EACH	1.000				
73700100	REM GR MT SIN SUPPORT	EACH	3.000				
73700200	REM CONC FDN-GR MT	EACH	3.000				
78000100	THPL PVT MK LTR & SYM	SQ FT	109.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 62093

State Job # - C-91-533-00
 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
78000200	THPL PVT MK LINE 4	FOOT	1,661.000				
78000400	THPL PVT MK LINE 6	FOOT	907.000				
78000500	THPL PVT MK LINE 8	FOOT	753.000				
78000600	THPL PVT MK LINE 12	FOOT	473.000				
78000650	THPL PVT MK LINE 24	FOOT	173.000				
78008200	POLYUREA PM T1 LTR-SY	SQ FT	447.000				
78008210	POLYUREA PM T1 LN 4	FOOT	11,204.000				
78008220	POLYUREA PM T1 LN 5	FOOT	1,020.000				
78008230	POLYUREA PM T1 LN 6	FOOT	1,824.000				
78008240	POLYUREA PM T1 LN 8	FOOT	2,180.000				
78008250	POLYUREA PM T1 LN 12	FOOT	567.000				
78008270	POLYUREA PM T1 LN 24	FOOT	112.000				
78100100	RAISED REFL PAVT MKR	EACH	180.000				
78100300	REPLACEMENT REFLECTOR	EACH	106.000				
78200410	GUARDRAIL MKR TYPE A	EACH	14.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 62093

State Job # - C-91-533-00
 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
78201000	TERMINAL MARKER - DA	EACH	3.000				
78300100	PAVT MARKING REMOVAL	SQ FT	1,526.000				
81000600	CON T 2 GALVS	FOOT	4,284.000				
81000700	CON T 2 1/2 GALVS	FOOT	246.000				
81000800	CON T 3 GALVS	FOOT	193.000				
81001000	CON T 4 GALVS	FOOT	102.000				
81018500	CON P 2 GALVS	FOOT	635.000				
81018600	CON P 2 1/2 GALVS	FOOT	85.000				
81018700	CON P 3 GALVS	FOOT	924.000				
81018900	CON P 4 GALVS	FOOT	537.000				
81400100	HANDHOLE	EACH	15.000				
81400105	HANDHOLE SPL	EACH	4.000				
81400200	HD HANDHOLE	EACH	9.000				
81400300	DBL HANDHOLE	EACH	3.000				
81603203	UD 3#2#4GEPRRHW 1 1/2	FOOT	6,419.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

62093

State Job # - C-91-533-00
 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
81900200	TR & BKFIL F ELECT WK	FOOT	11,074.000				
82102310	LUM SV HOR MT 310W	EACH	3.000				
82102400	LUM SV HOR MT 400W	EACH	3.000				
82105600	LUM SV HM HOR MT 400W	EACH	38.000				
83050800	LT P A 47.5MH 12MA	EACH	3.000				
83600200	LIGHT POLE FDN 24D	FOOT	99.000				
83700200	LT TOWER FDN 42D	FOOT	154.000				
83800205	BKWY DEV TR B 15BC	EACH	3.000				
84100110	REM TEMP LIGHT UNIT	EACH	5.000				
84200600	REM LT U NO SALV	EACH	2.000				
84200804	REM POLE FDN	EACH	8.000				
84400205	RELOC EX LIGHT TOWER	EACH	7.000				
85000100	MAIN EX TR SIG INSTAL	WEEK	2.000				
85700205	FAC T4 CAB SPL	EACH	2.000				
86400100	TRANSCEIVER - FIB OPT	EACH	2.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

62093

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 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
87000150	ECA C EPRTC 3C 6 #8G	FOOT	618.000				
87301215	ELCBL C SIGNAL 14 2C	FOOT	457.000				
87301225	ELCBL C SIGNAL 14 3C	FOOT	1,736.000				
87301245	ELCBL C SIGNAL 14 5C	FOOT	3,316.000				
87301255	ELCBL C SIGNAL 14 7C	FOOT	2,234.000				
87301305	ELCBL C LEAD 14 1PR	FOOT	2,862.000				
87301805	ELCBL C SERV 6 2C	FOOT	34.000				
87302245	ELCBL AS SIGL 14 5C	FOOT	165.000				
87302255	ELCBL AS SIGL 14 7C	FOOT	230.000				
87502480	TS POST GALVS 14	EACH	5.000				
87502490	TS POST GALVS 15	EACH	1.000				
87502500	TS POST GALVS 16	EACH	2.000				
87700150	S MAA & P 22	EACH	1.000				
87700180	S MAA & P 28	EACH	2.000				
87700230	S MAA & P 38	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

62093

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 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
87700240	S MAA & P 40	EACH	1.000				
87700260	S MAA & P 44	EACH	1.000				
87800100	CONC FDN TY A	FOOT	32.000				
87800150	CONC FDN TY C	FOOT	8.000				
87800400	CONC FDN TY E 30D	FOOT	45.000				
87800415	CONC FDN TY E 36D	FOOT	45.000				
87900200	DRILL EX HANDHOLE	EACH	1.000				
88030010	SH LED 1F 1S MAM	EACH	2.000				
88030020	SH LED 1F 3S MAM	EACH	8.000				
88030030	SH LED 1F 3S SWM	EACH	1.000				
88030050	SH LED 1F 3S BM	EACH	3.000				
88030070	SH LED 1F 4S BM	EACH	1.000				
88030110	SH LED 1F 5S MAM	EACH	4.000				
88030120	SH LED 1F 5S SWM	EACH	2.000				
88030210	SH LED 2F 3S BM	EACH	2.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER -

62093

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 PPS NBR - 1-72187-0100
 County Name - DUPAGE- -
 Code - 43 - -
 District - 1 - -
 Section Number - (4Y&22-3)R-2

Project Number

Route
 FAU 3537

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
88030220	SH LED 2F 5S BM	EACH	1.000				
88030240	SH LED 2F 1-3 1-5 BM	EACH	1.000				
88030250	SH LED 2F 1-4 1-5 BM	EACH	1.000				
88102717	PED SH LED 1F BM CDT	EACH	4.000				
88200100	TS BACKPLATE	EACH	14.000				
88500100	INDUCTIVE LOOP DETECT	EACH	12.000				
88600100	DET LOOP T1	FOOT	626.000				
88700200	LIGHT DETECTOR	EACH	4.000				
88700300	LIGHT DETECTOR AMP	EACH	2.000				
88800100	PED PUSH-BUTTON	EACH	4.000				
89000100	TEMP TR SIG INSTALL	EACH	1.000				
89500510	CAB HOUSING EQU REMOV	EACH	1.000				
89502375	REMOV EX TS EQUIP	EACH	2.000				
89502380	REMOV EX HANDHOLE	EACH	17.000				
89502385	REMOV EX CONC FDN	EACH	8.000				

CONTRACT NUMBER

62093

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. Except as otherwise required in subsection III, paragraphs J-M, by execution of the Proposal Signature Sheet, the bidder indicates that each of the mandated assurances have 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 the chief procurement officer to void the contract, or subcontract, and may result in the suspension or debarment of the bidder or subcontractor.

II. ASSURANCES

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.

A. 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 \$177,412.00. Sixty percent of the salary is \$106,447.20.

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.

B. 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.

C. 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.

D. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

Section 50-30. Revolving door prohibition. Chief procurement officers, State purchasing officers, procurement compliance monitors, 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.

E. 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.

F. 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

G. 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

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. Section 50-2 of the Illinois Procurement Code provides that every person that has entered into a multi-year contract and every subcontractor with a multi-year subcontract shall certify, by July 1 of each fiscal year covered by the contract after the initial fiscal year, to the responsible chief procurement officer whether it continues to satisfy the requirements of Article 50 pertaining to the eligibility for a contract award. If a contractor or subcontractor is not able to truthfully certify that it continues to meet all requirements, it shall provide with its certification a detailed explanation of the circumstances leading to the change in certification status. A contractor or subcontractor that makes a false statement material to any given certification required under Article 50 is, in addition to any other penalties or consequences prescribed by law, subject to liability under the Whistleblower Reward and Protection Act for submission of a false claim.

A. 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, or subcontracting under such a contract, 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, or which is signatory to the contract which the subcontract relates, 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, and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

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

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, or enter into a subcontract, 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. Certification. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder or contractor or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any of the certifications required by this Section are false.

RETURN WITH BID

C. Debt Delinquency

1. The Illinois Procurement Code provides:

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

The contractor or bidder or subcontractor, respectively, certifies that it, or any affiliate, is not barred from being awarded a contract or subcontract under the Procurement Code. Section 50-11 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, 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, or entering into a subcontract, 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 bidder or contractor or subcontractor, respectively, further acknowledges that the chief procurement officer may declare the related contract void if this certification is false or if the bidder, contractor, or subcontractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

The bidder or contractor or subcontractor, respectively, 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 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-12 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Procurement Code 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 bidder or contractor or subcontractor, respectively, acknowledges that the chief procurement officer may declare the contract void if this certification is false.

F. 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.

G. Bid-Rigging/Bid Rotating

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

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

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

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

RETURN WITH BID

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.

H. 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.

I. 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.

RETURN WITH BID

J. Disclosure of Business Operations in Iran

Section 50-36 of the Illinois Procurement Code, 30ILCS 500/50-36 provides that each bid, offer, or proposal submitted for a State contract shall include a disclosure of whether or not the Company acting as the bidder, offeror, or proposing entity, or any of its corporate parents or subsidiaries, within the 24 months before submission of the bid, offer, or proposal had business operations that involved contracts with or provision of supplies or services to the Government of Iran, companies in which the Government of Iran has any direct or indirect equity share, consortiums or projects commissioned by the Government of Iran, or companies involved in consortiums or projects commissioned by the Government of Iran and either of the following conditions apply:

- (1) More than 10% of the Company's revenues produced in or assets located in Iran involve oil-related activities or mineral-extraction activities; less than 75% of the Company's revenues produced in or assets located in Iran involve contracts with or provision of oil-related or mineral-extraction products or services to the Government of Iran or a project or consortium created exclusively by that government; and the Company has failed to take substantial action.
- (2) The Company has, on or after August 5, 1996, made an investment of \$20 million or more, or any combination of investments of at least \$10 million each that in the aggregate equals or exceeds \$20 million in any 12-month period, which directly or significantly contributes to the enhancement of Iran's ability to develop petroleum resources of Iran.

The terms "Business operations", "Company", "Mineral-extraction activities", "Oil-related activities", "Petroleum resources", and "Substantial action" are all defined in the Code.

Failure to make the disclosure required by the Code shall cause the bid, offer or proposal to be considered not responsive. The disclosure will be considered when evaluating the bid, offer, or proposal or awarding the contract. The name of each Company disclosed as doing business or having done business in Iran will be provided to the State Comptroller.

Check the appropriate statement:

Company has no business operations in Iran to disclose.

Company has business operations in Iran as disclosed the attached document.

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

L. Political Contributions and Registration with the State Board of Elections

Sections 20-160 and 50-37 of the Illinois Procurement Code regulate political contributions from business entities and any affiliated entities or affiliated persons bidding on or contracting with the state. Generally under Section 50-37, any business entity, and any affiliated entity or affiliated person of the business entity, whose current year contracts with all state agencies exceed an awarded value of \$50,000, are prohibited from making any contributions to any political committees established to promote the candidacy of the officeholder responsible for the awarding of the contracts or any other declared candidate for that office for the duration of the term of office of the incumbent officeholder or a period 2 years after the termination of the contract, whichever is longer. Any business entity and affiliated entities or affiliated persons whose state contracts in the current year do not exceed an awarded value of \$50,000, but whose aggregate pending bids and proposals on state contracts exceed \$50,000, either alone or in combination with contracts not exceeding \$50,000, are prohibited from making any political contributions to any political committee established to promote the candidacy of the officeholder responsible for awarding the pending contract during the period beginning on the date the invitation for bids or request for proposals is issued and ending on the day after the date of award or selection if the entity was not awarded or selected. Section 20-160 requires certification of registration of affected business entities in accordance with procedures found in Section 9-35 of The Election Code.

By submission of a bid, the contractor business entity acknowledges and agrees that it has read and understands Sections 20-160 and 50-37 of the Illinois Procurement Code, and that it makes the following certification:

The undersigned business entity certifies that it has registered as a business with the State Board of Elections and acknowledges a continuing duty to update the registration in accordance with the above referenced statutes. A copy of the certificate of registration shall be submitted with the bid. The bidder is cautioned that the Department will not award a contract without submission of the certificate of registration.

These requirements and compliance with the above referenced statutory sections are a material part of the contract, and any breach thereof shall be cause to void the contract under Section 50-60 of the Illinois Procurement Code. This provision does not apply to Federal-aid contracts.

M. Lobbyist Disclosure

Section 50-38 of the Illinois Procurement Code requires that any bidder or offeror on a State contract that hires a person required to register under the Lobbyist Registration Act to assist in obtaining a contract shall:

- (i) Disclose all costs, fees, compensation, reimbursements, and other remunerations paid or to be paid to the lobbyist related to the contract,
- (ii) Not bill or otherwise cause the State of Illinois to pay for any of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration, and
- (iii) Sign a verification certifying that none of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration were billed to the State.

This information, along with all supporting documents, shall be filed with the agency awarding the contract and with the Secretary of State. The chief procurement officer shall post this information, together with the contract award notice, in the online Procurement Bulletin.

Pursuant to Subsection (c) of this Section, no person or entity shall retain a person or entity to attempt to influence the outcome of a procurement decision made under the Procurement Code for compensation contingent in whole or in part upon the decision or procurement. Any person who violates this subsection is guilty of a business offense and shall be fined not more than \$10,000.

Bidder acknowledges that it is required to disclose the hiring of any person required to register pursuant to the Illinois Lobbyist Registration Act (25 ILCS 170) in connection with this contract.

Bidder has not hired any person required to register pursuant to the Illinois Lobbyist Registration Act in connection with this contract.

Or

Bidder has hired the following persons required to register pursuant to the Illinois Lobbyist Registration Act in connection with the contract:

Name and address of person: _____
All costs, fees, compensation, reimbursements and other remuneration paid to said person: _____

RETURN WITH BID

IV. DISCLOSURES

- A. The disclosures hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The bidder further certifies that the Department has received the disclosure forms for each bid.

The chief procurement officer may void the bid, contract, or subcontract, respectively, if it is later determined that the bidder or subcontractor rendered a false or erroneous disclosure. A contractor or subcontractor may be suspended or debarred for violations of the Procurement Code. Furthermore, the chief procurement officer may void the contract 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 \$25,000 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, filed with the Procurement Policy Board, and shall be incorporated as a material term of the contract. Furthermore, pursuant to Section 5-5, the Procurement Policy Board may review a proposal, bid, or contract and issue a recommendation to void a contract or reject a proposal or bid based on any violation of the Procurement Code or the existence of a conflict of interest as provided in subsections (b) and (d) of Section 50-35.

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.

The current annual salary of the Governor is \$177,412.00

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.**

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

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 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 60% of the annual salary of the Governor? YES ___ NO ___
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the bidding entity's or parent entity's distributive income? YES ___ NO ___

(Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.)

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 60% of the annual salary of the Governor? 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 of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

RETURN WITH BID

Form B: Instructions for Identifying Other Contracts & Procurement Related Information

Disclosure Form B must be completed for each bid submitted by the bidding entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, checked, 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 check 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.

**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 \$25,000, 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.**

The current annual salary of the Governor is \$177,412.00.

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 60% of the annual salary of the Governor. **(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.

- Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___
- 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 60% of the annual salary of the Governor, provide the name the State agency for which you are employed and your annual salary. _____

RETURN WITH BID

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, 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 100% of the annual 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 60% of the annual salary of the Governor, 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 two 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 State 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 60% of the annual salary of the Governor, 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 60% of the annual salary of the Governor, as of 7/1/07 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 100% of the annual 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 60% of the annual salary of the Governor, 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 ___

2. Communication Disclosure.

Disclose the name and address of each lobbyist and other agent of the bidder or offeror who is not identified in Section 2 of this form, who is has communicated, is communicating, or may communicate with any State officer or employee concerning the bid or offer. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the process and throughout the term of the contract. If no person is identified, enter "None" on the line below:

Name and address of person(s): _____

RETURN WITH BID

4. Debarment Disclosure. For each of the persons identified under Sections 2 and 3 of this form, disclose whether any of the following has occurred within the previous 10 years: debarment from contracting with any governmental entity; professional licensure discipline; bankruptcies; adverse civil judgments and administrative findings; and criminal felony convictions. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the procurement process and term of the contract. If no person is identified, enter "None" on the line below:

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page. Under penalty of perjury, I certify the contents of this disclosure to be true and accurate to the best of my knowledge.

Completed by: _____ Date _____
Signature of Individual or Authorized Representative

NOT APPLICABLE STATEMENT

Under penalty of perjury, 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.

_____ Date _____
Signature of Authorized Representative

The bidder has a continuing obligation to supplement these disclosures under Sec. 50-35 of the Procurement Code.

RETURN WITH BID

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 \$25,000, 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 CHECKED

<input type="checkbox"/>	<hr style="border: none; border-top: 1px solid black;"/> Signature of Authorized Representative	<hr style="border: none; border-top: 1px solid black;"/> 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



**Illinois Department
of Transportation**

**Contract No. 62093
DUPAGE County
Section (4Y&22-3)R-2
Route FAU 3537
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

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

<p>FOR DEPARTMENT USE ONLY</p>

* Other minorities are defined as Asians (A) or Native Americans (N).
Please specify race of each employee shown in Other Minorities column.

Note: See instructions on page 2

RETURN WITH BID

**Contract No. 62093
DUPAGE County
Section (4Y&22-3)R-2
Route FAU 3537
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 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. 62093

DUPAGE County

Section (4Y&22-3)R-2

Route FAU 3537

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.

(IF AN INDIVIDUAL) Firm Name _____
Signature of Owner _____
Business Address _____

(IF A CO-PARTNERSHIP) Firm Name _____
By _____
Business Address _____
Name and Address of All Members of the Firm:

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

(IF A JOINT VENTURE) Corporate Name _____
By _____
Signature of Authorized Representative _____
Typed or printed name and title of Authorized Representative _____
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, or for the amount specified in Article 102.09 of the "Standard Specifications for Road and Bridge Construction" in effect on the date of invitation for bids, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH, that whereas, the PRINCIPAL has submitted a bid proposal to the STATE OF ILLINOIS, acting through the Department of Transportation, for the improvement designated by the Transportation Bulletin Item Number and Letting Date indicated above.

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

IN THE EVENT the 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. If Surety does not make full payment within such period of time, the Department may bring an action to collect the amount owed. Surety is liable to the Department for all its expenses, including attorney's fees, incurred in any litigation in which it prevails either in whole or in part.

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

PRINCIPAL SURETY
(Company Name) (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, that they signed and delivered said instrument as their free and voluntary act for the uses and purposes therein set forth.

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

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

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

(1) Policy

It is public policy that disadvantageded businesses as defined in 49 CFR Part 26 and the Special Provision shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal or State funds. Consequently the requirements of 49 CFR Part 26 apply to this contract.

(2) Obligation

The contractor agrees to ensure that disadvantageded businesses as defined in 49 CFR Part 26 and the Special Provision have the maximum opportunity to participate in the performance of contracts or subcontracts financed in whole or in part with Federal or State funds. The contractor shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 and the Special Provision to ensure that said businesses have the maximum opportunity to compete for and perform under this contract. The contractor shall not discriminate on the basis of race, color, national origin or sex in the award and performance of contracts.

(3) Project and Bid Identification

Complete the following information concerning the project and bid:

Route _____	Total Bid _____
Section _____	Contract DBE Goal _____
Project _____	(Percent) (Dollar Amount)
County _____	
Letting Date _____	
Contract No. _____	
Letting Item No. _____	

(4) Assurance

I, acting in my capacity as an officer of the undersigned bidder (or bidders if a joint venture), hereby assure the Department that on this project my company : (check one)

Meets or exceeds contract award goals and has provided documented participation as follows:
Disadvantaged Business Participation _____ percent

Attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.

Failed to meet contract award goals and has included good faith effort documentation to meet the goals and that my company has provided participation as follows:
Disadvantaged Business Participation _____ percent

The contract goals should be accordingly modified or waived. Attached is all information required by the Special Provision in support of this request including good faith effort. Also attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.

Company

By _____

Title _____

Date _____

The "as read" Low Bidder is required to comply with the Special Provision.

Submit only one utilization plan for each project. The utilization plan shall be submitted in accordance with the special provision.

Bureau of Small Business Enterprises **Local Let Projects**
2300 South Dirksen Parkway Submit forms to the
Springfield, Illinois 62764 Local Agency

The Department of Transportation is requesting disclosure of information that is necessary to accomplish the purpose as outlined under State and Federal law. Disclosure of this information is **REQUIRED**. Failure to provide any information will result in the contract not being awarded. This form has been approved by the State Forms Manager Center.



Subcontractor Registration _____

Letting _____

Participation Statement

Item No. _____

(1) Instructions

Contract _____

This form must be completed for each disadvantaged business participating in the Utilization Plan. This form shall be submitted in accordance with the special provision and will be attached to the Utilization Plan form.. If additional space is needed complete an additional form for the firm.

(2) Work

Pay Item No.	Description	Quantity	Unit Price	Total
			Total	

(3) Partial Payment Items

For any of the above items which are partial pay items, specifically describe the work and subcontract dollar amount:

(4) Commitment

The undersigned certify that the information included herein is true and correct, and that the DBE firm listed below has agreed to perform a commercially useful function in the work of the contract item(s) listed above and to execute a contract with the prime contractor. The undersigned further understand that no changes to this statement may be made without prior approval from the Department’s Bureau of Small Business Enterprises and that complete and accurate information regarding actual work performed on this project and the payment therefore must be provided to the Department.

Signature for Prime Contractor

Signature for DBE Firm

Title _____

Title _____

Date _____

Date _____

Contact _____

Contact _____

Phone _____

Phone _____

Firm Name _____

Firm Name _____

Address _____

Address _____

City/State/Zip _____

City/State/Zi _____

E _____

WC _____

The Department of Transportation is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under the state and federal law. Disclosure of this information is **REQUIRED**. Failure to provide any information will result in the contract not being awarded. This form has been approved by the State Forms Management Center.

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. 62093
DUPAGE County
Section (4Y&22-3)R-2
Route FAU 3537
District 1 Construction Funds**



Illinois Department of Transportation

SUBCONTRACTOR DOCUMENTATION

Public Acts 96-0795 and 96-0920, enacted substantial changes to the provisions of the Illinois Procurement Code (30 ILCS 500). Among the changes are provisions affecting subcontractors. The Contractor awarded this contract will be required as a material condition of the contract to implement and enforce the contract requirements applicable to subcontractors approved in accordance with article 108.01 of the Standard Specifications for Road and Bridge Construction.

If the Contractor seeks approval of subcontractors to perform a portion of the work, and approval is granted by the Department, the Contractor shall provide a copy of the subcontract to the Chief Procurement Officer within 20 calendar days after execution of the subcontract.

The subcontract shall contain the certifications required to be made by subcontractors pursuant to Article 50 of the Illinois Procurement Code. This Notice to Bidders includes a document incorporating all required subcontractor certifications and disclosures for use by the Contractor in compliance with this mandate. The document is entitled State Required Ethical Standards Governing Subcontractors.

STATE ETHICAL STANDARDS
GOVERNING SUBCONTRACTORS

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.

The certifications hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed should the Department approve the subcontractor. The chief procurement officer may terminate or void the subcontract approval if it is later determined that the bidder or subcontractor rendered a false or erroneous certification.

Section 50-2 of the Illinois Procurement Code provides that every person that has entered into a multi-year contract and every subcontractor with a multi-year subcontract shall certify, by July 1 of each fiscal year covered by the contract after the initial fiscal year, to the responsible chief procurement officer whether it continues to satisfy the requirements of Article 50 pertaining to the eligibility for a contract award. If a contractor or subcontractor is not able to truthfully certify that it continues to meet all requirements, it shall provide with its certification a detailed explanation of the circumstances leading to the change in certification status. A contractor or subcontractor that makes a false statement material to any given certification required under Article 50 is, in addition to any other penalties or consequences prescribed by law, subject to liability under the Whistleblower Reward and Protection Act for submission of a false claim.

A. 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, or subcontracting under such a contract, 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, or which is signatory to the contract to which the subcontract relates, 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, and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

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

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, or enter into a subcontract, 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. Certification. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder or contractor or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any of the certifications required by this Section are false.

C. Debt Delinquency

1. The Illinois Procurement Code provides:

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

The contractor or bidder or subcontractor, respectively, certifies that it, or any affiliate, is not barred from being awarded a contract or subcontract under the Procurement Code. Section 50-11 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, 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, or entering into a subcontract, 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 bidder or contractor or subcontractor, respectively, further acknowledges that the chief procurement officer may declare the related contract void if this certification is false or if the bidder, contractor, or subcontractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

The bidder or contractor or subcontractor, respectively, 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 or if in violation of Subsection (c) for a period of five years from the date of conviction.. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-12 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Procurement Code 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 bidder or contractor or subcontractor, respectively, acknowledges that the chief procurement officer may declare the contract void if this certification is false.

The undersigned, on behalf of the subcontracting company, has read and understands the above certifications and makes the certifications as required by law.

<hr/>		
Name of Subcontracting Company		
<hr/>		<hr/>
Authorized Officer		Date

RETURN WITH SUBCONTRACT
SUBCONTRACTOR DISCLOSURES

I. DISCLOSURES

- A.** The disclosures hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed. The subcontractor further certifies that the Department has received the disclosure forms for each subcontract.

The chief procurement officer may void the bid, contract, or subcontract, respectively, if it is later determined that the bidder or subcontractor rendered a false or erroneous disclosure. A contractor or subcontractor may be suspended or debarred for violations of the Procurement Code. Furthermore, the chief procurement officer may void the contract or subcontract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Illinois Procurement Code provides that all subcontracts with a total value of \$25,000 or more from subcontractors identified in Section 20-120 of the Illinois Procurement Code, shall be accompanied by disclosure of the financial interests of the subcontractor. This disclosed information for the subcontractor, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act, filed with the Procurement Policy Board, and shall be incorporated as a material term of the Prime Contractor's contract. Furthermore, pursuant to this Section, the Procurement Policy Board may recommend to allow or void a contract or subcontract based on a potential conflict of interest.

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 subcontracting entity or its parent entity, whichever is less, unless the subcontractor 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 subcontractor 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.

The current annual salary of the Governor is \$177,412.00.

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the subcontractor 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 subcontractor 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 subcontractor is not subject to Federal 10K reporting, the subcontractor must determine if any individuals are required by law to complete a financial disclosure form. To do this, the subcontractor 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 subcontracting 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 60% of the annual salary of the Governor? YES ___ NO ___
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the subcontracting entity's or parent entity's distributive income? YES ___ NO ___

(Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.)

4. Does anyone in your organization receive greater than 5% of the subcontracting entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO ___

(Note: Only one set of forms needs to be completed per person per subcontract 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 subcontractor must determine each individual in the subcontracting entity or the subcontracting 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 subcontractor 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.

RETURN WITH SUBCONTRACT

Form B: Instructions for Identifying Other Contracts & Procurement Related Information

Disclosure Form B must be completed for each subcontract submitted by the subcontracting entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the subcontractor to ignore Form B. Form B must be completed, checked, and dated or the subcontract will not be approved.*

The Subcontractor shall identify, by checking Yes or No on Form B, whether it has any pending contracts, subcontracts, leases, bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the subcontractor only needs to complete the check box on the bottom of Form B. If "Yes" is checked, the subcontractor must list all non-IDOT State of Illinois agency pending contracts, subcontracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts or subcontracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included.

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A Subcontractor: Financial Information & Potential Conflicts of Interest Disclosure

Subcontractor 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). Subcontractors desiring to enter into a subcontract of a State of Illinois contract 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 subcontracts with a total value of \$25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code, 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.

The current annual salary of the Governor is \$177,412.00.

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the SUBCONTRACTOR (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 60% of the annual salary of the Governor. (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 State 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 60% of the annual salary of the Governor, provide the name the State agency for which you are employed and your annual salary.

RETURN WITH SUBCONTRACT

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, 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 100% of the annual 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 60% of the annual salary of the Governor, 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 two 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 60% of the annual salary of the Governor, 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 60% of the annual salary of the Governor, as of 7/1/07 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 100% of the annual 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 60% of the annual salary of the Governor, 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 two times the annual 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 SUBCONTRACT

(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 ___

3. Communication Disclosure.

Disclose the name and address of each lobbyist and other agent of the bidder or offeror who is not identified in Section 2 of this form, who is has communicated, is communicating, or may communicate with any State officer or employee concerning the bid or offer. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the process and throughout the term of the contract. If no person is identified, enter "None" on the line below:

Name and address of person(s): _____

RETURN WITH SUBCONTRACT

4. Debarment Disclosure. For each of the persons identified under Sections 2 and 3 of this form, disclose whether any of the following has occurred within the previous 10 years: debarment from contracting with any governmental entity; professional licensure discipline; bankruptcies; adverse civil judgments and administrative findings; and criminal felony convictions. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the procurement process and term of the contract. If no person is identified, enter "None" on the line below:

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page. Under penalty of perjury, I certify the contents of this disclosure to be true and accurate to the best of my knowledge.

Completed by: _____ Date _____
Signature of Individual or Authorized Officer

NOT APPLICABLE STATEMENT

Under penalty of perjury, 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 SUBCONTRACTOR listed on the previous page.

_____ Date _____
Signature of Authorized Officer

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT
OF TRANSPORTATION

Form B
Subcontractor: Other Contracts &
Procurement Related Information
Disclosure

Subcontractor 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 subcontracts with a total value of \$25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS, SUBCONTRACTS, AND PROCUREMENT RELATED INFORMATION

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

If "No" is checked, the subcontractor 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 CHECKED

<input type="checkbox"/>	_____	_____
	Signature of Authorized Officer	Date



- 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., January 21, 2011. 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. 62093
DUPAGE County
Section (4Y&22-3)R-2
Route FAU 3537
District 1 Construction Funds**

Interchange reconstruction, traffic signals, lighting and other work on US 20 (Lake Street) at York Road, I-290 and Walnut Street to York Road in Elmhurst.

- 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

Gary Hannig,
Secretary

INDEX
 FOR
 SUPPLEMENTAL SPECIFICATIONS
 AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2011

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-07) (Revised 1-1-11)

SUPPLEMENTAL SPECIFICATIONS

<u>Std. Spec. Sec.</u>	<u>Page No.</u>
201 Clearing, Tree Removal and Protection	1
205 Embankment	2
251 Mulch	3
253 Planting Woody Plants	4
280 Temporary Erosion Control	6
406 Hot-Mix Asphalt Binder and Surface Course	7
420 Portland Cement Concrete Pavement	11
443 Reflective Crack Control Treatment	12
501 Removal of Existing Structures	15
502 Excavation for Structures	16
503 Concrete Structures	17
504 Precast Concrete Structures	18
505 Steel Structures	19
508 Reinforcement Bars	20
540 Box Culverts	21
581 Waterproofing Membrane System	22
606 Concrete Gutter, Curb, Median, and Paved Ditch	23
630 Steel Plate Beam Guardrail	24
633 Removing and Reerecting Guardrail and Terminals	25
637 Concrete Barrier	26
664 Chain Link Fence	27
669 Removal and Disposal of Regulated Substances	28
672 Sealing Abandoned Water Wells	29
701 Work Zone Traffic Control and Protection	30
720 Sign Panels and Appurtenances	32
721 Sign Panel Overlay	33
722 Demountable Sign Legend Characters and Arrows	34
726 Mile Post Marker Assembly	35
733 Overhead Sign Structures	36
780 Pavement Striping	37
782 Prismatic Reflectors	42
783 Pavement Marking and Marker Removal	43
801 Electrical Requirements	44
805 Electrical Service Installation – Traffic Signals	45
821 Roadway Luminaires	46
836 Pole Foundation	47
838 Breakaway Devices	48
843 Removal of Navigational Obstruction Warning Lighting System	49
862 Uninterruptable Power Supply	50
873 Electric Cable	52
878 Traffic Signal Concrete Foundation	54
1003 Fine Aggregates	55
1004 Coarse Aggregates	56
1005 Stone and Broken Concrete	57
1006 Metals	58
1008 Structural Steel Coatings	60
1010 Finely Divided Materials	65

1020	Portland Cement Concrete	66
1022	Concrete Curing Materials	77
1024	Nonshrink Grout	78
1026	Concrete Sealer	79
1030	Hot-Mix Asphalt	80
1032	Bituminous Materials	87
1042	Precast Concrete Products	90
1062	Reflective Crack Control System	92
1069	Pole and Tower	94
1074	Control Equipment	97
1076	Wire and Cable	102
1077	Post and Foundation	103
1080	Fabric Materials	105
1081	Materials for Planting	106
1083	Elastomeric Bearings	108
1090	Sign Base	109
1091	Sign Face	111
1092	Sign Legend and Supplemental Panels	119
1093	Sign Supports	120
1094	Overhead Sign Structures	122
1095	Pavement Markings	128
1097	Reflectors	136
1101	General Equipment	137
1102	Hot-Mix Asphalt Equipment	138
1103	Portland Cement Concrete Equipment	140
1105	Pavement Marking Equipment	141
1106	Work Zone Traffic Control Devices	143

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

<u>CHECK SHEET #</u>	<u>PAGE NO.</u>
1	145
2	148
3 X	149
4 X	159
5 X	164
6	169
7	170
8	171
9	172
10 X	175
11	178
12	180
13	184
14	186
15	187
16 X	189
17	190
18	192
19 X	193
20 X	194
21	198
22	200
23	202
24 X	204
25 X	205
26	206
27	207
28	208
29	209
30	210
31 X	218
32	230
33	231

TABLE OF CONTENTS

LOCATION OF PROJECT	1
DESCRIPTION OF PROJECT	1
WORK RESTRICTIONS	1
MAINTENANCE OF ROADWAYS	2
STATUS OF UTILITIES TO BE ADJUSTED	2
RESTRICTION ON GUARANTEED WORKING DAYS	3
COMPLETION DATE PLUS GUARANTEED WORK DAYS	3
INTERIM COMPLETION DATE – RAMP E (I-290 WB EXIT RAMP TO LAKE STREET)	4
AGGREGATE SUBGRADE, 12" (300 MM)	4
RECLAIMED ASPHALT PAVEMENT FOR NON-POROUS EMBANKMENT AND BACKFILL	6
TEMPORARY DITCH CHECKS	6
RECLAIMED ASPHALT PAVEMENT (RAP) FOR TEMPORARY ACCESS ENTRANCES AND/OR AGGREGATE SHOULDERS, TYPE B	6
AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS	7
BACKFILLING STORM SEWER UNDER ROADWAY	8
CLEANING EXISTING DRAINAGE STRUCTURES	8
WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT)	8
TRAFFIC CONTROL PLAN	9
INSPECTION OF MATERIALS FOR PLANTING	10
TREE REMOVAL	10
KEEPING THE EXPRESSWAY OPEN TO TRAFFIC	11
TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)	12
TEMPORARY INFORMATION SIGNING	15
CHANGEABLE MESSAGE SIGNS	17
FAILURE TO COMPLETE WORK ON TIME	17
FAILURE TO OPEN TRAFFIC LANES TO TRAFFIC	17
TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR	18
CONCRETE STRUCTURES	18
RESTRICTED DEPTH CATCH BASINS, 4'-DIAMETER, TYPE 3 FRAME AND GRATE	18
RESTRICTED DEPTH CATCH BASINS, 4'-DIAMETER, TYPE 24 FRAME AND GRATE	19
RESTRICTED DEPTH MANHOLES, 4'-DIAMETER, TYPE 1 FRAME, OPEN LID	19
RESTRICTED DEPTH MANHOLES, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	19
RESTRICTED DEPTH MANHOLES, 4'-DIAMETER, TYPE 8 GRATE	19
RESTRICTED DEPTH MANHOLES, 5'-DIAMETER, TYPE 1 FRAME, OPEN LID	20
RESTRICTED DEPTH MANHOLES, 5'-DIAMETER, TYPE 8 GRATE	20
RESTRICTED DEPTH MANHOLES, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID	20
MANHOLES TO BE RECONSTRUCTED (SPECIAL)	20
BOX CULVERT REMOVAL	21

CONCRETE COLLAR, SPECIAL 21

REMOVING INLETS, SPECIAL..... 21

MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE..... 21

ENGINEER'S FIELD OFFICE TYPE A (SPECIAL) 22

WATER VALVES TO BE ADJUSTED 23

DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED..... 23

FIRE HYDRANTS TO BE MOVED 23

FENCE REMOVAL 24

ORNAMENTAL FENCE 24

RECONSTRUCT BLOCK WALL 24

GRADING AND LANDSCAPING PLAN 25

SEEDING, CLASS 4 (MODIFIED) 25

EROSION CONTROL BLANKET 27

WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE..... 27

PLANTING WOODY PLANTS 28

FRAMES AND LIDS TO BE ADJUSTED (SPECIAL)..... 31

GUARDRAIL MARKERS, TYPE A 31

PIPE UNDERDRAINS, 4" (SPECIAL)..... 31

TRAFFIC SIGNAL SPECIFICATIONS..... 31

ILLUMINATED STREET NAME SIGN..... 62

GENERAL ELECTRICAL REQUIREMENTS..... 80

UNDERGROUND RACEWAYS..... 83

GROUND ROD 83

LUMINAIRE..... 84

FOUNDATIONS 94

TRENCH AND BACKFILL FOR ELECTRICAL WORK 94

UNIT DUCT 94

WIRE AND CABLE 95

MAINTENANCE OF LIGHTING SYSTEMS..... 97

LUMINAIRE SAFETY CABLE ASSEMBLY 100

HANDHOLE (SPECIAL)..... 101

REMOVAL OF POLE FOUNDATION, PARTIAL 101

REMOVAL OF LIGHT TOWER, SALVAGE..... 101

LIGHT TOWER SERVICE PAD 102

AERIAL CABLE, ALUMINUM, WITH MESSENGER WIRE 102

TEMPORARY WOOD POLE 103

BREAKER, MAIN 104

REMOVE AND REPLACE LIGHTING UNIT IDENTIFICATION DECAL..... 105

REMOVE TEMPORARY WOOD POLE 105

PEDESTRIAN LUMINAIRE, INSTALL ONLY 105
LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 150W, INSTALL ONLY 106
ROADWAY LIGHT POLE, INSTALL ONLY 106
PEDESTRIAN LIGHT POLE, INSTALL ONLY 107
TRAFFIC SURVEILLANCE..... 107
TRAFFIC SURVEILLANCE - GENERAL 107
TELEPHONE SERVICE INSTALLATION 112
INDUCTION LOOP 114
GALVANIZED STEEL CONDUIT 118
POLYETHYLENE DUCT..... 123
ELECTRICAL CABLE IN CONDUIT, (EPR) 126
ELECTRIC CABLE NO. 19 - 6 CONDUCTORS OR 12 CONDUCTORS 129
CONCRETE FOUNDATION 131
HANDHOLE 133
TRENCH AND BACKFILL..... 134
SPECIFICATIONS FOR FURNISHING AND INSTALLING TONE EQUIPMENT - PROGRAMMABLE . 135
SPECIFICATIONS FOR FURNISHING AND INSTALLING TONE EQUIPMENT - POWER SUPPLY ... 137
SPECIFICATIONS FOR FURNISHING AND INSTALLING TONE EQUIPMENT - 3 FREQUENCY
PROGRAMMABLE RECEIVER..... 138
SPECIFICATIONS FOR FURNISHING AND INSTALLING TONE EQUIPMENT - 3 FREQUENCY
PROGRAMMABLE TRANSMITTER..... 139
ITEM CODE NO. X0322445 TONE EQUIPMENT-MOUNT FRAME..... 140
CONTROL OF TRAFFIC SURVEILLANCE MATERIALS 140
CABINET HOUSING EQUIPMENT, MOUNTING AND SIZE AS SPECIFIED..... 141
CABINET HOUSING EQUIPMENT - REMOVAL 144
SPECIFICATIONS FOR FURNISHING DIGITAL LOOP DETECTOR SENSOR UNIT 144
CLEANING AND PAINTING SURVEILLANCE CABINETS AND APPURTENANCES..... 147
ELECTRIC SERVICE DISCONNECT..... 151
UNIT DUCT, 600 V, WITH 5-1/C NO. 6, 3-1/C NO. 2, AND 1/C NO. 6 GROUND, 2" DIA
POLYETHYLENE..... 152
BITUMINOUS PRIME COAT FOR HOT-MIX ASPHALT PAVEMENT (FULL DEPTH) (D-1)..... 152
COARSE AGGREGATE FOR HOT-MIX ASPHALT (HMA) (D-1)..... 153
FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (D-1)..... 155
HOT MIX ASPHALT MIXTURES, EGA MODIFIED PERFORMANCE GRADED (PG) ASPHALT BINDER
..... 156
USE OF RAP (DIST 1)..... 156
TEMPERATURE CONTROL FOR CONCRETE PLACEMENT (DISTRICT ONE) 162
TEMPORARY PAVEMENT..... 162
POROUS GRANULAR EMBANKMENT, SUBGRADE..... 162

ALKALI-SILICA REACTION FOR CAST-IN-PLACE CONCRETE (BDE) 164

ALKALI-SILICA REACTION FOR PRECAST AND PRECAST PRESTRESSED CONCRETE (BDE) 166

APPROVAL OF PROPOSED BORROW AREAS, USE AREAS, AND/OR WASTE AREAS (BDE) 169

CEMENT (BDE) 169

CONCRETE ADMIXTURES (BDE) 172

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)..... 174

CONSTRUCTION AIR QUALITY - DIESEL VEHICLE EMISSIONS CONTROL (BDE) 176

CONSTRUCTION AIR QUALITY - IDLING RESTRICTIONS (BDE)..... 177

DETERMINATION OF THICKNESS (BDE)..... 178

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE) 187

ENGINEER’S FIELD OFFICE TYPE A (BDE) 195

EQUIPMENT RENTAL RATES (BDE)..... 197

FLAGGER AT SIDE ROADS AND ENTRANCES (BDE) 198

FRAMES AND GRATES (BDE)..... 198

FRICTION AGGREGATE (BDE) 198

HMA - HAULING ON PARTIALLY COMPLETED FULL-DEPTH PAVEMENT (BDE) 201

HOT-MIX ASPHALT – ANTI-STRIPPING ADDITIVE (BDE) 202

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE) 203

HOT-MIX ASPHALT – DROP-OFFS (BDE) 203

IMPACT ATTENUATORS, TEMPORARY (BDE)..... 204

LIQUIDATED DAMAGES (BDE)..... 205

METAL HARDWARE CAST INTO CONCRETE (BDE)..... 206

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM / EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE) 206

NIGHTTIME WORK ZONE LIGHTING (BDE) 207

PAVEMENT MARKING REMOVAL (BDE)..... 209

PAVEMENT PATCHING (BDE)..... 209

PAYMENTS TO SUBCONTRACTORS (BDE) 210

POST MOUNTING OF SIGNS (BDE)..... 211

PRECAST CONCRETE HANDLING HOLES (BDE) 211

RAISED REFLECTIVE PAVEMENT MARKERS (BDE)..... 212

SEEDING (BDE) 213

SELECTION OF LABOR (BDE)..... 215

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)..... 215

STORM SEWERS (BDE)..... 217

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE) 223

TEMPORARY EROSION CONTROL (BDE) 224

TRAFFIC CONTROL SURVEILLANCE (BDE)..... 227

TRUCK MOUNTED/TRAILER MOUNTED ATTENUATORS (BDE) 227

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)..... 228
STORM WATER POLLUTION PREVENTION PLAN..... 231
NOTICE OF INTENT..... 248

STATE OF ILLINOIS
SPECIAL PROVISIONS

The following Special Provisions supplement the “Standard Specifications for Road and Bridge Construction, “ adopted January 1, 2007 (hereinafter referred to as the “Standard Specifications”), the latest edition of the “Illinois 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” adopted January 1, 2010 and as indicated on the Check Sheet included herein, which apply to and govern the proposed improvement designated as FAU 3537 (US Route 20 / Lake Street), Section (4Y & 22-3) R-2, in DuPage County, Contract 62093 and in case of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and shall govern.

FAU 3537 U.S. Route 20 (Lake St.)
Section: (4Y & 22-3) R-2
County: DuPage
Contract No. 62093

LOCATION OF PROJECT

The project location is along U.S. Route 20 (Lake Street) from 300 feet east of Walnut Street at the western terminus to 250 feet east of York Road at the eastern terminus. The gross and net improvement length is 3,286 feet (0.62 miles).

DESCRIPTION OF PROJECT

This work consists of reconstruction of U.S. Route 20 from east of Walnut Street to York Road for the reconfiguration of I-290 entrance ramps and U.S. Route 20 Interchange. A two-way roadway parallel to the existing frontage road will replace the ramp carrying eastbound traffic from Lake Street to York Road and the ramp carrying westbound traffic from York Road to Lake Street. A new eastbound I-290 entrance ramp (Ramp “F”) will connect to U.S. Route 20 at a signalized intersection. The existing ramp merge for westbound traffic to U.S. Route 20 from York Road and the off-ramp from westbound I-290 (Ramp “E”) will be replaced by a minor convergence. Traffic signals will be modernized at York Road intersection. Street lighting will be added and/or replaced. An enclosed drainage system will be included. The project will also include all incidental and collateral work necessary to complete the project as shown on the plans and described herein.

WORK RESTRICTIONS

The Contractor will not be allowed to proceed with any construction operations on the pavement that may require overnight or permanent lane or shoulder closures on U.S. Route 20 (Lake Street) or I-290 between November 24, 2010 and April 1, 2011. Temporary lane closures on U.S. Route 20 will be allowed between 9:00 a.m. and 3:00 p.m. with written permission of the Engineer.

MAINTENANCE OF ROADWAYS

Effective: September 30, 1985

Revised: November 1, 1996

Beginning on the date that work begins on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer, but shall not include snow removal operations. Traffic control and protection for maintenance of roadways will be provided by the Contractor as required by the Engineer.

If items of work have not been provided in the contract, or otherwise specified for payment, such items, including the accompanying traffic control and protection required by the Engineer, will be paid for in accordance with Article 109.04 of the Standard Specifications.

STATUS OF UTILITIES TO BE ADJUSTED

Effective: January 30, 1987

Revised: July 1, 1994

Utility companies involved in this project have provided the following estimated dates:

<u>Name of Utility</u>	<u>Type</u>	<u>Location</u>	<u>Estimated Dates for Start and Completion</u>
ComEd	Electric	UG lines crossing near Sta. 382+80, UG lines north of Lake St, Sta. 381+20 to Sta. 383+50 Poles located along north side of Ramp E, along south side of Lake St. from Sta. 381+20 to Sta. 382+50, and along south leg of York Rd. (both sides)	Prior to Construction
SBC	Telephone	UG lines south of Lake St. from Larch Ave. to York Rd. and along east side of York Rd.	Prior to Construction
City of Elmhurst	Water	UG lines along south side of Frontage Rd, along south side of Lake Street from Larch Ave. to east of York Road, and center of York Rd. (south leg). UG crossings (Lake St.) at Sta. 379+20 and Sta. 380+00	Prior to Construction
City of Elmhurst	Sanitary	UG line in York Rd. US Force Main crossing at Sta. 380+00 and Sta. 355+00 (Lake St.)	Prior to Construction

MCI Worldcom	Telephone	Unknown	Prior to Construction
Nicor	Gas	UG lines in south Frontage Road and along west curb line of York Rd.	Prior to Construction
Comcast	Cable TV	UG lines, south ROW of Lake St., 120' east of Addison Ave. running to the south and aerial cable attached to ComEd poles.	Prior to Construction

The above represents the best information available to the Department and is included for the convenience of the bidder. The applicable portions of Articles 105.07 and 107.31 of the Standard Specifications shall apply.

RESTRICTION ON GUARANTEED WORKING DAYS

Effective: January 21, 2003

All temporary lane closures for Interstate 290 during the period governed by guaranteed working days will not be permitted during the hours of 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m. Monday through Friday.

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.

Failure to Open Traffic Lanes to Traffic: Should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable and shall pay to the Department the amount of \$250 per lane blocked, 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. The Department may deduct such damages from any monies due the Contractor. These damages shall apply during the period governed by guaranteed working days and any extensions of that contract time.

COMPLETION DATE PLUS GUARANTEED WORK DAYS

Effective: September 30, 1985

Revised: January 1, 2007

Revise Article 108.05 (c) of the Standard Specifications as follows:

"When a completion date plus guaranteed working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on, July 31, 2012 except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within 5 guaranteed working days after the completion date for opening the roadway to traffic. Under extenuating circumstances the Engineer may direct that certain items of work, not affecting the safe opening of the roadway to traffic, may be completed within the guaranteed working days allowed for clean up work and punch list items.

Temporary lane closures for this work may be allowed at the discretion of the Engineer.

(*The completion date for Contract No. 62093 shall be December 31, 2011.*)

Article 108.09 of the Standard Specifications or the Special Provision for Failure to Complete the Work on Time, if included in this contract, shall apply to both the completion date and the number of working days.

INTERIM COMPLETION DATE – RAMP E (I-290 WB EXIT RAMP TO LAKE STREET)

Revise Article 108.05 (a) of the Standard Specifications as follows:

"When an interim completion date is specified, the Contractor shall complete all contract items and safely open Ramp E to traffic within a maximum of 25 consecutive calendar days from the start of work on the ramp reconstruction. The Resident Engineer will certify the starting date of work and will record the number of days the ramp is closed. The interim completion date for Ramp E construction is 25 calendar days after the start of the work on the ramp reconstruction."

The Special Provision for Failure to Complete the Work on Time shall apply to the interim completion date.

AGGREGATE SUBGRADE, 12" (300 MM)

Effective: May 1, 1990

Revised: August 1, 2008

This work shall be done in accordance with the applicable portions of Section 207 of the Standard Specifications. The material shall conform to Article 1004.05 of the Standard Specifications except as follows:

1. Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete will be permitted. Steel slag and other expansive materials as determined through testing by the Department will not be permitted.

<u>Sieve Size</u>	<u>Percent Passing</u>
6 in. (150 mm)	97 ± 3
4 in. (100 mm)	90 ± 10
2 in. (50 mm)	45 ± 25
No. 200 (75 µm)	5 ± 5

2. Gravel* and Crushed Gravel

<u>Sieve Size</u>	<u>Percent Passing</u>
6 in. (150 mm)	97 ± 3
4 in. (100 mm)	90 ± 10
2 in. (50 mm)	55 ± 25
No. 4 (4.75 mm)	30 ± 20
No. 200 (75 µm)	5 ± 5

3. Crushed Concrete with Bituminous Materials**

<u>Sieve Size</u>	<u>Percent Passing</u>
6 in. (150 mm)	97 ± 3
4 in. (100 mm)	90 ± 10
2 in. (50 mm)	45 ± 25
No. 4 (4.75 mm)	20 ± 20
No. 200 (75 µm)	5 ± 5

* Not to be used in 30 or 40 year extended life concrete pavement or extended life bituminous concrete pavement (full depth).

** The Bituminous material shall be separated and mechanically blended with the crushed concrete so that the bituminous material does not exceed 40% of the final products. The top size of the bituminous material in the final product shall be less than 4 inches (100 mm) and shall not contain more than 10.0% steel slag RAP or any material that is considered expansive by the Department.

The Aggregate subgrade shall be placed in two lifts consisting of a 9 inch (225 mm) and variable nominal thickness lower lift and a 3 inch (75 mm) nominal thickness top lift of capping aggregate having a gradation of CA 6. The CA 6 may be blended as follows. The bituminous materials shall be separated and mechanically blended with interlocking feeders with crushed concrete or natural aggregate, in a manner that the bituminous material does not exceed 40% of the final product. This process shall be approved by the engineer prior to start of production. The top side of the bituminous material in the final products shall be less than 1 ½ inches (37.5 mm) and shall not contain any material considered expansive by the department. Reclaimed Asphalt Pavement (RAP) (having a maximum of 10% steel slag RAP) meeting the requirements of Section 1031 and having 100% passing the 1 ½ inches (37.5 mm) sieve and well graded down through fines may also be used as capping aggregate. IDOT testing of the RAP material will be used in determining the percent of steel slag RAP or Expansive Material. When the contract specifies that an aggregate subbase is to be placed on the Aggregate Subgrade, the 3 inches (75 mm) of capping aggregate will be eliminated. A vibratory roller meeting the requirements of Article 1101.01(g) of the Standard Specifications shall be used to roll each lift of material to obtain the desired keying or interlock and necessary compaction. The Engineer will verify that adequate keying has been obtained.

When a recommended remedial treatment for unstable subgrades is included in the contract, the lower lift of Aggregate Subgrade may be placed simultaneously with the material for Porous Granular Embankment, Subgrade when the total thickness to be placed is 2 feet (600 mm) or less.

Method of Measurement.

Contract Quantities. Contract quantities shall be in accordance with Article 202.07 of the Standard Specifications.

Measured Quantities. Aggregate subgrade will be measured in place and the area computed in square yards (square meters).

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE, 12" (AGGREGATE SUBGRADE, 300 mm).

RECLAIMED ASPHALT PAVEMENT FOR NON-POROUS EMBANKMENT AND BACKFILL

Effective: April 1, 2001

Add the following sentence to Article 1004.06 (a) Description of the Standard Specifications for Road and Bridge Construction:

"Reclaimed Asphalt Pavement (RAP) may be used as aggregate in Non-porous Granular Embankment and Backfill. The Rap material shall be reclaimed asphalt pavement material resulting from the cold milling or crushing of an existing hot-mix bituminous concrete pavement structure, including shoulders. RAP containing contaminants such as earth, brick, concrete, sheet asphalt, sand, or other materials identified by the Department will be unacceptable until the contaminants are thoroughly removed."

Add the following sentence to Article 1004.06 (C) Gradation of the Standard Specifications for Road and Bridge Construction.

"One hundred percent of the RAP when used shall pass the 75mm (3 inch) sieve. The RAP shall be well graded from coarse to fine. RAP that is gap-graded or single-sized will not be accepted."

TEMPORARY DITCH CHECKS

This work shall be performed in accordance with applicable portions of Section 280 of the Standard Specifications, as directed by the Engineer, and as specified herein.

Temporary Ditch Checks shall be placed at locations as specified in the plans, and shall conform to the configuration as shown in the detail for "Aggregate Ditch Checks" as provided in the plans, except securing pins and filter fabric shall not be required to be placed as shown in the detail.

All materials, labor, and equipment required to provide Temporary Ditch Checks at locations as shown in the plans and as specified herein shall be included in the contract unit price per Foot for Temporary Ditch Checks.

RECLAIMED ASPHALT PAVEMENT (RAP) FOR TEMPORARY ACCESS ENTRANCES AND/OR AGGREGATE SHOULDERS, TYPE B

Effective: April 1, 2001

Replace the Note in Articles 402.02(a) and 481.02(a) of the Standard Specifications for Road and Bridge Construction with the following:

"Note: Reclaimed asphalt pavement (RAP) may be used as aggregate in surface course for temporary access entrances and/or aggregate shoulders Type B. The RAP material shall be reclaimed asphalt pavement material resulting from the cold milling or crushing of an existing hot-mix bituminous concrete pavement structure, including shoulders. RAP containing contaminants such as earth, brick, concrete, sheet asphalt, sand, or other materials identified by the Department will be unacceptable until the contaminants are thoroughly removed. The RAP shall also meet the following requirements:

One hundred percent of the RAP material shall pass the 37.5 mm (1 1/2 inch) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded or single-sized will not be accepted."

AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS

Effective: April 1, 2001

Revise Article 402.10 of the Standard Specifications to read:

"402.10 For Temporary Access. The contractor shall construct and maintain an aggregate surface course for temporary access to private entrances, commercial entrances and roads according to Article 402.07 and as directed by the Engineer.

The aggregate surface course shall be constructed to the dimensions and grades specified below, except as modified by the plans or as directed by the Engineer.

- (a) Private Entrance. The minimum width shall be 3.6 m (12 ft). The minimum compacted thickness shall be 150 mm (6 in.). The maximum grade shall be eight percent, except as required to match the existing grade.
- (b) Commercial Entrance. The minimum width shall be 7.2 m (24 ft). The minimum compacted thickness shall be 230 mm (9 in.). The maximum grade shall be six percent, except as required to match the existing grade.
- (c) Road. The minimum width shall be 7.2 m (24 ft). The minimum compacted thickness shall be 230 mm (9 in.). The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

Maintaining the temporary access shall include relocating and/or regrading the aggregate surface coarse for any operation that may disturb or remove the temporary access. The same type and gradation of material used to construct the temporary access shall be used to maintain it.

When use of the temporary access is discontinued, the aggregate shall be removed and utilized in the permanent construction or disposed of according to Article 202.03."

Add the following to Article 402.12 of the Standard Specifications:

"Aggregate surface course for temporary access will be measured for payment as each for every private entrance, commercial entrance or road constructed for the purpose of temporary access. If a residential drive, commercial entrance, or road is to be constructed under multiple stages, the aggregate needed to construct the second or subsequent stages will not be measured for payment but shall be included in the cost per each of the type specified."

Revise the second paragraph of Article 402.13 of the Standard Specifications to read:

"Aggregate surface course for temporary access will be paid for at the contract unit price per each for TEMPORARY ACCESS (PRIVATE ENTRANCE), TEMPORARY ACCESS (COMMERCIAL ENTRANCE) or TEMPORARY ACCESS (ROAD).

Partial payment of the each amount bid for temporary access, of the type specified, will be paid according to the following schedule:

- (a) Upon construction of the temporary access, sixty percent of the contract unit price per each, of the type constructed, will be paid.
- (b) Subject to the approval of the Engineer for the adequate maintenance and removal of the temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access.”

BACKFILLING STORM SEWER UNDER ROADWAY

Effective: September 30, 1985

Revised: July 2, 1994

For storm sewer constructed under the roadway, backfilling methods two and three authorized under the provisions of Article 550.07 will not be allowed.

CLEANING EXISTING DRAINAGE STRUCTURES

Effective: September 30, 1985

Revised: January 1, 2007

All existing storm sewers, pipe culverts, manholes, catch basins and inlets shall be considered as drainage structures insofar as the interpretation of this Special Provision is concerned. When specified for payment, the location of drainage structures to be cleaned will be shown on the plans.

All existing drainage structures which are to be adjusted or reconstructed shall be cleaned in accordance with Article 602.15 of the Standard Specifications. This work will be paid for in accordance with Article 602.16 of the Standard Specifications.

All other existing drainage structures which are specified to be cleaned on the plans will be cleaned in accordance with Article 602.15 of the Standard Specifications. This work will be paid for at the contract unit price each for DRAINAGE STRUCTURES TO BE CLEANED, and at the contract unit price per meter (foot) for STORM SEWERS TO BE CLEANED.

WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT)

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 FOR EXPRESSWAYS and TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR) 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 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 PLAN

Effective: September 30, 1985

Revised: January 1, 2007

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:State

701011 701101 701201 701206 701311 701400 701401 701411
701426 701446 701501 701502 701601 701602 701606
701701 701801 701901 704001

DETAILS:

General Notes, Staging Notes, Construction Staging Drawings, Detour Plan
TC-8, TC-9, TC-10, TC-11, TC-12, TC-13, TC-14, TC-16, TC-17, TC-22, TC-26

SPECIAL PROVISIONS:

Supplemental Specifications and Special Provisions

Work Zone Traffic Control Devices (Section 702)
Notification of Reduced Width
Personal Protection Equipment
Reflective Sheeting on Channelizing Devices

District Special Provisions

Work Restriction
Maintenance of Roadways
Work Zone Traffic Control (Lump Sum Payment)
Temporary Information Signs
Changeable Message Signs
Traffic Control and Protection (Expressways)
Traffic Control and Protection for Temporary Detour
Failure to Open Lanes to Traffic
Keeping the Expressway Open to Traffic

Recurring Special Provisions

Check sheet No. 24 Work Zone Public Information Signs
Check sheet No. 25 Night Time Inspection of Roadway Lighting

BDE Special Provisions

Flagger at Side Roads & Entrances
Post Mounting of Signs

INSPECTION OF MATERIALS FOR PLANTING

Effective: January 1, 1998,

Revised June 16, 1998

Add the following to the end of Article 1081.01(c)(1) of the Standard Specifications:

The Contractor shall provide the Engineer 30 calendar days advance notice of the plant material to be inspected.

Add the following to Article 1081.01(c) of the Standard Specifications:

- (4) The Contractor shall retain the services of a Registered Landscape Architect approved by the Engineer, or similarly qualified independent professional approved by the Engineer, to inspect plant material grown in nurseries located outside of the State of Illinois. Inspection of plant material shall be made at the nursery and must be made in the field (or in storage houses) of the nursery supplying the material.

The Contractor shall submit a request for the approval of an independent plant material inspector to the Engineer and the request shall contain the following information:

- A statement that the plant material inspector is not employed by the Contractor or is not a consultant to the Contractor for other purposes.
- A description of professional qualifications.
- Professional license number and date of expiration if a license is required for the profession.

The request for approval of a plant material inspector shall be submitted sufficiently in advance of actual need in order to allow for review by the Department and other agencies.

The Engineer will require a minimum of up to 30 calendar days for review of the request after receipt of the submittal by the Department. The review may involve rejection or resubmittal, in which case, the time for review may increase if submittals do not contain sufficient detail.

The independent plant material inspector shall be approved by the Engineer in writing before proceeding with the inspection of plant material.

This work will not be paid for separately, but will be included in the unit price bid for the plant material items.

TREE REMOVAL

Effective: January 1, 1998

This work shall consist of tree removal as specified in Section 201 of the Standard Specifications with the following revisions:

Delete sentences 4 and 5 of Article 201.04, Tree Removal, and substitute the following:

"All trees removed shall be cut flush with the natural ground line. All stubs and stumps shall be treated with a resprout herbicide approved by the Engineer to prevent regrowth from those stumps."

KEEPING THE EXPRESSWAY OPEN TO TRAFFIC

Effective: March 22, 1996

Revised: February 9, 2005

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 Contractors' 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

WEEK	TYPE OF CLOSURE	ALLOWABLE LANE CLOSURE HOURS		
Sunday thru Thursday	One Lane	9:00 P.M.	to	5:00 P.M.
	Two Lanes	11:00 P.M.		5:00 A.M.
Friday	One Lane	10:00 P.M. (FRI.)		7:00 A.M. (SAT.)
	Two Lanes	11:59 P.M. (FRI.)		6:00 A.M. (SAT.)
Saturday	One Lane	10:00 P.M. (SAT.)		10:00 A.M. (SUN.)
	Two Lanes	11:00 P.M. (SAT.)		8:00 A.M. (SUN.)

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

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

Full Expressway Closures will only be permitted for a maximum of 15 minutes at a time during the low traffic volume hours of 1:00 A.M. to 5:00 A.M. Monday thru Friday and from 1:00 A.M. to 7:00 A.M. on Sunday. During Full Expressway Closures, the Contractor will be required to close off all lanes except one, using Freeway Standard Closures. Police forces should be notified and requested to close off the remaining lane at which time the work item may be removed or set in place. The District One Traffic Operations Department **shall be** notified (847-705-4151) at least 3 working days (weekends and holidays DO NOT count into this 72 hours notification) in advance of the proposed road closure and will coordinate the closure operations with police forces.

All stage changes requiring the stopping and/or the pacing of traffic shall take place during the allowable hours for Full Expressway Closures and shall be approved by the Department.

All daily lane closures shall be removed during adverse weather conditions such as rain, snow, and/or fog and as determined by the Engineer.

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.

TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)

Effective: 3/8/96

Revised: 5/29/09

Description. 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.

Additional requirements for traffic control devices shall be as follows.

(a) Traffic Control Setup and Removal. The setting and removal of barricades for the taper portion of a lane closure shall be done under the protection of a vehicle with a crash attenuator and arrow board. The attenuator vehicle shall be positioned in the live lane that is being closed or opened in advance of the workers and shall have the arrow panel directing traffic to the adjacent open lane. Failure to meet this requirement will subject to a Traffic Control Deficiency charge. The deficiency will be calculated as outlined in Article 105.03 of the Standard Specifications. Truck/trailer mounted attenuators shall comply with Article 1106.02(g) or shall meet the requirements of NCHRP 350 Test Level 3 with vehicles used in accordance with manufacturer's recommendations and requirements.

(b) Sign Requirements

(1) Sign Maintenance. 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".

(2) Work Zone Speed Limit Signs. Work zone speed limit signs shall be installed as required in Article 701.14(b) and as shown in the plans and Highway Standards. Based upon the existing posted speed limit, work zone speed limits shall be established and signed as follows.

a. Existing Speed Limit of 55mph or higher. The initial work zone speed limit assembly, located approximately 3200' before the closure, shall be 55mph as shown in 701400. Additional work zone 45mph assemblies shall be used as required according to Article 701.14(b) and as shown in the Highway Standards and plans.

b. Existing Speed Limit of 45mph. The advance 55mph work zone speed limit assembly shown in 701400 shall be replaced with a 45mph assembly. Additional work zone 45mph assemblies shall be used as required according to Article 701.14(b) and as shown in the Highway Standards and plans. "Resumes" assemblies shall be eliminated. END WORK ZONE SPEED LIMIT signs are required.

(3) Exit Signs. The exit gore signs as shown in Standard 701411 shall be a minimum size of 48 inch by 48 inch with 12 inch capital letters and a 20 inch arrow. EXIT OPEN AHEAD signs shown in Standard 701411 shall be a minimum size of 48 inch by 48 inch with 8 inch capital letters.

- (4) Uneven Lanes Signs. The Contractor shall furnish and erect "UNEVEN LANES" signs (W8-11) on both sides of the expressway, at any time when the elevation difference between adjacent lanes open to traffic equals or exceeds one inch. Signs shall be placed 500' in advance of the drop-off, within 500' of every entrance, and a minimum of every mile.
- (c) Drums/Barricades. Check barricades shall be placed in work areas perpendicular to traffic every 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 a flashing light.
- To provide sufficient lane widths (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.
- (d) 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.
- (e) 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 sections of the temporary concrete barrier wall as shown in Standard 704001. 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 lower slope of 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, 701402, 701406, 701411, 701416, 701426, 701446, 701901 and District details TC-8, TC-9, TC-17, TC-18 and TC-25 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 (EXPRESSWAYS) will be adjusted as follows:

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

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

Where: "X" =	$\frac{\text{Difference between original and final sum total value of all work items for which traffic control and protection is required}}{\text{Original sum total value of all work items for which traffic control and protection is required.}}$
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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.
- (e) Impact attenuators, temporary bridge rail, and temporary rumble strips will be paid for separately.
- (f) Temporary pavement markings shown not shown on the Standard will be measured and paid for according to Section 703 and Section 780.
- (g) All pavement marking removal will be measured and paid for according to Section 703 or Section 783.
- (h) Temporary pavement marking on the lower slope of the temporary concrete barrier wall will be measured and paid for as TEMPORARY PAVEMENT MARKING, 6".
- (i) All prismatic barrier wall reflectors will be measured and paid for according to the Recurring Special Provision Guardrail and Barrier Wall Delineation.

TEMPORARY INFORMATION SIGNING

Effective: November 13, 1996

Revised: January 2, 2007

Description.

This work shall consist of furnishing, installing, maintaining, relocating for various states of construction and eventually removing temporary informational signs.

Included in this item may be ground mount signs, skid mount signs, truss mount signs, bridge mount signs, and overlay sign panels which cover portions of existing signs.

Materials.

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

	<u>Item</u>	<u>Article/Section</u>
a.)	Sign Base (Notes 1 & 2)	1090
b.)	Sign Face (Note 3)	1091
c.)	Sign Legends	1092
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 4)	1090.02

Note 1. The Contractor may use 5/8 inch (16 mm) instead of 3/4 inch (19 mm) thick plywood.

Note 2. Type A sheeting can be used on the plywood base.

Note 3. All sign faces shall be Type A except all orange signs shall meet the requirements of Article 1106.01.

Note 4. The overlay panels shall be 0.08 inch (2 mm) thick.

GENERAL CONSTRUCTION REQUIREMENTS

Installation.

The sign sizes and legend sizes shall be verified by the Contractor prior to fabrication.

Signs which are placed along the roadway and/or within the construction zone shall be installed according to the requirements of Article 701.14 and Article 720.04. The signs shall be 7 ft (2.1 m) above the near edge of the pavement and shall be a minimum of 2 ft (600 mm) beyond the edge of the paved shoulder. A minimum of two (2) posts shall be used.

The attachment of temporary signs to existing sign structures or sign panels shall be approved by the Engineer. Any damage to the existing signs due to the Contractor's operations shall be repaired or signs replaced, as determined by the Engineer, at the Contractor's expense.

Signs which are placed on overhead bridge structures shall be fastened to the handrail with stainless steel bands. These signs shall rest on the concrete parapet where possible. The Contractor shall furnish mounting details for approval by the Engineer.

Method Of Measurement.

This work shall be measured for payment in square feet (square meters) edge to edge (horizontally and vertically).

All hardware, posts or skids, supports, bases for ground mounted signs, connections, which are required for mounting these signs will be included as part of this pay item.

Basis Of Payment.

This work shall be paid for at the contract unit price per square foot (square meter) for TEMPORARY INFORMATION SIGNING.

CHANGEABLE MESSAGE SIGNS

This item shall be as contained in - in accordance of Article 1106.02 (i) of the Standard Specifications for "Portable Changeable Message Signs" except as follows:

"This message panel shall also be capable of being controlled by an IBM compatible 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 will also be required to promptly reprogram the computer to provide all messages as directed by the Engineer".

4 signs will be required for this contract.

FAILURE TO COMPLETE WORK ON TIME

Should the Contractor fail to complete the work on or before the completion date as specified in the Special Provision for "COMPLETION DATE PLUS GUARANTEED WORKING DAYS", or within such extended time as may have been allowed by the Department, the Contractor shall be liable to the Department in the amount of \$ 1,450.00 not as a penalty but as liquidated damages, for each calendar day or a portion thereof of overrun in the contract time or such extended time as may have been allowed.

Should the Contractor fail to complete the work on or before the interim completion date as specified in the Special Provisions for "INTERIM COMPLETION DATE- RAMP E" and "TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR", or within such extended time as may have been allowed by the Department, the Contractor shall be liable to the Department in the amount of \$ 3,000.00 not as a penalty but as liquidated damages, for each calendar day or a portion thereof of overrun in allowable ramp closure days or such extended time as may have been allowed.

In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work since the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This said mode is an equitable rule for measurement of the Department's actual loss and fairly takes into account the loss of use of the roadway if the project is delayed in completion. The Department shall not be required to provide any actual loss in order to recover these liquidated damages provided herein, as said damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

A calendar day is every day shown on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later.

FAILURE TO OPEN TRAFFIC LANES TO TRAFFIC

Effective: March 22, 1996

Revised: February 9, 2005

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 = \$ 3000

Two lanes blocked = \$ 5000

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 FOR TEMPORARY DETOUR

When traffic is to be directed over a detour route, the Contractor shall furnish, erect, maintain and remove all applicable traffic control devices along the detour route.

The Contractor shall obtain written permission from the Engineer before closing Ramp "E" (I-290 WB exit ramp to Lake Street) and beginning construction work. Lane closures on I-290 WB and Ramp "E" as detailed in the plans shall be in place prior to closing the ramp. The Contractor shall complete all contract items and safely open Ramp "E" to traffic within a maximum of 25 calendar days from the start of work on the ramp reconstruction. The Resident Engineer will certify the starting date and will record the number of days the ramp is closed. The ramp shall be open to traffic according to Article 701.17(c)(5). The Contractors attention is directed to the special provision for "FAILURE TO COMPLETE THE WORK ON TIME".

Furnishing, erecting, maintaining and removing traffic control devices along detour routes, in accordance with the details shown in the plans, will be paid for at the contract unit price each for "TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR".

CONCRETE STRUCTURES

This work shall consist of the fabrication and installation of two concrete check dams. The concrete check dam at Sta. 382+00 has the following dimensions: height – 7 feet, thickness – 2 feet, and length 36 feet. The check dam is to be constructed with a 6 foot long weir and two 24" diameter openings. The concrete check dam at Ramp "F" Sta. 3+50 has the following dimensions: height – 7 feet, thickness – 2 feet, and length 32 feet. The check dam is to be constructed with a 6 foot weir and one 12" opening. These culverts are shown on the plans.

This work shall be paid for at the contract price per cubic yard for CONCRETE STRUCTURES. The price shall be payment in full for all labor, equipment and materials necessary to complete the work. The price shall also include the disposal of the removed material as specified in the plans and/or as directed by the Engineer.

RESTRICTED DEPTH CATCH BASINS, 4'-DIAMETER, TYPE 3 FRAME AND GRATE

This work shall consist of the installation of restricted depth catch basins in accordance with the applicable portions of Section 602 of the Standard Specifications. The restricted depth catch basins shall be constructed with precast reinforced concrete flat slab tops as shown in Highway Standard 602601.

This work shall be paid for at the contract price each for RESTRICTED DEPTH CATCH BASINS, 4' -DIAMETER, TYPE 3 FRAME AND GRATE. The price shall be payment in full all labor, equipment and materials necessary to complete the work.

RESTRICTED DEPTH CATCH BASINS, 4'-DIAMETER, TYPE 24 FRAME AND GRATE

This work shall consist of the installation of restricted depth catch basins in accordance with the applicable portions of Section 602 of the Standard Specifications. The restricted depth catch basins shall be constructed with precast reinforced concrete flat slab tops as shown in Highway Standard 602601.

This work shall be paid for at the contract price each for RESTRICTED DEPTH CATCH BASINS, 4' -DIAMETER, TYPE 24 FRAME AND GRATE. The price shall be payment in full all labor, equipment and materials necessary to complete the work.

RESTRICTED DEPTH MANHOLES, 4'-DIAMETER, TYPE 1 FRAME, OPEN LID

This work shall consist of the installation of restricted depth manholes in accordance with the applicable portions of Section 602 of the Standard Specifications. The restricted depth manholes shall be constructed with precast reinforced concrete flat slab tops as shown in Highway Standard 602601.

This work shall be paid for at the contract price each for RESTRICTED DEPTH MANHOLES, 4' -DIAMETER, TYPE 1 FRAME, OPEN LID. The price shall be payment in full for all labor, equipment and materials necessary to complete the work.

RESTRICTED DEPTH MANHOLES, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID

This work shall consist of the installation of restricted depth manholes in accordance with the applicable portions of Section 602 of the Standard Specifications. The restricted depth manholes shall be constructed with precast reinforced concrete flat slab tops as shown in Highway Standard 602601.

This work shall be paid for at the contract price each for RESTRICTED DEPTH MANHOLES, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID. The price shall be payment in full for all labor, equipment and materials necessary to complete the work.

RESTRICTED DEPTH MANHOLES, 4'-DIAMETER, TYPE 8 GRATE

This work shall consist of the installation of restricted depth manholes in accordance with the applicable portions of Section 602 of the Standard Specifications. The restricted depth manholes shall be constructed with precast reinforced concrete flat slab tops as shown in Highway Standard 602601.

This work shall be paid for at the contract price each for RESTRICTED DEPTH MANHOLES, 4'-DIAMETER, TYPE 8 GRATE. The price shall be payment in full for all labor, equipment and materials necessary to complete the work.

RESTRICTED DEPTH MANHOLES, 5'-DIAMETER, TYPE 1 FRAME, OPEN LID

This work shall consist of the installation of restricted depth manholes in accordance with the applicable portions of Section 602 of the Standard Specifications. The restricted depth manholes shall be constructed with precast reinforced concrete flat slab tops as shown in Highway Standard 602601.

This work shall be paid for at the contract price each for RESTRICTED DEPTH MANHOLES, 5'-DIAMETER, TYPE 1 FRAME, OPEN LID. The price shall be payment in full for all labor, equipment and materials necessary to complete the work.

RESTRICTED DEPTH MANHOLES, 5'-DIAMETER, TYPE 8 GRATE

This work shall consist of the installation of restricted depth manholes in accordance with the applicable portions of Section 602 of the Standard Specifications. The restricted depth manholes shall be constructed with precast reinforced concrete flat slab tops as shown in Highway Standard 602601.

This work shall be paid for at the contract price each for RESTRICTED DEPTH MANHOLES, 5'-DIAMETER, TYPE 8 GRATE. The price shall be payment in full for all labor, equipment and materials necessary to complete the work.

RESTRICTED DEPTH MANHOLES, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID

This work shall consist of the installation of restricted depth manholes in accordance with the applicable portions of Section 602 of the Standard Specifications. The restricted depth manholes shall be constructed with precast reinforced concrete flat slab tops as shown in Highway Standard 602601.

This work shall be paid for at the contract price each for RESTRICTED DEPTH MANHOLES, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID. The price shall be payment in full for all labor, equipment and materials necessary to complete the work.

MANHOLES TO BE RECONSTRUCTED (SPECIAL)

This work shall consist of the removal of portions of manhole, Structure No. 47, in accordance with the applicable portions of Section 503 of the Standard Specifications and the details as shown in the plans. Structure No. 47, located at Station 382+60, 40.5 feet Right, on Lake Street shall be modified to allow the installation of a new 5' x 2' box culvert, after the removal of the existing 4' x 2' box culvert which exits the north wall of the manhole. The existing 48" storm sewer from the west and 12" pipe from the south are to remain. Additional reconstruction is required to modify the top slab to allow for construction of the proposed curb and gutter.

This work shall be paid for at the contract price each for MANHOLES TO BE RECONSTRUCTED (SPECIAL). The price shall be payment in full all labor, equipment and materials necessary to complete the work. The price shall also include the disposal of the removed material and all related items to enable the construction of new box culvert and road improvements as specified in the plans and/or as directed by the Engineer.

BOX CULVERT REMOVAL

This work shall consist of the removal and disposal of box culverts in accordance with the applicable portions of Section 501 of the Standard Specifications. The culvert to be removed crosses U.S. Route 20 at Sta. 382+65 (24" x 48" concrete box culvert). The box culvert is shown on the plans. Any other box culverts encountered during construction requiring removal shall follow this special provision.

This work shall be paid for at the contract price per foot for BOX CULVERT REMOVAL. The price shall be payment in full for all labor, equipment and materials necessary to complete the work. The price shall also include the disposal of the removed material and removal of end sections, wingwalls, aprons, rebar, and all related items to enable the construction of a replacement drainage structure as specified in the plans and/or as directed by the Engineer.

CONCRETE COLLAR, SPECIAL

This work shall consist of constructing a new concrete collar around the end of the new 5' x 2' box culvert where the box culvert butts up to existing structure No. 47 (see detail drawings).

This work shall be paid for at the contract price each for CONCRETE COLLAR, SPECIAL. The price shall be payment in full for all labor, equipment and materials (including concrete, reinforcement bars and expansion bolts) necessary to complete this work.

REMOVING INLETS, SPECIAL

This work shall consist of the removal and disposal of the existing inlets with flat top concrete slabs and sidewall openings (Type 1) at the locations shown in the plans and in accordance with Section 501 of the Standard Specifications.

This work shall be paid for at the contract price each for REMOVING INLETS, SPECIAL. The price shall be payment in full all labor, equipment and materials necessary to complete the work. The price shall also include the disposal of the removed material and all related items as specified in the plans and/or as directed by the Engineer.

MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE

This work shall consist of the installation of a new manhole equipped with a restrictor plate as shown in the plan details. There are two structures, one located at Station 41+18, Offset 21' Left on York Road and one located at Station 353+80, Offset 3' Right on Lake Street.

This work shall be paid for at the contract price each for MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE. The price shall be payment in full for all labor, equipment and materials necessary to complete the work. All restrictor plates, angles and hardware are to be included in the cost of the manhole. The price shall also include the disposal of the removed material and all related items to enable the construction of a drainage structure as specified in the plans and/or as directed by the Engineer.

ENGINEER'S FIELD OFFICE TYPE A (SPECIAL)

Effective: January 2002

Revise the first paragraph of Article 670.02 to read:

Engineer's Field Office Type A (Special). Type A (Special) field offices shall have a ceiling height of not less than 2 m (7 ft.) and a floor space of not less than 115 m² (1240 sq. ft.) with a minimum of two separate offices. The office shall also have a separate storage room capable of being locked for the storage of the nuclear measuring devices. The office shall be provided with sufficient heat, natural and artificial light, and air conditioning. Doors and windows shall be equipped with locks approved by the Engineer.

Revise the second sentence of the fourth paragraph of Article 670.02 to read:

Solid waste disposal consisting of seven waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service.

Revise the fifth paragraph of Article 670.02 to read:

An electronic security system that will respond to any breach of exterior doors and windows with an on site alarm shall be provided.

Add the following to Article 670.02:

A weekly cleaning service for the office shall be provided.

Revise subparagraph (a) of Article 670.02 to read:

(a) Six desks with minimum working surface 1.1 m x 750 mm (42 in. x 30 in.) each and six non-folding chairs with upholstered seats and backs.

Revise the first sentence of subparagraph (c) of Article 670.02 to read:

(c) Two four-post drafting table with minimum top size of 950 mm x 1.2 m (37 ½ in. x 48 in.).

Revise subparagraph (d) of Article 670.02 to read:

(d) Two free standing four drawer legal size file cabinet with lock and an underwriters' laboratories insulated file device 350 degrees one hour rating.

Revise subparagraph (e) of Article 670.02 to read:

(e) Eight folding chairs.

Revise subparagraph (h) of Article 670.02 to read:

(h) Two electric desk type tape printing calculator and two pocket scientific notation calculators with a 1000 hour battery life or with a portable recharger.

Revise subparagraph (i) of Article 670.02 to read:

(i) Four telephones, with touch tone, where available, two telephone answering machines, and five telephone lines including one line for the fax machine, and two lines for the exclusive use of the Engineer.

Revise subparagraph (j) of Article 670.02 to read:

(j) 1 dry process copy machine capable of reproducing prints up to 280 mm x 430 mm (11 in. x 17 in.) from nontransparent master sheets, as black or blue lines on white paper, including maintenance, reproduction paper, activating agent and power source.

Revise subparagraph (k) of Article 670.02 to read:

(k) One plain paper fax machine including maintenance and supplies.

Revise subparagraph (l) of Article 670.02 to read:

(l) One electric water cooler dispenser including water service.

Add the following subparagraphs to Article 670.02:

(n) One 1.2m x 1.8m (4 ft. x 6 ft.) chalk board or dry erase board.

Basis of Payment. The building or buildings fully equipped, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD OFFICE TYPE A (SPECIAL) and according to the applicable portions of Article 670.07.

WATER VALVES TO BE ADJUSTED

This work shall consist of adjusting domestic water valves at the locations shown in the plans or as designated by the Engineer.

This work shall be completed per Section 565 of the Standard Specifications and per the City of Elmhurst's standards or as directed by the Engineer.

This work shall be paid for at the contract unit price each for WATER VALVES TO BE ADJUSTED, which price shall include all labor and equipment necessary to complete the adjustment of said water valves as herein specified.

DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED

This work shall consist of adjusting domestic water valves at the locations shown in the plans or as designated by the Engineer.

This work shall be completed per Section 565 of the Standard Specifications and per the City of Elmhurst's standards or as directed by the Engineer.

This work shall be paid for at the contract unit price each for DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED, which price shall include all labor and equipment necessary to complete the adjustment of said water valves as herein specified.

FIRE HYDRANTS TO BE MOVED

There are several fire hydrants that must be relocated within the City of Elmhurst.

This work shall be completed per Section 564 of the Standard Specifications and per the City of Elmhurst's standards (see detail attached in these Specifications). The City of Elmhurst requires that only mechanical joints be allowed between the main and the hydrants. Also, only City personnel are allowed to turn water main valves. The City will evaluate the condition of the hydrants and may facilitate the Contractor's operation by supplying new hydrants to be installed. The Contractor shall notify the Engineer and Elmhurst a minimum of three days prior to relocating the fire hydrants. The old hydrants will remain the property of the City of Elmhurst.

This work will be paid for at the contract unit price each for FIRE HYDRANTS TO BE MOVED, which price shall include all labor and equipment necessary to complete the relocation of the fire hydrants.

FENCE REMOVAL

This work shall consist of the removal of existing chain link fences, including post foundations, fittings, gates, posts, and accessories. The Contractor shall do so at locations shown on the plans or as directed by the Engineer. The existing fence shall be carefully removed and delivered to the owners or properly disposed of as directed by the Engineer. Any part of the fence that is damaged and not called out to be removed, will be replaced at the Contractor's expense.

This work will be paid for at the contract unit price per lineal foot for FENCE REMOVAL, which includes all equipment, delivery and labor involved to remove, deliver and dispose of the fence and miscellaneous accessories (posts, gates, fittings, etc.).

ORNAMENTAL FENCE

This work shall consist of the installation of ornamental fence along US Route 20 (Lake Street) between Sta. 377+00 and Sta. 384+85, right. Installation of the fence shall be according to the City of Elmhurst requirements, Department Standard Specifications and as directed by the Engineer. The fence shall be as on the plans and as approved by the City of Elmhurst and the Engineer.

Method of Measurement: Ornamental fence shall be measured from end post to end post of the installed fence and paid for by the linear foot.

Basis of Payment: Installed fence will be paid for as ORNAMENTAL FENCE at the contract unit price per linear foot. The contract unit price for ORNAMENTAL FENCE shall include all labor and materials necessary to install the fence.

RECONSTRUCT BLOCK WALL

Description: This work consists of the removal and replacement of the existing block retaining wall in the median from approximate Sta. 45+26 to Sta. 46+31 on York Road. The replacement of the block wall will accommodate the proposed geometrics of the York Road/US Route 20 intersection.

The Contractor shall not disturb the existing trees in the median. The City of Elmhurst will remove the existing vegetation within the planter prior to the contractor beginning work. See the General Notes regarding the irrigation system within the planter.

Materials: The Contractor shall remove portions of the existing block wall median planter and reconstruct with new block wall units at the location as shown in the plans and as directed by the Engineer. The Contractor shall be careful not to damage the remaining blocks in the removal and replacement operations. The height of the wall varies and shall be reconstructed as shown in the plans.

All excess material resulting from the replacement of the block wall shall be disposed of according to Article 202.03. Block wall units shall be approved by the City of Elmhurst prior to installation. Units may be purchased from the City of Elmhurst or an approved private supplier. Block color shall be approved by the Engineer to match the existing wall.

Method of Measurement/Basis of Payment: All work associated with the removal and replacement of the block wall median planter will be paid for at the contract lump sum price for BLOCKWALL RECONSTRUCT. The price shall be payment in full for all equipment, labor, material, and incidentals necessary to perform the work including removing the existing blocks, installing the new blocks and all excavation and replacement of the topsoil, mulch and backfill of the areas enclosed by the relocated block retaining wall. No additional compensation will be allowed for block wall units that are damaged by the Contractor's operations.

SUBBASE GRANULAR MATERIAL, CONCRETE CURB AND GUTTER, TYPE B-6.12 and CONCRETE MEDIAN SURFACE 4" will be paid for separately.

GRADING AND LANDSCAPING PLAN

Description: This work shall consist of the construction of landscape berms as shown in the plans or as directed by the Engineer. Construction of the berms shall follow applicable provisions of the Standard Specifications, Section 205, "EMBANKMENTS".

Materials: This work shall consist of construction by depositing, placing, and compacting earth, stone, gravel, or other materials of acceptable quality, obtained from the excavation and removal items for the Lake Street construction. The embankment for the berms shall be constructed to within 1 foot of the finished grade. The berm embankment shall then be capped with an eight-inch layer of soil suitable for vegetation growth and a four-inch layer of TOPSOIL. The side slopes for the embankments shall be 3:1 or flatter. The berm areas shall be seeded with CLASS 4 SEEDING.

Method of Measurement/Basis of Payment: EMBANKMENT will not be measured for payment. Mechanical compaction will not be measured for payment. Embankment and any additive or water applied will not be paid for directly but shall be considered as included in the various items of excavation, and their construction shall be included in the unit prices for these items. TOPSOIL 8" and SEEDING CLASS 4 (MODIFIED) will be measured and paid for separately.

No additional claims for compensation will be allowed for stockpiling of excess waste materials from Lake Street construction for later construction of the berms. If the Contractor elects to stockpile material, he/she shall use a secure site approved by the Engineer. Stockpiling or "double handling" of excess excavation materials will be at the Contractor's expense and if required shall be included in the cost of various items of excavation.

SEEDING, CLASS 4 (MODIFIED)

This work shall consist of Seeding of Class 4 (Modified) in areas as shown in the plans or a directed by the Engineer.

All work, materials, and equipment shall conform to Sections 250 and 1081 of the Standard Specifications except as modified herein.

The Class 4 (Modified) seed mixture seed mixture shall be supplied in separate bags of the three mixture components: Temporary Cover and Permanent Grasses. All native species will be local genotype and will be from a radius of 150 miles from the site. Fertilizer is not required.

Article 250.07 Seeding Mixtures – Delete sentence 4. Add the following to Table 1 – Seeding Mixtures:

<u>CLASS – TYPE</u>	<u>SEEDS</u>	<u>BULK LBS/ACRE</u>
4 (Modified) Native Grasses:		7.0
	Andropogon gerardi (Big Bluestem)	1.5
	Bouteloua curtipendula (Side-oats Grama)	1.5
<u>CLASS – TYPE</u>	<u>SEEDS</u>	<u>BULK LBS/ACRE</u>
	Schizachyrium scoparium (Little Bluestem)	3.0
	Sorghastrum nutans (Indian Grass)	1.0
Temporary Cover:	Avena sativa (Annual Oats)	32.0

Notes:

1. The seeding time for this work shall be November 15 to March 15. Seeding done outside of this time frame will not be measured for payment.
2. Purity and germination tests no older than twelve months old must be submitted to verify all bulk seed supplied meets materials requirements.
3. The seedbed shall be prepared and approved by the Engineer prior to seeding. The Contractor shall delineate the perimeter of the seedbed with wooden lathe. The wooden lathe shall remain in place.
4. No seed shall be sown during high winds or when the ground is not in proper condition for seeding.
5. The Engineer must witness the delivery of seed with original labels attached in the field. Provide to the Engineer the seed labels from the bags in which the seed is delivered in.
6. Temporary cover seed shall be kept separate from the Native Grass seed mixture. It shall be mixed on site under the direction of the Engineer.
7. In order to eliminate potential introduction of invasive or exotic species, all equipment used on the planting site shall be free of mud and/or plant material. This includes tires, mower decks, undercarriage, etc.
8. The Annual Oats shall be thoroughly mixed with the Native Grass seed and seeded using a mechanical seeder that applies the seed uniformly at a depth of ¼ inch. The seedbed shall be immediately mulched as specified.
9. If specified Plateau herbicide tolerant designed seed material is unavailable, the Engineer shall approve the substitutes. All substitutions shall also be tolerant to (Ammonium salt of imazapic (+/-)-2-[4,5-dihydro-4-menthyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-methyl-3-pyrudubecarboxylic acid (Plateau Herbicide). Adjustments will be made at no cost to the contract. Approval of substitutes shall in no way waive any requirements of the contract.

Article 250.09 – Add Seeding, Class 4 (Modified)
 Article 250.10 – Add Seeding, Class 4 (Modified)
 Article 1081.04 Seeds – Add the following to Table II:

TABLE II							
Variety of Seeds	Hard Seed % Max.	Purity % Min.	Germ Min % **	Pure Live Seed % Min.	Weed % Max.	Secondary * Noxious Weeds No. per oz Max. Permitted	Notes
Andropogon gerardii (Big Blue Stem)	-	85	70	59.5	-	-	-
Bouteloua curtipendula (Side-Oats Grama)	-	85	70	59.5	-	-	-
Schizachyrium scoparium (Little Blue Stem)	-	85	70	59.5	-	-	-
Sorghastrum nutans (Indian Grass)	-	85	70	59.5	-	-	-

Add the following notes:

- * No Primary Noxious Weeds are permitted.
- ** Germination Minimum = 5 germination plus hard or dormant

EROSION CONTROL BLANKET

This Special Provision revises Section 251 of the Standard Specifications for Road and Bridge Construction to eliminate the use of Excelsior Blanket for Erosion Control Blanket.

Delete Article 251.04(a) Excelsior Blanket.

WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE

Description: This work shall consist of spreading a pre-emergent granular herbicide in areas as shown on the plans or as directed by the Engineer. This item will be used in mulched plant beds and mulch rings.

Materials: The pre-emergent granular herbicide (Snapshot 2.5 TG or equivalent) shall contain the chemicals Trifluralin 2% active ingredient and Isoxaben with 0.5% active ingredient. The herbicide label shall be submitted to the Engineer for approval at least seventy-two (72) hours prior to application.

Method: The pre-emergent granular herbicide shall be used in accordance with the manufacturer's directions on the package. The granules are to be applied prior to mulching.

Apply the granular herbicide using a drop or rotary-type designed to apply granular herbicide or insecticides. Calibrate application equipment to use according to manufacturer's directions. Check frequently to be sure equipment is working properly and distributing granules uniformly. Do not use spreaders that apply material in narrow concentrated bands. Avoid skips or overlaps as poor weed control or crop injury may occur.

More uniform application may be achieved by spreading half of the required amount of product over the area and then applying the remaining half in swaths at right angles to the first. Apply the granular herbicide at the rate of 100 lbs/acre (112 kg/ha) or 2.3 lbs/1000 sq. ft. (11.2 kg/1000 sq. meters).

Method of Measurement: Pre-emergent granular herbicide will be measured in place in Pounds (Kilograms) of Pre-emergent Granular Herbicide applied. Areas treated after mulch placement shall not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per pound (kilogram) of WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE which price shall include all materials, equipment, and labor necessary to complete the work as specified.

PLANTING WOODY PLANTS

This work shall consist of planting woody plants as specified in Section 253 of the Standard Specifications with the following revisions:

Delete Article 253.03 Planting Time and substitute the following:

Spring Planting. This work shall be performed between March 15th and May 31st except that evergreen planting shall be performed between March 15th and April 30th in the northern zone.

Add the following to Article 253.03 (a) (2):

All plants shall be obtained from Illinois Nurserymen's Association or appropriate state chapter nurseries. All trees and shrubs shall be dug prior to leafing out (bud break) in the spring or when plants have gone dormant in the fall, except for the following species which are only to be dug prior to leafing out in the spring:

- Hackberry (*Celtis occidentalis*)
- Hawthorn (*Crataegus* spp.)
- Schubert Chokecherry (*Prunus virginiana* 'Schubert')
- Oak (*Quercus* spp.)
- Ivory Silk Japanese Tree Lilac (*Syringa reticulata* 'Ivory Silk')
- Bald Cypress (*Taxodium distichum*)

Fall Planting. This work shall be performed between October 1st and November 30th except that evergreen planting shall be performed between August 15th and October 15th.

Planting dates are dependent on species of plant material and weather. Planting might begin or end prior or after above dates as approved by the Engineer. Do not plant when soil is muddy or during frost. No plant material shall be installed prior to the final grade of the planting soil. Trees must be installed first to establish proper layout and to avoid damage to other plantings.

All plant material not planted according to the specified seasonal date shall require prior written approval from the Engineer. Failure to secure such approval shall result in the rejection of the plant material and replacement at no additional cost to the Department.

Add the following to Article 253.05 Transportation:

Cover plants during transport. Plant material transported without cover shall be automatically rejected.

Delete the third sentence of Article 253.07 and substitute the following:

The landscape contractor will place the marking flags and outline each area for mass or solid planting. Allow a minimum of seven (7) days prior to installation for layout approval by Fabiola Quiroz 847.705.4596.

Delete Article 253.08 Excavation of Plant Holes and substitute the following:

Protect structures, utilities, sidewalks, knee walls, fences, pavements, utility boxes, other facilities, lawns and existing plants from damage caused by planting operations.

Holes for trees shall be dug at the location indicated by the marking stakes. Holes for shrubs shall be dug within the marked outline of the planting bed. The spacing of plants will be designated on the plans. Spacing shall be measured from center-to-center, and alternate rows shall be staggered.

Excavate with sides vertical, bottom flat but with high center for drainage. Deglaze sides and loosen bottom. The diameter of the hole shall be 1 foot wider than the root spread. The depth of the hole shall be such that the top of the root ball is 2 to 3 inches above finished grade (allow for settling). Remove all excavated subsoil from the site and dispose as specified in Article 202.03. The excavated material shall not be stockpiled on turf or in ditches.

Delete the third and fourth paragraphs of Article 253.10 Planting Procedures and Article 253.10 (a) and substitute the following:

Trees, shrubs, and vines shall be thoroughly watered with a method approved by the Engineer. Approved watering equipment shall be at the site of the work and in operational condition PRIOR TO STARTING the planting operation and DURING all planting operations OR PLANTING WILL NOT BE ALLOWED.

Set plants in the excavated hole with top of ball 2 to 3 inches above finished grade. Add soil as required under ball to achieve plumb. Untie all cords binding burlap to trunk. Remove all burlap and wire baskets from top 1/3 of the root ball. Where rocks, gravel, heavy clay or other debris are encountered, clean top soil shall be used. Do not backfill excavation with subsoil.

Place backfill in 6 inch-thick layers. Work each layer by hand to compact backfill and eliminate voids. Maintain plumb during backfilling. When backfill is approximately 2/3 complete, saturate backfill with water and repeat until no more water can be absorbed. Place and compact remainder of backfill and thoroughly water again.

Delete Article 253.11 and substitute the following:

Within 48 hours after planting, mulch shall be placed around all plants in the entire mulched bed or saucer area specified to a depth of 4 inches (100 mm). No weed barrier fabric will be required for tree and shrub planting. Pre-emergent Granular Herbicide will be used instead of weed barrier fabric. The Pre-emergent Granular Herbicide shall be applied after mulching.

See specification for Weed Control, Pre-Emergent Granular Herbicide.

Hardwood bark mulch shall be clean, finely shredded mixed-hardwood bark not to exceed two (2) inches in its largest dimension, free of foreign matter, sticks, stones, and clods. All hardwood mulch shall be processed through a hammer mill. Hardwood bark not processed through a hammer mill shall not be accepted. A sample and request for material inspection form must be supplied to the Engineer for approval prior to performing any work.

Care shall be taken not to bury leaves, stems, or vines under mulch material. Mulch shall not be in contact with the base of the trunk. Shrub beds must have a neatly spaded edge between the mulched bed and the turf. All finished mulch areas shall be left smooth and level to maintain uniform surface and appearance. After the mulch placement, any debris or piles of material shall be immediately removed from the right of way, including raking excess mulch out of turf areas.

Delete Article 253.12 Wrapping and substitute the following:

Any paper or cardboard trunk wrap must be removed before placing the tree in the tree hole in order to inspect the condition of the trunks. Within 24 hours, "A layer of commercial screen wire mesh shall be wrapped around the trunk of all deciduous trees. All other plants planted individually shall be similarly wrapped when directed by the Engineer. The screen wire shall be secured to itself with staples or single wire strands tied to the mesh. Trees shall be wrapped at time of planting, before the installation of mulch. The lower edge of the screen wire shall be in continuous contact with the ground and shall extend up to the lowest major branch.

Add the following to Article 253.13 Bracing:

Trees required to be braced shall be braced within 24 hours of planting.

Add the following to the first paragraph of Article 253.14 Period of Establishment:

Prior to being accepted, the plants shall endure a period of establishment. This period shall begin in June and end in December of the same year.

Delete the first paragraph of Article 253.15 (a) Plant Care and substitute the following:

During the period of Establishment, additional watering shall be performed at least twice a week during the months of May through December at a minimum rate of 30 gallons of water per tree and 8 gallons of water per shrub. The Engineer may direct the Contractor to adjust the watering rate and frequency depending upon weather conditions.

Delete Article 253.17 Basis of Payment and substitute the following:

This work will be paid for 75% of the contract unit price each for several kinds and sizes of trees and shrubs found to be alive and healthy condition by May 31st, as specified in Article 253.14. The remaining 25% of the contract unit price each will be paid for after the successful completion of all required replacement plantings and clean-up work and receipt of the "Final Acceptance of Landscape Work" memorandum from the Bureau of Maintenance. The unit price shall include the cost of all material, equipment, labor, plant care, disposal and incidental required to complete the work as specified herein and to the satisfaction of the Engineer.

The placement of Pre-emergent Herbicide shall be paid for at the contract unit price for WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE.

FRAMES AND LIDS TO BE ADJUSTED (SPECIAL)

Effective: August 1, 1995

Revised: November 1, 1996

Add the following to Article 603.09 of the Standard Specifications:

“Removing frames and lids on drainage and utility structures in the pavement prior to milling, and adjusting to final grade prior to placing the surface course, will be paid for at the contract unit price each for FRAMES AND LIDS TO BE ADJUSTED (SPECIAL)

This work will not be paid for when drainage and utility structures are specified for payment as structure reconstruction.”

GUARDRAIL MARKERS, TYPE A

Description. Work under this item shall be the installation of Guardrail Markers, Type A at the locations and to the details shown on the plans. All work shall be in accordance with the applicable portions of Section 782 of the Standard Specifications.

Method of Measurement. Guardrail markers, type A will be paid for by each marker installed complete as per applicable standards and shall include all labor and materials for furnishing and installing the guardrail markers, type A.

Basis of Payment. This work will be paid for at the contract unit price per each for GUARDRAIL MARKERS, TYPE A.

PIPE UNDERDRAINS, 4” (SPECIAL)

This work shall consist of the furnishing and installation of pipe underdrains as detailed on plans, State Standard 601001, Section 601 of the Standard Specifications for Road and Bridge Construction manual and Check Sheet # 19 of the Supplemental Specifications and Recurring Special Provisions. This work is to include furnishing and installation of pipe underdrains, 4” (Special).

Basis of Payment. This work will be paid for at the contract unit price per foot for PIPE UNDERDRAIN, 4” (SPECIAL).

TRAFFIC SIGNAL SPECIFICATIONS

Effective: October 28, 2009

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer.

Traffic signal construction and maintenance work shall be performed by personnel holding IMSA Traffic Signal Technician Level II certification. The work to be done under this contract consists of furnishing and installing all traffic signal work as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

SECTION 720 SIGNING

MAST ARM SIGN PANELS.

Add the following to Article 720.02 of the Standard Specifications:

Signs attached to poles or posts (such as mast arm signs) shall have mounting brackets and sign channels which are equal to and completely interchangeable with those used by the District Sign Shops. Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware are acceptable based upon the Department's approval.

DIVISION 800 ELECTRICAL

SUBMITTALS.

Revise Article 801.05 of the Standard Specifications to read:

The Contractor shall provide:

- a. All material approval requests shall be submitted at the preconstruction meeting, including major traffic signal items listed in the table in Article 801.05..
- b. All material or equipment which are similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.
- c. Seven (7) copies of a letter from the Traffic Signal Contractor on company letterhead listing the contract number or permit number, project location/limits, pay item description, pay code number, manufacturer's name and model numbers of the proposed equipment and stating that the proposed equipment meets all contract requirements. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approvable.
- d. Seven (7) copies of shop drawings for mast arm poles and assemblies, including combination mast arm poles, are required. A minimum of two (2) copies of all other material catalog cuts are required. Submittals for equipment and materials shall be complete. Partial or incomplete submittals will be returned without review.
- e. Certain non-standard mast arm poles and assemblies will require additional review from IDOT's Central Office. Examples include ornamental/decorative and non-standard length mast arm pole assemblies. The Contractor shall account for the additional review time in his schedule.
- f. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of the letter, material catalog cuts and mast arm poles and assemblies drawings.
- g. Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections, and/or tests of material shall be complete with all test data, dates, and times.

- h. 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.
- i. All submitted items reviewed and marked 'APPROVED AS NOTED', or 'DISAPPROVED' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify contract compliance at no additional cost to the contract.
- j. Exceptions, Deviations and Substitutions. In general, exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

k.

INSPECTION OF ELECTRICAL SYSTEMS.

Add the following to Article 801.10 of the Standard Specifications:

- (c) All cabinets including temporary traffic signal cabinets shall be assembled by an approved equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier facilities prior to field installation, at no extra cost to this contract.

MAINTENANCE AND RESPONSIBILITY.

Revise Article 801.11 of the Standard Specifications to read:

- a) Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which they are located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," shall become the full responsibility of the Contractor. Automatic Traffic Enforcement equipment is not owned by the State and the Contractor shall not be responsible for maintaining it during construction. The Contractor shall supply the engineer and the Department's Electrical Maintenance Contractor a 24-hour emergency contact name and telephone number.

- b) When the project has a pay item for “Maintenance of Existing Traffic Signal Installation,” “Temporary Traffic Signal Installation(s)” and/or “Maintenance of Existing Flashing Beacon Installation,” the Contractor must notify both the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department’s Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.
- c) Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops do not require maintenance transfer, but require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department’s Electrical Maintenance Contractor, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection. Damaged Automatic Traffic Enforcement equipment, including cameras, detectors, or other peripheral equipment, shall be replaced by others, per Permit agreement, at no cost to the contract. See additional requirements in these specifications under Inductive Loop Detector.
- d) The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shutdown the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.
- e) The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Department, the Department’s Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. 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. The District’s Electrical Maintenance Contractor may inspect any signaling device on the Department’s highway system at any time without notification.

- f) Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.

DAMAGE TO TRAFFIC SIGNAL SYSTEM.

Add the following to Article 801.12(b) of the Standard Specifications to read:

Any traffic signal control equipment damaged or not operating properly from any cause whatsoever shall be repaired with new equipment provided by the Contractor at no additional cost to the Contract and or owner of the traffic signal system, all as approved by the Engineer. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed.

Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, damaged or not operating properly from any cause whatsoever, shall be the responsibility of the municipality or the Automatic Traffic Enforcement company per Permit agreement.

TRAFFIC SIGNAL INSPECTION (TURN-ON)

Revise Article 801.15(b) of the Standard Specifications to read:

It is the intent to have all electric work completed and equipment field tested by the vendor prior to the Department's "turn-on" field inspection. If in the event the Engineer determines work is not complete and the inspection will require more than two (2) hours to complete, the inspection shall be canceled and the Contractor will be required to reschedule at another date. The maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will not grant a field inspection until notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Department's facsimile number is (847) 705-4089. The Contractor must invite local fire department personnel to the turn-on when Emergency Vehicle Preemption (EVP) is included in the project. When the contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, or TEMPORARY TRAFFIC SIGNAL TIMINGS, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation schedule, as well as stage changes and phase changes during construction.

The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and turn-on of the traffic signal installation. The Contractor shall be responsible to provide a police officer to direct traffic at the time of testing.

The Contractor shall provide a representative from the control equipment vendor's office to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons. Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the Engineer will then allow the signals to be placed in continuous operation. The Agency that is responsible for the maintenance of each traffic signal installation will assume the maintenance upon successful completion of this inspection.

The District requires the following from the Contractor at traffic signal turn-ons.

1. One set of signal plans of record with field revisions marked in red ink.
2. Written notification from the Contractor and the equipment vendor of satisfactory field testing.
3. A knowledgeable representative of the controller equipment supplier shall be required at the traffic signal turn-on. The representative shall be knowledgeable of the cabinet design and controller functions.
4. A copy of the approved material letter.
5. One (1) copy of the operation and service manuals of the signal controller and associated control equipment.
6. Five (5) copies 11" x 17" (280 mm X 430 mm) of the cabinet wiring diagrams.
7. The controller manufacturer shall supply a printed form, not to exceed 11" x 17" (280 mm X 430 mm) for recording the traffic signal controller's timings; backup timings; coordination splits, offsets, and cycles; TBC Time of Day, Week and Year Programs; Traffic Responsive Program, Detector Phase Assignment, Type and Detector Switching; and any other functions programmable from the keyboard. The form shall include a location, date, manufacturer's name, controller model and software version. The form shall be approved by the Engineer and a minimum of three (3) copies must be furnished at each turn-on. The manufacturer must provide all programming information used within the controller at the time of turn-on.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on." If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two (2) weeks after the final inspection. The Contractor shall notify the Electrical Maintenance Contractor to inspect all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of \$500 per month per incident.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed.

Materials and signal equipment not complying with the above requirements shall be subject to removal and disposal at the Contractor's expense.

LOCATING UNDERGROUND FACILITIES

Revise Section 803 to the Standard Specifications to read:

If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

RESTORATION OF WORK AREA

Add the following article to Section 801 of the Standard Specifications:

801.17 Restoration of work area. Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, trench and backfill, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. All brick pavers disturbed in the work area shall be restored to their original configuration or as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

ELECTRIC SERVICE INSTALLATION.

Revise Section 805 of the Standard Specifications to read:

Description.

This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the details in the "District One Standard Traffic Signal Design Details" and applicable portions of the Specifications.

General.

The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation.

The Contractor must request in writing for service and/or service modification within 10 days of contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the contractor and utility company. The service agreement and sketch shall be submitted for signature to the Traffic Program's engineer.

Materials.

- a. General. The completed control panel shall be constructed in accordance with UL Std. 508A, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.
- b. Enclosures.
 1. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080-inch (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14-inches (350 mm) high, 9-inches (225 mm) wide and 8-inches (200 mm) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.
 2. Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125-inch (3.175 mm) thick, the top 0.250-inch (6.350 mm) thick and the bottom 0.500-inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof stainless steel .075-inch (1.91 mm) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40-inches (1000 mm) high, 16-inches (400 mm) wide and 15-inches (375 mm) in depth is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.
- c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of -40C to +85C. The surge protector shall be UL 1449 Listed.
- d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes.

Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.

- e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.
- f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.
- g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30 day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.
- h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 feet (3.0m) in length, and 3/4 inch (20mm) in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation.

- a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.
- b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.
- c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment

The service installation shall be paid for at the contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The CONCRETE FOUNDATION, TYPE A, which includes the ground rod, shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 inch (20mm) grounding conduit, ground rod, and pole mount assembly.

Any charges by the utility companies shall be approved by the engineer and paid for as an addition to the contract according to Article 109.05 of the Standard Specifications.

GROUNDING OF TRAFFIC SIGNAL SYSTEMS.

Revise Section 806 of the Standard Specifications to read:

General.

All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. See IDOT District One Traffic Signal detail plan sheets for additional information.

The grounding electrode system shall include a ground rod installed with each traffic signal controller concrete foundation and all mast arm and post concrete foundations. An additional ground rod will be required at locations where measured resistance exceeds 25 ohms. Ground rods are included in the applicable concrete foundation or service installation pay item and will not be paid for separately.

Testing shall be according to Article 801.13 (a) (4) and (5).

- a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.
- b) The equipment grounding conductor shall be green color coded. The following is in addition to Article 801.04 of the Standard Specifications.
 - 1) Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.
 - 2) Equipment grounding conductors shall be bonded, using a Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers, conduits, and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A Listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations.
 - 3) All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.
 4. Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.

- c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, listed pressure connectors, listed clamps or other approved listed means.

GROUNDING EXISTING HANDHOLE FRAME AND COVER.

Description.

This work shall consist of all materials and labor required to bond the equipment grounding conductor to the existing handhole frame and handhole cover. All installations shall meet the requirements of the details in the "District One Standard Traffic Signal Design Details," and applicable portions of the Standard Specifications and these specifications.

The equipment grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) ½-inch diameter x 1 ¼-inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (Burdny type YGHA or approved equal). The grounding compression terminal shall be secured to the bolts with stainless steel split-lock washers and nylon-insert locknuts.

Welding preparation for the stainless steel bolt hex-head to the frame and to the cover shall include thoroughly cleaning the contact and weldment area of all rust, dirt and contaminants. The Contractor shall assure a solid strong weld. The welds shall be smooth and thoroughly cleaned of flux and spatter. The grounding installation shall not affect the proper seating of the cover when closed.

The grounding cable shall be paid for separately.

Method of Measurement.

Units measured for payment will be counted on a per handhole basis, regardless of the type of handhole and its location.

Basis of Payment.

This work shall be paid for at the contract unit price each for GROUNDING EXISTING HANDHOLE FRAME AND COVER which shall be payment in full for grounding the handhole complete.

COILABLE NON-METALLIC CONDUIT

Description.

This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC) for detector loop raceways.

General.

The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:

Add the following to Article 810.03 of the Standard Specifications:

CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes.

Add the following to Article 811.03 of the Standard Specifications:

On temporary traffic signal installations with detector loops, CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways from the saw-cut to 10 feet (3m) up the wood pole, unless otherwise shown on the plans

Basis of Payment.

All installations of CNC for loop detection shall be included in the contract and not paid for separately.

HANDHOLES

Add the following to Section 814 of the Standard Specifications:

All handholes shall be concrete, poured in place, with inside dimensions of 21-1/2 inches (549mm) minimum. Frames and lid openings shall match this dimension. The cover of the handhole frame shall be labeled "Traffic Signals" with legible raised letters.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (15.875mm) diameter stainless bolt cast into the frame. The covers shall have a stainless steel threaded stint extended from the eye hook assembly for the purpose of attaching the grounding conductor to the handhole cover.

The minimum wall thickness for heavy duty hand holes shall be 12 inches (300mm).

All conduits shall enter the handhole at a depth of 30 inches (760mm) except for the conduits for detector loops when the handhole is less than 5 feet (1.52 m) from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Steel cable hooks shall be coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 1/2 inch (12.7 mm) diameter with two 90 degree bends and extend into the handhole at least 6 inches (150 mm). Hooks shall be placed a minimum of 12 inches (300 mm) below the lid or lower if additional space is required.

GROUNDING CABLE

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add the following to Article 817.02 (b) of the Standard Specifications:

Unless otherwise noted on the Plans, traffic signal grounding conductor shall be one conductor, #6 gauge copper, with a green color coded XLP jacket.

The traffic signal grounding conductor shall be bonded, using a Listed grounding connector (Burndy type KC/K2C, as applicable, or approved equal), to all proposed and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts. The grounding conductor shall be bonded to all proposed and existing pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system and noted herein and detailed on the plans.

The grounding conductor shall be bonded to conduit terminations using rated grounding bushings. Bonding to existing handhole frames and covers shall be paid for separately.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.

Grounding cable shall be measured in place for payment in foot (meter). Payment shall be at the contract unit price for ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6, 1C, which price includes all associated labor and material including grounding clamps, splicing, exothermic welds, grounding connectors, conduit grounding bushings, and other hardware.

RAILROAD INTERCONNECT CABLE

The cable shall meet the requirements of Section 873 of the Standard Specifications, except for the following:

Add to Article 873.02 of the Standard Specifications:

The railroad interconnect cable shall be three conductor stranded #14 copper cable in a clear polyester binder, shielded with #36 AWG tinned copper braid with 85% coverage, and insulated with .016" polyethylene (black, blue, red). The jacket shall be black 0.045 PVC or polyethylene.

Add the following to Article 873.05 of the Standard Specifications:

Basis of Payment

This work shall be paid for at the contract unit price per foot (meter) for ELECTRIC CABLE IN CONDUIT, RAILROAD, NO. 14 3C, which price shall be payment in full for furnishing, installing, and making all electrical connections in the traffic signal controller cabinet. Connections in the railroad controller cabinet shall be performed by railroad personnel.

FIBER OPTIC TRACER CABLE

The cable shall meet the requirements of Section 817 of the "Standard Specifications," except for the following:

Add the following to Article 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600v, minimum length 4 inches (100 mm) and with a minimum 1 inch (25 mm) coverage over the XLP insulation, underwater grade.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.

The tracer cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C per foot (meter), which price shall include all associated labor and material for installation.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION

Revise Articles 850.02 and 850.03 of the Standard Specifications to read:

Procedure.

The energy charges for the operation of the traffic signal installation shall be paid for by others. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof.

The Contractor shall have electricians with IMSA Level II certification on staff to provide signal maintenance.

This item shall include maintenance of all traffic signal equipment at the intersection, including emergency vehicle pre-emption equipment, master controllers, uninterruptible power supply (UPS and batteries), telephone service installations, communication cables, conduits to adjacent intersections, and other traffic signal equipment, but shall not include Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, or peripheral equipment, not owned by the State.

Maintenance.

The maintenance shall be according to MAINTENANCE AND RESPONSIBILITY in Division 800 of these specifications and the following:

The Contractor shall check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to ensure that they are functioning properly. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs.

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected or otherwise removed from normal operation, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. When the signals operate in flash, the Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

The Contractor shall provide the Engineer with a 24 hour telephone number for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of the Standard Specifications and these special provisions.

The Contractor shall respond to all emergency calls from the Department or others within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the contract. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the State's Electrical Maintenance Contractor perform the maintenance work required. The State's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

TRAFFIC ACTUATED CONTROLLER

Add the following to Article 857.02 of the Standard Specifications:

Controllers shall be NTCIP compliant NEMA TS2 Type 1, Econolite ASC/3S-1000 or Eagle/Siemens M50 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved closed loop equipment manufacturers will be allowed. The controller shall be the most recent model and software version supplied by the manufacturer at the time of the approval and include the standard data key. The traffic signal controller shall provide features to inhibit simultaneous display of a circular yellow ball and a yellow arrow display. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being skipped during program changes and after all preemption events.

MASTER CONTROLLER

Revise Articles 860.02 - Materials and 860.03 - Installation of the Standard Specifications to read:

Only controllers supplied by one of the District approved closed loop equipment manufacturers will be allowed. Only NEMA TS 2 Type 1 Eagle/Siemens and Econolite closed loop systems shall be supplied. The latest model and software version of master controller shall be supplied.

Functional requirements in addition to those in Section 863 of the Standard Specifications include:

The system commands shall consist of, as a minimum, six (6) cycle lengths, five (5) offsets, three (3) splits, and four (4) special functions. The system commands shall also include commands for free or coordinated operation.

Traffic Responsive operation shall consist of the real time acquisition of system detector data, data validation, and the scaling of acquired volumes and occupancies in a deterministic fashion so as to cause the selection and implementation of the most suitable traffic plan.

Upon request by the Engineer, each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's support. Each set shall consist of software on CD, DVD, or other suitable media approved by the Engineer, and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for use in monitoring the system.

The approved manufacturer of equipment shall loan the District one master controller and two intersection controllers of the most recent models and the newest software version to be used for instructional purposes in addition to the equipment to be supplied for the Contract.

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District One staff. This telephone line may be coupled with a DSL line and a phone filter to isolate the dial-up line. An E911 address is required.

The cabinet shall be provided with an Outdoor Network Interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date.

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum and shall be capable of speeds to 38,400 or above as technology allows. The controller, when installed in an Ethernet topology, may operate non-serial communications.

The cabinet shall be equipped with a 9600 baud, auto dial/auto answer modem. It shall be a US robotics 33.6K baud rate or equal.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact (via phone) the Administrative Support Manager in the District One Business Services Section at (847) 705-4011 to request a phone line installation.

A follow-up fax transmittal to the Administrative Support Manager (847-705-4712) with all required information pertaining to the phone installation is required from the Contractor as soon as possible or within one week after the initial request has been made. A copy of this fax transmittal must also be faxed by the Contractor to the Traffic Signal Systems Engineer at (847) 705-4089. The required information to be supplied on the fax shall include (but not limited to): A street address for the new traffic signal controller (or nearby address); a nearby existing telephone number; what type of telephone service is needed; the name and number of the Contractor's employee for the telephone company to contact regarding site work and questions.

The usual time frame for the activation of the phone line is 4-6 weeks after the Business Services Section has received the Contractor supplied fax. It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor in anticipation of this time frame.

On jobs which include roadway widening in which the conduit cannot be installed until this widening is completed, the Contractor will be allowed to delay the phone line installation request to the Business Services Section until a point in time that is 4-6 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the Administrative Support Manager with an expected installation date considering the 4-6 week processing time.

The telephone line shall be installed and activated one month before the system final inspection.

All costs associated with the telephone line installation and activation (not including the Contract specified conduit installation between the point of telephone service and the traffic signal controller cabinet) shall be paid for by the District One Business Services Section (i.e., this will be an IDOT phone number not a Contractor phone number).

UNINTERRUPTIBLE POWER SUPPLY

Add the following to Article 862.01 of the Standard Specifications:

The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics, for a minimum of six hours.

Add the following to Article 862.02 of the Standard Specifications:

Materials shall be according to Article 1074.04 as modified in UNINTERRUPTIBLE POWER SUPPLY in Division 1000 of these specifications.

Add the following to Article 862.03 of the Standard Specifications:

The UPS shall additionally include, but not be limited to, a battery cabinet. The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption.

Revise Article 862.04 of the Standard Specifications to read:

Installation.

When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

At locations where UPS is installed and Emergency Vehicle Priority System is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the contract.

Revise Article 862.05 of the Standard Specifications to read:

Basis of Payment.

This work will be paid for at the contract unit price per each for UNINTERRUPTABLE POWER SUPPLY. Replacement of Emergency Vehicle Priority System confirmation beacons shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY item.

FIBER OPTIC CABLE

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 872.02 of the Standard Specifications:

The control cabinet distribution enclosure shall be CSC FTWO12KST-W/O 12 Port Fiber Wall Enclosure or an approved equivalent. The fiber optic cable shall provide six fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled "spare." Fibers not attached to the distribution enclosure shall be capped and sealed. A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

MAST ARM ASSEMBLY AND POLE

Revise Article 877.01 of the Standard Specifications to read:

Description.

This work shall consist of furnishing and installing a steel mast arm and assembly and a galvanized steel or extruded aluminum shroud for protection of the base plate.

Revise Article 877.03 of the Standard Specifications:

Mast arm assembly and pole shall be as follows.

- (a) Steel Mast Arm Assembly and Pole and Steel Combination Mast Arm Assembly and Pole. The steel mast arm assembly and pole and steel combination mast arm assembly and pole shall consist of a traffic signal mast arm, a luminaire mast arm or davit (for combination pole only), a pole, and a base, together with anchor rods and other appurtenances. The configuration of the mast arm assembly, pole, and base shall be according to the details shown on the plans.

- (1) Loading. The mast arm assembly and pole, and combination mast arm assembly and pole shall be designed for the loading shown on the Highway Standards or elsewhere on the plans, whichever is greater. The design shall be according to AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 1994 Edition for 80 mph (130 km/hr) wind velocity. However, the arm-to-pole connection for tapered signal and luminaire arms shall be according to the "ring plate" detail as shown in Figure 11-1(f) of the 2002 Interim, to the AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 2001 4th Edition.
- (2) Structural Steel Grade. The mast arm and pole shall be fabricated according to ASTM A 595, Grade A or B, ASTM A 572 Grade 55, or ASTM A 1011 Grade 55 HSLAS Class 2. The base and flange plates shall be of structural steel according to AASHTO M 270 Grade 50 (M 270M Grade 345). Luminaire arms and trussed arms 15 ft (4.5 m) or less shall be fabricated from one steel pipe or tube size according to ASTM A 53 Grade B or ASTM A 500 Grade B or C. All mast arm assemblies, poles, and bases shall be galvanized according to AASHTO M 111.
- (3) Fabrication. The design and fabrication of the mast arm assembly, pole, and base shall be according to the requirements of the Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals published by AASHTO. The mast arm and pole may be of single length or sectional design. If section design is used, the overlap shall be at least 150 percent of the maximum diameter of the overlapping section and shall be assembled in the factory.

The manufacturer will be allowed to slot the base plate in which other bolt circles may fit, providing that these slots do not offset the integrity of the pole. Circumferential welds of tapered arms and poles to base plates shall be full penetration welds.

- (4) Shop Drawing Approval. The Contractor shall submit detailed drawings showing design materials, thickness of sections, weld sizes, and anchor rods to the Engineer for approval prior to fabrication. These drawings shall be at least 11 x 17 in. (275 x 425 mm) in size and of adequate quality for microfilming.
- (b) Anchor Rods. The anchor rods shall be ASTM F 1554 Grade 105, coated by the hot-dip galvanizing process according to AASHTO M 232, and shall be threaded a minimum of 7 1/2 in. (185 mm) at one end and have a bend at the other end. The first 12 in. (300 mm) at the threaded end shall be galvanized. Two nuts, one lock washer, and one flat washer shall be furnished with each anchor rod. All nuts and washers shall be galvanized.
 - (c) The galvanized steel or extruded aluminum shroud shall have dimensions similar to those detailed in the "District One Standard Traffic Signal Design Details." The shroud shall be installed such that it allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet.

Add the following to Article 877.04 of the Standard Specifications:

The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

CONCRETE FOUNDATIONS

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. (300 mm) from the threaded end.

Concrete Foundations, Type "A" for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "District One Standard Traffic Signal Design Details." All Type "A" foundations shall be a minimum depth of 48 inches (1220 mm).

Concrete Foundations, Type "C" for Traffic Signal Cabinets with Uninterruptible Power Supply (UPS) cabinet installations shall be a minimum of 72 inches (1830 mm) long and 31 inches (790 mm) wide. All Type "C" foundations shall be a minimum depth of 48 inches (1220 mm). The concrete apron in front of the Type IV or V cabinet shall be 36 in. x 48 in. x 5 in. (915 mm X 1220 mm X 130 mm). The concrete apron in front of the UPS cabinet shall be 36 in. x 67 in. x 5 in. (915 mm X 1700 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type "D" for Traffic Signal Cabinets shall be a minimum of 48 inches (1220 mm) long and 31 inches (790 mm) wide. All Type "D" foundations shall be a minimum depth of 48 inches (1220 mm). The concrete apron shall be 36 in. x 48 in. x 5 in. (910 mm X 1220 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type "E" for Mast Arm and Combination Mast Arm Poles shall meet the current requirements listed in the Highway Standards.

Foundations used for Combination Mast Arm Poles shall provide an extra 2-1/2 inch (65 mm) raceway.

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation.

SIGNAL HEAD, LED

Revise Article 880.02 of the Standard Specifications to read:

Materials.

Materials shall be according to SIGNAL HEAD, LED in Division 1000 of these specifications.

Add the following to Article 880.04 of the Standard Specifications:

Basis of Payment.

The price for SIGNAL HEAD, LED shall be payment in full for furnishing the equipment described above including signal head with LED modules, all mounting hardware, and installing them in satisfactory operating condition.

SIGNAL HEAD, LED, RETROFIT

Description.

This work shall consist of retrofitting an existing polycarbonate traffic signal head with a traffic signal module, pedestrian signal module, and pedestrian countdown signal module, with light emitting diodes (LEDs) as specified in the plans.

Materials.

Materials shall be according to SIGNAL HEAD, LED, and PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED in Divisions 800 and 1000 of these specifications.

Add the following to Article 880.04 of the Standard Specifications:

Basis of Payment.

This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, RETROFIT, or PEDESTRIAN SIGNAL HEAD, LED, RETROFIT, for the type and number of polycarbonate signal heads, faces, and sections specified, which price shall be payment in full for furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of faces and the method of mounting.

PEDESTRIAN SIGNAL HEAD, LED

Revise Article 881.01 of the Standard Specifications to read:

Description.

This work shall consist of furnishing and installing a pedestrian signal head with light emitting diodes (LED) or pedestrian countdown signal head, with light emitting diodes (LED) of the type specified in the plans.

All pedestrian signals at an intersection shall be the same type and have the same display. No mixing of different types of pedestrian traffic signals or displays will be permitted.

Revise Article 881.02 of the Standard Specifications to read:

Materials.

Materials shall be according to SIGNAL HEAD, LED, and PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED in Divisions 800 and 1000 of these specifications.

Add the following to Article 881.03 of the Standard Specifications:

(a) Pedestrian Countdown Signal Heads.

- (1) Pedestrian Countdown Signal Heads shall not be installed at signalized **intersections where traffic signals and railroad warning devices are interconnected.**
- (2) Pedestrian Countdown Signal Heads shall be 16 inch (406mm) x 18 inch (457mm), for single units with the housings glossy black polycarbonate. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on.

- (3) Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. "Egg Crate" type sun shields are not permitted. Numerals shall measure 9 inches (229mm) in height and easily identified from a distance of 120 feet (36.6m).

Revise Article 881.04 of the Standard Specifications to read:

Basis of Payment.

This item shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, or PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED, of the type specified and of the particular kind of material when specified, which price shall be payment in full for furnishing the equipment described above including signal head with LED modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of faces and the method of mounting.

DETECTOR LOOP

Revise Section 886 of the Standard Specifications to read:

Description.

This work shall consist of furnishing and installing a detector loop in the pavement.

Procedure.

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Area Traffic Signal Maintenance and Operations Engineer (847) 705-4424 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface, using the same notification process as above.

Installation.

Loop detectors shall be installed according to the requirements of the "District One Standard Traffic Signal Design Details." Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit PLFIM water proof tag, or an approved equal, secured to each wire with nylon ties.

Resistance to ground shall be a minimum of 100 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries. Quality readings shall be more than 5.

- (a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb and handhole shall be cut with a 1/4 inch (6.3 mm) deep x 4 inches (100 mm) saw cut to mark location of each loop lead-in.

Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Percol Elastic Cement AC Grade or an approved equal. The sealant shall be installed 1/8 inch (3 mm) below the pavement surface, if installed above the surface the overlap shall be removed immediately.

Detector loop measurements shall include the saw cut and the length of the loop lead-in to the edge of pavement. The lead-in wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the price of the detector loop. Unit duct, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities.

- (b) Preformed. This work shall consist of furnishing and installing a rubberized or crosslinked polyethylene heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:

Preformed detector loops shall be installed in new pavement constructed of Portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be extended to a temporary protective enclosure near the proposed handhole location. The protective enclosure shall provide sufficient protection from other construction activities and may be buried for additional protection.

Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. Non-metallic coilable duct, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.

Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. Homeruns and interconnects shall be pre-wired and shall be an integral part of the loop assembly. The loop configurations and homerun lengths shall be assembled for the specific application. The loop and homerun shall be constructed using 11/16 inch (17.2 mm) outside diameter (minimum), 3/8 inch (9.5 mm) inside diameter (minimum) Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating or a similarly sized XLPE cable jacket. Hose for the loop and homerun assembly shall be one continuous piece. No joints or splices shall be allowed in the hose except where necessary to connect homeruns or interconnects to the loops. This will provide maximum wire protection and loop system strength. Hose tee connections shall be heavy duty high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. For XLPE jacketed preformed loops, all splice connections shall be soldered, sealed, and tested before being sealed in a high impact glass impregnated plastic splice enclosure. The wire used shall be #16 THWN stranded copper. The number of turns in the loop shall be application specific. Homerun wire pairs shall be twisted a minimum of four turns per foot. No wire splices will be allowed in the preformed loop assembly. The loop and homeruns shall be filled and sealed with a flexible sealant to insure complete moisture blockage and further protect the wire. The preformed loops shall be constructed to allow a minimum of 6.5 feet of extra cable in the handhole.

Method of Measurement.

This work will be measured for payment in feet (meters) in place. Type I detector loop will be measured along the sawed slot in the pavement containing the loop and lead-in, rather than the actual length of the wire. Preformed detector loops will be measured along the detector loop and lead-in embedded in the pavement, rather than the actual length of the wire.

Basis of Payment.

This work shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I or PREFORMED DETECTOR LOOP as specified in the plans, which price shall be payment in full for furnishing and installing the detector loop and all related connections for proper operation.

EMERGENCY VEHICLE PRIORITY SYSTEM

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency.

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, maximum 6 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signaled by a flashing indication at the rate specified by Section 4D-11 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements shall be signaled by a continuous indication.

All light operated systems shall include security and transit preemption software and operate at a uniform rate of 14.035 Hz \pm 0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

Basis of Payment.

The work shall be paid for at the contract unit price each for furnishing and installing LIGHT DETECTOR and LIGHT DETECTOR AMPLIFIER. Furnishing and installing the confirmation beacon shall be included in the cost of the Light Detector. The preemption detector amplifier shall be paid for on a basis of (1) one each per intersection controller and shall provide operation for all movements required in the pre-emption phase sequence.

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Revise Section 890 of the Standard Specifications to read:

Description.

This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans, including but not limited to temporary signal heads, emergency vehicle priority systems, interconnect, vehicle detectors, uninterruptible power supply, and signing. Temporary traffic signal controllers and cabinets interconnected to railroad traffic control devices shall be new. When temporary traffic signals will be operating within a county or local agency Traffic Management System, the equipment must be NTCIP compliant and compatible with the current operating requirements of the Traffic Management System.

General.

Only an approved equipment vendor will be allowed to assemble the temporary traffic signal cabinet. Also, an approved equipment vendor shall assemble and test a temporary railroad traffic signal cabinet. (Refer to the "Inspection of Controller and Cabinet" specification). A representative of the approved control equipment vendor shall be present at the temporary traffic signal turn-on inspection.

Construction Requirements.

(a) Controllers.

1. Only controllers supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications with regards to internal time base coordination and preemption. All railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications as modified herein.
 2. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with current software installed.
- (b) Cabinets. All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 4 inch (100 mm) diameter holes to run the electric cables through. The 4 inch (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.
- (c) Grounding. Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 807 of the Standard Specifications and shall meet the requirements of the District 1 Traffic Signal Specifications for "Grounding of Traffic Signal Systems."

(d) Traffic Signal Heads. All traffic signal sections and pedestrian signal sections shall be 12 inches (300 mm). Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. The Contractor shall furnish enough extra cable length to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.

(e) Interconnect.

1. Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the plans. The Contractor may request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the engineer, it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the contract.
2. The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the item Temporary Traffic Signal Installation. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.
3. Temporary wireless interconnect, compete. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This item shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:
 - a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
 - b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
 - c. Antennas (Omni Directional or Yagi Directional)
 - d. Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna
 - e. Brackets, Mounting Hardware, and Accessories Required for Installation

- f. RS232 Data Cable for Connection from the radio to the local or master controller
- g. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in this item.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance to the manufacturers recommendations.

The following radio equipment is currently approved for use in Region One/District One: Encom Model 5100 and Intuicom Communicator II.

- (f) Emergency Vehicle Pre-Emption. All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz \pm 0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item Temporary Traffic Signal Installation.
- (g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. All approaches shall have vehicular detection provided by vehicle detection system as shown on the plans or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system shall be approved by IDOT prior to Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project.

- A representative of the approved control equipment vendor shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation.
- (h) Uninterruptible Power Supply. When called for in the plans, the UPS cabinet shall be mounted to the temporary traffic signal cabinet and meet the requirements of UNINTERRUPTIBLE POWER SUPPLY in Divisions 800 and 1000 of these specifications.
 - (i) Signs. All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.
 - (j) Energy Charges. The electrical utility energy charges for the operation of the temporary traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.
 - (k) Maintenance. Maintenance shall meet the requirements of the Standard Specifications and MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION in Division 800 of these specifications. Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY TRAFFIC SIGNAL INSTALLATION pay item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the Contract or any portion thereof. In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic Operations (847) 705-4424 for an inspection of the installation(s).
 - (l) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District One Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification. In addition all electric cable shall be aerially suspended, at a minimum height of 18 feet (5.5m) on temporary wood poles (Class 5 or better) of 45 feet (13.7 m) minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole as shown in the plans, or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system may be used in place of detector loops as approved by the Engineer.
 - (m) Temporary Portable Traffic Signal for Bridge Projects.

1. Unless otherwise directed by the Engineer, temporary portable traffic signals shall be restricted to use on roadways of less than 8000 ADT that have limited access to electric utility service, shall not be installed on projects where the estimated need exceeds ten (10) weeks, and shall not be in operation during the period of November through March. The Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract if the bridge project or Engineer requires temporary traffic signals to remain in operation into any part of period of November through March. If, in the opinion of the engineer, the reliability and safety of the temporary portable traffic signal is not similar to that of a temporary span wire traffic signal installation, the Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract.
2. The controller and LED signal displays shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification.
3. Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.
4. General.
 - a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.
 - b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 feet (5m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 feet (2.5m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.
 - c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.
 - d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation.
 - e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation.

The radio equipment shall meet all applicable FCC requirements.

- f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV and other applicable portions of the currently adopted version of the Manual on Uniform Traffic Control Devices (MUTCD) and the Illinois MUTCD. The signal system shall be designed to continuously operate over an ambient temperature range between -30 °F (-34 °C) and 120 °F (48 °C). When not being utilized to inform and direct traffic, portable signals shall be treated as nonoperating equipment according to Article 701.11.
- g. Basis of Payment. This work will be paid for according to Article 701.20(c).

Basis of Payment.

This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION, the price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/video vehicle detection system, all material required, the installation and complete removal of the temporary traffic signal. Each intersection will be paid for separately.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Add the following to Article 895.05 of the Standard Specifications:

The traffic signal equipment which is to be removed and is to become the property of the Contractor shall be disposed of outside the right-of-way at the Contractor's expense.

All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within 30 days of removing it from the traffic signal installation. The Contractor shall provide 5 copies of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. The Contractor shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. If equipment is not returned with these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until the acceptance of a receipt drawn by the State's Electrical Maintenance Contractor indicating the items have been returned in good condition.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the State.

The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract.

TRAFFIC SIGNAL PAINTING

Description.

This work shall include surface preparation, powder type painted finish application and packaging of new galvanized steel traffic signal mast arm poles and posts assemblies. All work associated with applying the painted finish shall be performed at the manufacturing facility for the pole assembly or post or at a painting facility approved by the Engineer. Traffic signal mast arm shrouds and post bases shall also be painted the same color as the pole assemblies and posts.

Surface Preparation.

All weld flux and other contaminates shall be mechanically removed. The traffic mast arms and post assemblies shall be degreased, cleaned, and air dried to assure all moisture is removed.

Painted Finish.

All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. Prior to application, the surface shall be mechanically etched by brush blasting (Ref. SSPC-SP7) and the zinc coated substrate preheated to 450 °F for a minimum one (1) hour. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400 °F.

The finish paint color shall be one of the manufacturer's standard colors and shall be as selected by the local agency responsible for paint costs. The Contractor shall confirm, in writing, the color selection with the local responsible agency and provide a copy of the approval to the Engineer and a copy of the approval shall be included in the material catalog submittal.

Painting of traffic signal heads, pedestrian signal heads and controller cabinets is not included in this pay item.

Any damage to the finish after leaving the manufacturer's facility shall be repaired to the satisfaction of the Engineer using a method recommended by the manufacturer and approved by the Engineer. If while at the manufacturer's facility the finish is damaged, the finish shall be re-applied at no cost to the contract.

Warranty.

The Contractor shall furnish in writing to the Engineer, the paint manufacturer's standard warranty and certification that the paint system has been properly applied.

Packaging.

Prior to shipping, the poles and posts shall be wrapped in ultraviolet-inhibiting plastic foam or rubberized foam.

Basis of Payment.

This work shall be paid for at the contract unit price each for PAINT NEW MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, PAINT NEW COMBINATION MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW COMBINATION MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, or PAINT NEW TRAFFIC SIGNAL POST of the length specified, which shall be payment in full for painting and packaging the traffic signal mast arm poles and posts described above including all shrouds, bases and appurtenances.

ILLUMINATED STREET NAME SIGN

Description.

This work shall consist of furnishing and installing a LED internally illuminated street name sign.

Materials.

Materials shall be in accordance with ILLUMINATED STREET NAME SIGN in Division 1000 of these specifications.

Installation.

The sign can be mounted on most steel mast arm poles. Mounting on aluminum mast arm pole requires supporting structural calculations. Some older or special designed steel mast arm poles may require structural evaluation to assure that construction of the mast arm pole is adequate for the proposed additional loading. Structural calculations and other supporting documentation as determined by the Engineer shall be provided by the contractor for review by the Department.

The sign shall be located on a steel traffic signal mast arm no further than 8-feet from the center of the pole to the center of the sign at a height of between 16 to 18-feet above traveled pavement. Mounting hardware shall be Pelco model SE-5015, or approved equal, utilizing stainless steel components.

Signs shall be installed such that they are not energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptible power supply (UPS). The signs shall be connected to the generator or UPS bypass circuitry.

Basis of Payment.

This work will be paid for at the contract unit price each for ILLUMINATED STREET NAME SIGN, of the length specified which shall be payment in full for furnishing and installing the LED internally illuminated street sign, complete with circuitry and mounting hardware including photo cell, circuit breaker, fusing, relay, connections and cabling as shown on the plans for proper operation and installation.

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM

Description.

This work shall consist of re-optimizing a closed loop traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system.

The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the traffic responsive program.

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
 - a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.
 - b. Proposed signal timing plan for the new or modified intersection(s) shall be forwarded to IDOT for review prior to implementation.
 - c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations.
2. The following deliverables shall be provided for LEVEL I Re-Optimization.
 - a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
 - b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
 - a. Traffic counts shall be taken at the subject intersection after the traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.
 - b. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
 - c. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.
2. The following deliverables shall be provided for LEVEL II Re-Optimization.
 - a. Consultant shall furnish to IDOT one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:
 - (1) Brief description of the project
 - (2) Printed copies of the analysis output from Synchro (or other appropriate, approved optimization software file)
 - (3) Printed copies of the traffic counts conducted at the subject intersection
 - b. Consultant shall furnish to IDOT two (2) CDs for the optimized system. The CDs shall include the following elements:
 - (1) Electronic copy of the technical memorandum in PDF format
 - (2) Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system
 - (3) Traffic counts conducted at the subject intersection
 - (4) New or updated intersection graphic display file for the subject intersection
 - (5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

Basis of Payment.

This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of specified deliverables, 100 percent of the bid price will be paid. Each intersection will be paid for separately.

OPTIMIZE TRAFFIC SIGNAL SYSTEM

Description.

This work shall consist of optimizing a closed loop traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared.

The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system.
2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.
3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.
5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.
6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.

- (b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.
1. Consultant shall furnish to IDOT one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

<p>Cover Page in color showing a System Map</p> <p>Figures</p> <ol style="list-style-type: none"> 1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion. 2. General location map in color – showing signal system location in the metropolitan area. 3. Detail system location map in color – showing cross street names and local controller addresses. 4. Controller sequence – showing controller phase sequence diagrams.
<p>Table of Contents</p> <p>Tab 1: Final Report</p> <ol style="list-style-type: none"> 1. Project Overview 2. System and Location Description (Project specific) 3. Methodology 4. Data Collection 5. Data Analysis and Timing Plan Development 6. Implementation <ol style="list-style-type: none"> a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) 7. Evaluation <ol style="list-style-type: none"> a. Speed and Delay runs
<p>Tab 2. Turning Movement Counts</p> <ol style="list-style-type: none"> 1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)
<p>Tab 3. Synchro Analysis</p> <ol style="list-style-type: none"> 1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings. 2. Midday: same as AM 3. PM: same as AM
<p>Tab 4: Speed and Delay Studies</p> <ol style="list-style-type: none"> 1. Summary of before and after runs results in two (2) tables showing travel time and delay time. 2. Plot of the before and after runs diagram for each direction and time period.
<p>Tab 5: Electronic Files</p> <ol style="list-style-type: none"> 1. Two (2) CDs for the optimized system. The CDs shall include the following elements: <ol style="list-style-type: none"> a. Electronic copy of the SCAT Report in PDF format b. Copies of the Synchro files for the optimized system c. Traffic counts for the optimized system d. New or updated intersection graphic display files for each of the system intersections and the system graphic display file including system detector locations and addresses.

Basis of Payment.

The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the system is working to the satisfaction of the engineer and the report and CD have been submitted.

TEMPORARY TRAFFIC SIGNAL TIMINGS

Description.

This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impact to existing traffic signal timings caused by detours or other temporary conditions.

All timings and adjustments necessary for this work shall be performed by an approved Consultant who has previous experience in optimizing Closed Loop Traffic signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMINGS.

- (a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings. Make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
- (b) Consultant shall provide monthly observation of traffic signal operations in the field.
- (c) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.
- (d) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Operations Engineer.

Basis of Payment.

The work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL TIMINGS, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on and/or detour implemented, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation and/or detour.

DIVISION 1000 MATERIALS

PEDESTRIAN PUSH-BUTTON

Revise Article 1074.02 of the Standard Specifications to read:

- (a) General. Push-button assemblies shall be ADA compliant, highly vandal resistant, be pressure activated with minimal movement and cannot be stuck in a closed or constant call position. A red latching LED and audible tone shall be provided for confirmation of an actuation call.
- (b) Latching LED. The normal state of the LED shall be off. When the push button is pressure activated, the LED shall be lighted and remain on until the beginning of the walk phase. The latching relay shall be mounted in the signal cabinet, controlling two pedestrian phases.
- (b) Housing. The push-button housing shall be solid 6061 aluminum and powder coated yellow, unless otherwise noted on the plans.
- (c) Actuator. The actuator shall be stainless steel with a solid state electronic Piezo switch rated for a minimum of 20 million cycles with no moving plunger or moving electrical contacts. The operating voltage shall be 12-24 V AC/DC.
- (d) Pedestrian Station. Stations shall be designed to be mounted directly to a post, mast arm pole or wood pole. The station shall be aluminum and will accept a 3-inch round push button assembly and a 9 X 12-inch R10-3e sign with arrow(s) for a count-down pedestrian signal. The pedestrian station size without count-down pedestrian signals shall accommodate a 5 X 7 ¾ -inch R10-3b or R10-3d sign with arrow(s).
- (e) Location. Pedestrian push buttons and stations shall be mounted on poles and/or posts as shown on the plans and shall be fully accessible from a paved or concrete surface. See the District's Detail sheets for orientation and mounting details.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT

Add the following to Article 1074.03 of the Standard Specifications:

- (a) (6) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.
- (b) (5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- (b) (6) Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
- (b) (7) Surge Protection – Plug-in type EDCO SHA-1250 or Atlantic/Pacific approved equal.
- (b) (8) BIU – Containment screw required.
- (b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
- (b) (10) Switch Guards – All switches shall be guarded.
- (b) (11) Heating – Two (2) porcelain light receptacles with cage protection controlled by both a wall switch and a thermostat or a thermostatically controlled 150 watt strip heater.
- (b) (12) Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.
- (b) (13) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
- (b) (14) Field Wiring Labels – All field wiring shall be labeled.
- (b) (15) Field Wiring Termination – Approved channel lugs required.
- (b) (16) Power Panel – Provide a nonconductive shield.

- (b) (17) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
- (b) (18) Police Door – Provide wiring and termination for plug in manual phase advance switch.
- (b) (19) Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET

Controller shall comply with Article 1073.01 as amended in these Traffic Signal Special Provisions.

Controller Cabinet and Peripheral Equipment shall comply with Article 1074.03 as amended in these Traffic Signal Special Provisions.

Add the following to Articles 1073.01 (c) (2) and 1074.03 (a) (5) (e) of the Standard Specifications:

Controllers and cabinets shall be new and NEMA TS2 Type 1 design.

A method of monitoring and/or providing redundancy to the railroad preemptor input to the controller shall be included as a component of the Railroad, Full Actuated Controller and Cabinet installation and be verified by the traffic signal equipment supplier prior to installation.

Railroad interconnected controllers and cabinets shall be assembled only by an approved traffic signal equipment supplier. All railroad interconnected (including temporary railroad interconnect) controllers and cabinets shall be new, built, tested and approved by the controller equipment vendor, in the vendor's District One facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

UNINTERRUPTIBLE POWER SUPPLY

Revise Article 1074.04(a)(1) of the Standard Specifications to read:

The UPS shall be line interactive and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection's normal traffic signal operating connected load, plus 20 percent (20%). The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 700 W/VA active output capacity, with 90 percent minimum inverter efficiency).

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.

Revise Article 1074.04(a)(10) of the Standard Specifications to read:

The UPS shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

Revise Article 1074.04(a)(17) of the Standard Specifications to read:

When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, service receptacles, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.

Revise Article 1074.04(b)(2)b of the Standard Specifications to read:

Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125-inch thick and have a natural mill finish.

Revise Article 1074.04(b)(2)c of the Standard Specifications to read:

No more than three batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four batteries per shelf for a cabinet housing eight batteries.

Revise Article 1074.04(b)(2)e of the Standard Specifications to read:

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).

Revise Article 1074.04(b)(2)g of the Standard Specifications to read:

The door shall open to the entire cabinet, have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.

Add the following to Article 1074.04(b)(2) of the Standard Specifications:

j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

- (8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.
- (9) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate (Hubbell model HBL4716C or approved equal). Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.

Battery System.

Revise Article 1074.04(d)(3) of the Standard Specifications to read:

All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic leadcalcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.

Revise Article 1074.04(d)(4) of the Standard Specifications to read:

Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C) for gel cell batteries and -40 to 140 °F (-40 to + 60 °C) for AGM type batteries.

Add the following to Article 1074.04(d) of the Standard Specifications:

- (9) The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four batteries shall be provided.

Add the following to the Article 1074.04 of the Standard Specifications:

- (e) Warranty. The warranty for an uninterruptible power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years from the date the traffic signal and UPS are placed into service.

ELECTRIC CABLE

Delete “or stranded, and No. 12 or” from the last sentence of Article 1076.04 (a) of the Standard Specifications.

Add the following to the Article 1076.04(d) of the Standard Specifications:

Service cable may be single or multiple conductor cable.

TRAFFIC SIGNAL POST

Add the following to Article 1077.01 (b) of the Standard Specifications:

All posts and bases shall be steel and hot dipped galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

MAST ARM ASSEMBLY AND POLE

Add the following to Article 1077.03 (a) of the Standard Specifications:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer. All poles shall be galvanized.

If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall be constructed and designed to allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet. All mounting hardware shall be stainless steel.

SIGNAL HEADS

Add the following to Section 1078 of the Standard Specifications:

All signal and pedestrian heads shall provide 12" (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signal and/or pedestrian heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

Pedestrian signal heads shall be furnished with the international symbolic "Walking Person" and "Upraised Palm" displays. Egg crate sun shields are not permitted.

Signal heads shall be positioned according to the "District One Standard Traffic Signal Design Details."

SIGNAL HEAD, LIGHT EMITTING DIODE

Add the following to Article 1078 of the Standard Specifications

General.

LED signal heads (All Face and Section Quantities), (All Mounting Types) shall conform fully to the requirements of Articles 1078.01 and 1078.02 of the Standard Specifications amended herein.

1. The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTSCH], or applicable successor ITE specifications, or show signs of entrance of moisture or contaminants within the first 60 months of the date of delivery shall be replaced or repaired. The manufacturer's written warranty for the LED signal modules shall be dated, signed by an Officer of the company and included in the product submittal to the State.

2. Each module shall consist of an assembly that utilizes LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections.

(a) Physical and Mechanical Requirements

1. Modules can be manufactured under this specification for the following faces:
 - a. 12 inch (300 mm) circular, multi-section
 - b. 12 inch (300 mm) arrow, multi-section
 - c. 12 inch (300 mm) pedestrian, 2 sections
2. The maximum weight of a module shall be 4 lbs. (1.8 kg).
3. Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
4. Material used for the lens and signal module construction shall conform to ASTM specifications for the materials.
5. The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.
6. The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.
7. Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

1. The minimum initial luminous intensity values for the modules shall conform to the values in Table 1 of the VTCSH (2005) for circular signal indications, and as stated in Table 3 of these specifications for arrow and pedestrian indications at 25 °C.
2. The modules shall meet or exceed the illumination values stated in Article 1078.01(3)c of the Standard Specifications for circular signal indications, and Table 3 of these specifications for arrow and pedestrian indications, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.
3. The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Section 4.2 of the VTCSH (2005) or applicable successor ITE specifications.

4. The LEDs utilized in the modules shall be AlInGaP technology for red, yellow, Portland orange (pedestrian) and white (pedestrian) indications, and GaN for green indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40 °C to +74 °C.

(c) Electrical

1. Maximum power consumption for LED modules is per Table 2.
2. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.
3. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).
4. When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.
5. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
6. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

1. The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.
2. Retrofit modules can be manufactured under this specification for the following faces:
 - a. 12 inch (300 mm) circular, multi-section
 - b. 12 inch (300 mm) arrow, multi-section
 - c. 12 inch (300 mm) pedestrian, 2 sections
3. Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.
4. The maximum weight of a Retrofit module shall be 4 lbs. (1.8 kg).
5. Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
6. Electrical conductors for modules, including Retrofit modules, shall be 39.4 inches (1m) in length, with quick disconnect terminals attached.
7. The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.

- (e) The following specification requirements apply to the 12 inch (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.
1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.
 2. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.
- (f) The following specification requirement applies to the 12 inch (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.
1. The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.
- (g) The following specification requirements apply to the 12 inch (300 mm) Pedestrian module only. All general specifications apply unless specifically superseded in this section.
1. Each pedestrian signal LED module shall provide the ability to actuate the solid upraised hand and the solid walking person on one 12 inch (300mm) section.
 2. Two (2) pedestrian sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man.
 3. "Egg Crate" type sun shields are not permitted. All figures must be a minimum of 9 inches (225mm) in height and easily identified from a distance of 120-feet (36.6m).

PEDESTRIAN COUNTDOWN SIGNAL HEAD, LIGHT EMITTING DIODE

Add the following to Article 1078.02 of the Standard Specifications:

General.

1. The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to "0" and turn off when the steady Upraised Hand (symbolizing Don't Walk) signal turns on. Module shall not have user accessible switches or controls for modification of cycle.
2. At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.
3. The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.
4. The module shall allow for consecutive cycles without displaying the steady Upraised Hand.

5. The module shall recognize preemption events and temporarily modify the crossing cycle accordingly.
6. If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.
7. If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.
8. The next cycle, following the preemption event, shall use the correct, initially programmed values.
9. If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.
10. The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.
11. The countdown numerals shall be two (2) "7 segment" digits forming the time display utilizing two rows of LEDs.
12. The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, "Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules," or applicable successor ITE specifications, except as modified herein.
13. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
14. In the event of a power outage, light output from the LED modules shall cease instantaneously.
15. The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.
16. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

Electrical.

1. Maximum power consumption for LED modules is 29 watts.
2. The measured chromaticity shall remain unchanged over the input line voltage range listed of 80 VAC to 135 VAC.

SIGNAL HEAD, BACKPLATE

Delete 1st sentence of Article 1078.03 of the Standard Specifications and add "All backplates shall be aluminum and louvered".

INDUCTIVE LOOP DETECTOR

Add the following to Article 1079.01 of the Standard Specifications:

Contracts requiring new cabinets shall provide for rack mounted detector amplifier cards. Detector amplifiers shall provide LCD displays with loop frequency, inductance, and change of inductance readings.

ILLUMINATED SIGN, LIGHT EMITTING DIODE

Delete 2nd paragraph of Article 1084.01(a) and add "Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and brackets specified herein and shall provide tool free access to the interior.

Add the following to Article 1084.01 (b) of the Standard Specifications:

The message shall be formed by rows of LEDs. The sign face shall be 24 inches (600 mm) by 24 inches (600 mm).

Add the following to Article 1084.01 of the Standard Specifications:

- (e) The light emitting diode (LED) blank out signs shall be manufactured by National Sign & Signal Company, or an approved equal and consist of a weatherproof housing and door, LEDs and transformers.

ILLUMINATED STREET NAME SIGN

The illuminate street name sign shall be as follows.

(a) Description.

The LEDs shall be white in color and utilize InGaN or UV thermally efficient technology. The LED Light Engines shall be designed to fit inside a standard fluorescent illuminated street sign housing in lieu of fluorescent lamps and ballasts or a slim line type housing. The LED internally-illuminated street name sign shall display the designated street name clearly and legibly in the daylight hours without being energized and at night when energized. The sign assembly shall consist of a four-, six-, or eight-foot aluminum housing. White translucent 3M DG³ reflective sheeting sign faces with the street name applied in 3M/Scotchlite Series 1177 or current 3M equivalent transparent green shall be installed in hinged doors on the side of the sign for easy access to perform general cleaning and maintenance operations. Illumination shall occur with LED Light Engine as specified.

(b) Environmental Requirements.

The LED lamp shall be rated for use in the ambient operating temperature range of -40 to +50°C (-40 to +122°F) for storage in the ambient temperature range of -40 to +75°C (-40 to +167°F).

(c) General Construction.

1. The LED Light Engine shall be a single, self-contained device, for installation in an existing street sign housing. The power supply must be designed to fit and mounted on the inside wall at one end of the street sign housing. The LED Light Engine shall be mounted within the inner top portion of the housing and no components of the light source shall sit between the sign faces.
2. The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI, C136.31-2001 standards.

(d) Mechanical Construction.

1. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum top with a minimum thickness of .140" x 10 3/4" deep (including the drip edge). The extruded aluminum bottom is .094" thick x 5 7/8" deep. The ends of the housing shall be cast aluminum with a minimum thickness of .250". A six-foot sign shall be 72 5/8" long and 22 5/16" tall and not weigh more than 77 pounds. An eight-foot sign shall be 96 5/8" long and 22 5/16" tall and not weigh more than 92 pounds. All corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal around the entire housing.
2. The door shall be constructed of extruded aluminum. Two corners are continuous TIG welded with the other two screwed together to make one side of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length, .040" x 1 1/8" open stainless steel hinge. The door shall be held secure onto a 1" wide by 5/32" thick neoprene gasket by three (six total for two-way sign) quarter-turn fasteners to form a watertight seal between the door and the housing.
3. The sign face shall be constructed of .125" white translucent polycarbonate. The letters shall be 8" upper case and 6" lower case. The sign face legend background shall consist of 3M/Scotchlite Series 4090T or current equivalent 3M translucent DG³ white VIP (Visual Impact Performance) diamond grade sheeting (ATSM Type 9) and 3M/Scotchlite Series 1177 or current 3M equivalent transparent green acrylic EC (electronic cut-able) film applied to the front of the sign face. The legend shall be framed by a white polycarbonate border. A logo symbol and/or name of the community may be included with approval of the Engineer.
4. All surfaces of the sign shall be etched and primed in accordance to industry standards before receiving appropriate color coats of industrial enamel.
5. All fasteners and hardware shall be corrosion resistant stainless steel. No tools are required for routine maintenance.
6. All wiring shall be secured by insulated wire compression nuts.
7. A wire entrance junction box shall be supplied with the sign assembly. The box may be supplied mounted to the exterior or interior of the sign and provide a weather tight seal.
8. A photoelectric switch shall be mounted in the control cabinet to control lighting functions for day and night display. Each sign shall be individually fused.

9. Brackets and Mounting: LED internally-illuminated street name signs will be factory drilled to accommodate mast arm two-point support assembly mounting brackets.

(e) Electrical.

1. Photocell shall be rated 105-305V, turn on at 1.5 fcs. with a 3-5 second delay. A manufacturer's warranty of six (6) years shall be provided. Power consumption shall be no greater than 1 watt at 120V.
2. The LED Light Engine shall operate from a 60 +/- 3 cycle AC line power over a voltage range of 80 to 135 Vac rms. Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than +/- 10%.
3. Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage, and at a temperature of +25°C (+77°F), shall not exceed 20%.
4. The LED Light Engine shall be cycled ON and OFF with a photocell as shown on the detail sheet and shall not exceed the following maximum power values:

4-Foot Sign	60 W
6-Foot Sign	90 W
8-Foot Sign	120 W

The signs shall not be energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptable power source (UPS). The signs shall be connected to the generator or UPS bypass circuitry.

(f) Photometric Requirements.

1. The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Environmental Requirements and Wattage Sections shall be of a minimum value of 100 cd/m².
2. The manufacturer shall make available independent laboratory test results to verify compliance to Voltage Range and Luminous Intensity Distribution Sections.
3. Twelve (12) 1.25 watt LED units shall be mounted on 1-inch x 22-inch metal cone printed circuit boards (MCPCB). The viewing angle shall be 120 degrees. LED shall have a color temperature of 5200k nominal, CRI of 80 with a life expectancy of 75,000 hrs.

(g) Quality Assurance.

The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification. QA process and test result documentations shall be kept on file for a minimum period of seven (7) years. The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications. Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes.

LED Light Engines shall be replaced or repaired if they fail to function as intended due to workmanship or material defects within the first sixty (60) months from the date of acceptance. LED Light Engines that exhibit luminous intensities less than the minimum value specified in Photometric Section within the first thirty-six (36) months from the date of acceptance shall be replaced or repaired.

FULL-ACTUATED CONTROLLER AND CABINET (SPECIAL)

This work shall consist of furnishing and installing an "EAGLE" brand traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of the Standard Specifications Section 857.

Basis of Payment. This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND CABINET (SPECIAL) of the type specified, which price shall be payment in full for furnishing and installing the controller complete including conflict monitor, load switches and flasher relays, with necessary connections for proper operation.

The type specified will indicate the type of cabinet. For example, FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL.

MODIFY TEMPORARY TRAFFIC SIGNAL INSTALLATION

This work will consist of removing existing span wire mounted signal heads which will not be needed for the proposed construction stage 1 and installing additional span wire mounted signal heads as shown in the plan and as directed by the Engineer. The existing cables may be utilized for the new signal heads with the approval of the Engineer. New cables and accessories shall also be installed as required to render the existing temporary traffic signal installation fully operational including all the modifications. This work shall also include modifying the existing controller for the revisions in the phase designations as shown in the plan and as directed by the Engineer.

Basis of Payment This work will be paid for at the contract unit price each for MODIFY EXISTING TEMPORARY TRAFFIC SIGNAL INSTALLATION, which price shall be payment in full for furnishing and installing the signal heads and cables, modifying the controller, removing the signal heads not needed, and all incidental work needed for proper operation of the temporary signal installation.

GENERAL ELECTRICAL REQUIREMENTS

Effective: January 1, 2007

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 Articles 801.11 and 801.12 of the Standard Specifications.

Revise the 6th paragraph of Article 801.05(a) of the Standard Specifications to read:

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 801.11(a) 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 801.11(a) 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:

“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.”

Revise the 2nd and 3rd sentences of the second paragraph of Article 801.02 of the Standard Specifications to read:

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

UNDERGROUND RACEWAYS

Effective: January 1, 2007

Revise Article 810.03 of the Standard Specifications to read:

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

Add the following to Article 810.03 of the Standard Specifications:

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

Add the following to Article 810.03 of the Standard Specifications:

“All raceways which extend outside of a structure or duct bank but are not terminated in a cabinet, junction box, pull box, handhole, post, pole, or pedestal shall extend a minimum of 300 mm (12”) or the length shown on the plans beyond the structure or duct bank. The end of this extension shall be capped and sealed with a cap designed for the conduit to be capped. The ends of rigid metal conduit to be capped shall be threaded, the threads protected with full galvanizing, and capped with a threaded galvanized steel cap. The ends of rigid nonmetallic conduit and coilable nonmetallic conduit shall be capped with a rigid PVC cap of not less than 3 mm (0.125”) thick. The cap shall be sealed to the conduit using a room-temperature-vulcanizing (RTV) sealant compatible with the material of both the cap and the conduit. A washer or similar metal ring shall be glued to the inside center of the cap with epoxy, and the pull cord shall be tied to this ring.”

Add the following to Article 810.03(c) of the Standard Specifications:

“Coilable non-metallic conduit shall be machine straightened to remove the longitudinal curvature caused by coiling the conduit onto reels prior to installing in trench, encasing in concrete or embedding in structure. The straightening shall not deform the cross-section of the conduit such that any two measured outside diameters, each from any location and at any orientation around the longitudinal axis along the conduit differ by more than 6 mm (0.25”).” The longitudinal axis of the straightened conduit shall not deviate by more than 20 mm per meter (0.25” per foot” from a straight line. The HDPE and straightening mechanism manufacturer operating temperatures shall be followed.

GROUND ROD

Effective: January 1, 2007

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) Grounding Electrodes.....	1087.01(b)
(b) Grounding Electrode Conductors.....	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.

LUMINAIRE

Effective: January 1, 2007

Add the following to first paragraph of Article 1067(c) 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(e) of the Standard Specifications:

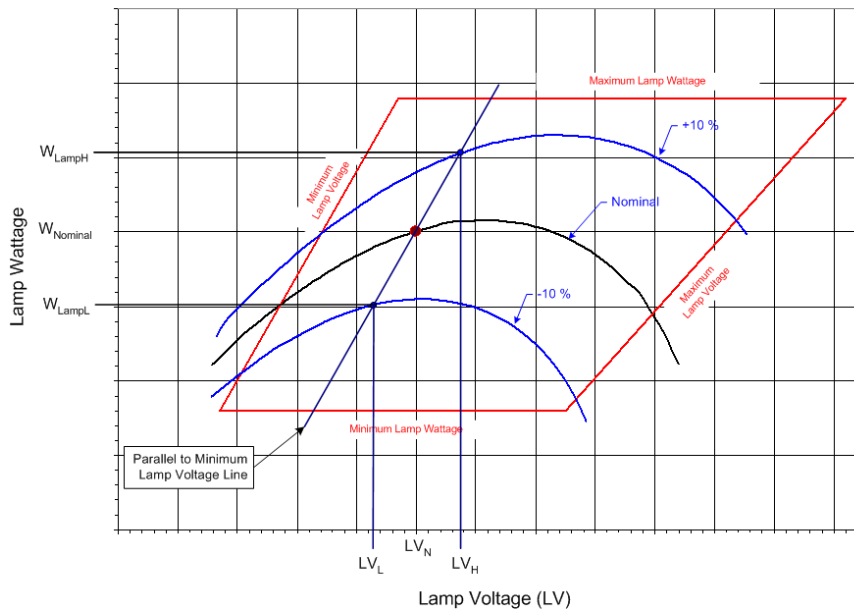
“The ballast shall be a High Pressure Sodium, high power factor, constant wattage auto-regulator, lead type (CWA) for operation on a nominal 240 volt system.”

Revise Article 1067(e)(1) of the Standard Specifications to read:

“The high pressure sodium, auto-regulator, lead type (CWA) 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

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:

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

where:

W_{line} = line watts at nominal system voltage

W_{lamp} = lamp watts at nominal system voltage

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 $\pm 2.5\%$ 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	$\pm 2.0\%$
400	$\pm 2.5\%$
310	$\pm 2.5\%$
250	$\pm 4.0\%$
150	$\pm 4.0\%$
70	$\pm 4.0\%$

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 $\pm 3\%$ which is 388 to 412 watts*"

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

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

"Independent Testing. 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.*" If the luminaire performance table is missing from the contract documents, the luminaire(s) shall be tested and the test results shall be evaluated against the manufacturer's published data. The test luminaire(s) results shall be equal to or better than the published data. If the test results indicated performance not meeting the published data, the test luminaire will be designated as failed and corrective action as described herein shall be performed.

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"

The Contractor shall select one of the following options for the required testing with the Engineer's approval:

- a. 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.

- b. 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.
- c. Independent Witness of Manufacturer Testing: The independent witness shall select from the project luminaires at the manufacturer's facility or at the Contractor's storage facility, the luminaires for testing. The Contractor shall propose a qualified independent agent, familiar with the luminaire requirements and test procedures, for approval by the Engineer, to witness the required tests as performed by the luminaire manufacturer.

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.

- 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."

Add the following to Article 1067.02(a)(1) of the Standard Specifications:

"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 1067.06(a)(1) of the Standard Specifications to read:

"The lamps shall be of the clear type and shall have a color of 1900° to 2200° Kelvin."

Revise Article 1067.06(a)(4) of the Standard Specifications to read:

Lamp Wattage	Initial Lumens	Mean Lumens	Rated Life (Hours)	Lamp Voltage
50	4,000	3,600	24,000	52
70	6,300	5,450	24,000	52
100	9,400	8,000	24,000	55
150	15,800	13,800	24,000	55
200	21,400	19,260	24,000	100
250	27,000	24,300	24,000	100
310	37,000	33,300	24,000	100
400	50,000	45,000	24,000	100
750	105,000	94,500	24,000	120

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

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE NO. 1
 US ROUTE 20 (LAKE STREET) AT RAMP E

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width (Varies)	30 ft.
	Number of Lanes	2
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	47.5 ft.
	Mast Arm Length	12 ft.
	Pole Set-Back From Edge of Pavement	8 ft.
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	37000
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type III
	Total Light Loss Factor	0.7
LAYOUT DATA	Spacing (varies)	200 ft.
	Configuration	Opposite
	Luminaire Overhang over edge of pavement	6 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		
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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}	15.0 Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	3.0 (Max)
LUMINANCE	Average Luminance, L_{AVE}	0.9 Cd/m ²
	Uniformity Ratio, L_{AVE}/L_{MIN}	3.5 (Max)
	Uniformity Ratio, L_{MAX}/L_{MIN}	6.0 (Max)
	Veiling Luminance Ratio, L_V/L_{AVE}	0.3 (Max)

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE NO. 2
 US ROUTE 20 (LAKE STREET) AT RAMP F

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width (Varies)	30 ft.
	Number of Lanes	2
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	100 ft.
	Mast Arm Length	HIGH MAST LIGHTING
	Pole Set-Back From Edge of Pavement	40 ft.
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	50000
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type III
	Total Light Loss Factor	0.7
LAYOUT DATA	Spacing (varies)	360 ft.
	Configuration	One sided
	Luminaire Overhang over edge of pavement	HIGH MAST LIGHTING

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		
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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}	9.0 Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	3.0 (Max)
LUMINANCE	Average Luminance, L_{AVE}	0.6 Cd/m ²
	Uniformity Ratio, L_{AVE}/L_{MIN}	3.5 (Max)
	Uniformity Ratio, L_{MAX}/L_{MIN}	6.0 (Max)
	Veiling Luminance Ratio, L_V/L_{AVE}	0.3 (Max)

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE NO. 3
 US ROUTE 20 (LAKE STREET)

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width (Varies)	24 ft.
	Number of Lanes	2
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	100 ft.
	Mast Arm Length	HIGH MAST LIGHTING
	Pole Set-Back From Edge of Pavement	40 ft.
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	50000
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type III
	Total Light Loss Factor	0.7
LAYOUT DATA	Spacing (varies)	360 ft.
	Configuration	One sided
	Luminaire Overhang over edge of pavement	HIGH MAST LIGHTING

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		
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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}	9.0 Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	3.0 (Max)
LUMINANCE	Average Luminance, L_{AVE}	0.6 Cd/m ²
	Uniformity Ratio, L_{AVE}/L_{MIN}	3.5 (Max)
	Uniformity Ratio, L_{MAX}/L_{MIN}	6.0 (Max)
	Veiling Luminance Ratio, L_V/L_{AVE}	0.3 (Max)

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE NO. 4
US ROUTE 20 (LAKE STREET) – YORK ROAD INTERSECTION

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width (Varies)	<u>INTERSECTION</u>
	Number of Lanes	<u>INTERSECTION</u>
	I.E.S. Surface Classification	<u>R3</u>
	Q-Zero Value	<u>.07</u>
LIGHT POLE DATA	Mounting Height	<u>100 ft.</u>
	Mast Arm Length	<u>HIGH MAST LIGHTING</u>
	Pole Set-Back From Edge of Pavement	<u>40 ft.</u>
LUMINAIRE DATA	Lamp Type	<u>HPS</u>
	Lamp Lumens	<u>50000</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>0.7</u>
LAYOUT DATA	Spacing Configuration	<u>INTERSECTION</u> <u>One sided</u>
	Luminaire Overhang over edge of pavement	<u>HIGH MAST LIGHTING</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		
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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>15.0 Lux</u>
	Uniformity Ratio, E_{AVE}/E_{MIN}	<u>3.0 (Max)</u>
LUMINANCE	Average Luminance, L_{AVE}	<u>0.9 Cd/m²</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>0.3 (Max)</u>

FOUNDATIONS

Effective: January 1, 2007

Light Pole Foundation:

Delete the third sentence of Article 836.03(a) of the Standard Specifications. Ground Rods will be paid for under a separate pay item.

Add the following after the last paragraph in Article 836.03(a):

Each light pole foundation shall have four (4) PVC raceways in the foundation as shown on the revised Light pole foundation detail E-301. One raceway on each side of the foundation shall be used for the roadway lighting unit duct, and the other for the Festoon Lighting unit duct.

Tower Foundation:

Delete the third paragraph of Article 837.03 of the Standard Specifications. Ground Rods will be paid for under a separate pay item.

TRENCH AND BACKFILL FOR ELECTRICAL WORK

Effective: January 1, 2007

Revise the first sentence of Article 819.03(a) of the Standard Specifications to read:

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

UNIT DUCT

Effective: January 1, 2007

Revise the second paragraph of Article 816.03 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

WIRE AND CABLE

Effective: January 1, 2007

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, alkalies, 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).”

MAINTENANCE OF LIGHTING SYSTEMS

Effective: January 1, 2007

Replace Article 801.11 and 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.

Other responsibilities. The contractor is also responsible for replacement of ballasts on existing light fixtures that are shown on the plans to be disconnected from an existing power source, and re-wired to a new power feed of a different voltage. If new suitable ballasts are not available, then the contractor must replace the entire light fixtures affected with new ones of similar wattage, distribution, optics, and finish.

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.

LUMINAIRE SAFETY CABLE ASSEMBLY

Effective: January 1, 2007

Description: This item shall consist of providing a luminaire safety cable assembly as specified herein and as indicated in the plans.

Materials. Materials shall be according to the following:

Wire Rope. Cables (wire rope) shall be manufactured from Type 304 or Type 316 stainless steel having a maximum carbon content of 0.08 % and shall be a stranded assembly. Cables shall be 3.18 mm (0.125") diameter, 7x19 Class strand core and shall have no strand joints or strand splices.

Cables shall be manufactured and listed for compliance with Federal Specification RR-W-410 and Mil-DTL-83420.

Cable terminals shall be stainless steel compatible with the cable and as recommended by the cable manufacturer. Terminations and clips shall be the same stainless steel grade as the wire rope they are connected to.

U-Bolts. U-Bolts and associated nuts, lock washers, and mounting plates shall be manufactured from Type 304 or Type 316 stainless steel.

CONSTRUCTION REQUIREMENTS

General. The safety cable assembly shall be installed as indicated in the plan details. One end of the cable assembly shall have a loop fabricated from a stainless steel compression sleeve. The other end of the cable assembly shall be connected with stainless steel wire rope clips as indicated. Slack shall be kept to a minimum to prevent the luminaire from creeping off the end of the mast arm.

Basis of Payment: This work shall be paid for at the contract price each for **LUMINAIRE SAFETY CABLE ASSEMBLY**, which shall be payment for the work as described herein and as indicated in the plans.

HANDHOLE (SPECIAL)

Description: This item shall consist of furnishing and installing a Quazite composolite handhole, or approved equal, as detailed in the plans and specified herein.

The outside of the cover shall contain the cover logo "Street Lighting".

Basis of Payment: This work shall be paid for at the contract unit price each for HANDHOLE (SPECIAL) which shall be payment in full for all material and work as specified herein.

REMOVAL OF POLE FOUNDATION

Description: This work shall consist of removal and disposal of existing light tower foundations, and shall also include the backfilling of the excavated areas.

Construction Requirements: Concrete foundations shall be removed to at least 600 mm (2') below grade with removed material disposed of off the site. The removal shall extend deeper where required to facilitate roadway construction at no additional cost. Underground conduits and cables shall be separated from the foundation at 750 mm (2 1/2') below grade and shall be abandoned or re-used as indicated.

The space caused by the removal of the foundations shall be backfilled with trench backfill in accordance with section 955 of the Standard Specifications.

Basis of Payment: This work will be paid for at the contract unit price for REMOVAL OF POLE FOUNDATION which shall be payment in full for the removal and disposal of foundations as specified herein.

REMOVAL OF LIGHT TOWER, SALVAGE

Removal of existing light mast light tower shall comply with Section 842 of the Standard Specifications as modified herein.

Add the following paragraph to Article. 842.02 of the Standard Specifications:

The REMOVAL OF LIGHT TOWER, SALVAGE, shall apply to existing high mast towers complete with luminaire rings, lowering equipment, electrical and steel cables, internal electrical components and concrete foundations.

Change the first paragraph to Article 642.04 of the Standard Specifications to read:

Light towers and all associated hardware and appurtenances shall remain the property of the owner and be delivered to a District 1 maintenance facility as directed by the Engineer and unloaded and stacked there by the Contractor. Wood blocking, banding, and other appurtenant items required for proper stacking and storage shall be provided by the Contractor under this pay item; no additional payment shall be made.

The Contractor shall arrange for delivery with the, Electrical Field Office at (630) 860-3670. Delivery shall be arranged not less than 72 hours in advance of intended delivery date and time, excluding Saturdays, Sundays, and all State holidays. Upon delivery, the Contractor shall obtain a receipt from the, maintenance facility that identifies the components delivered by their individual identification numbers where applicable. No equipment will be accepted without a prior appointment. All components shall be delivered within 30 days of removal.

Add the following to Section 842.07 of the Standard Specifications:

Removal of high mast light tower equipment will be paid for at the contract unit price each for REMOVAL OF LIGHT TOWER, SALVAGE.

LIGHT TOWER SERVICE PAD

Description: This work shall consist of the construction of light tower service pads. The service pads shall be built to the lines and grades and dimensions shown on the plans. The work shall include, but not be limited to, the structure excavation, porous granular embankment, concrete structures, reinforcement bars, welded wire fabric, rustication finish, protective coat, sub-base granular material. Type B 6", and preformed joint filler required or the installation of the service pads.

This work shall be constructed in accordance with Sections 424 and 503 of the Standard Specifications except as herein modified:

Subgrade preparation and shaping and grading at the high mast lighting tower shall be incidental to this pay item and no compensation shall be allowed.

Welded wire fabric shall meet the requirements of Section 1006.

Basis of Payment: Light tower service pads integral with retaining walls will be paid for at the contract unit price per each for LIGHT TOWER SERVICE PAD, which shall be payment in full for the material and work described herein.

AERIAL CABLE, ALUMINUM, WITH MESSENGER WIRE

Description: This item shall consists of furnishing, installing, testing, and connecting aerial electric cable of the size indicated for temporary lighting or service as specified by the Engineer, and as shown on the contract drawings. The cable shall be new, unless otherwise indicated.

Materials: Section 818 and 1066 of the Standard Specifications for Road and Bridge Construction, current version, shall apply to this pay item.

Method of Measurement: The aerial electric cable will be measured, in feet in place and will be taken as the length of the messenger wire.

Measurement will be made in a straight line between changes in direction and to the centers of light standards and control cabinets. Sag of the aerial cable or vertical cable will not be measured for payment. When the Engineer requests the used temporary cable be replaced with new, the new cable shall be measured for payment. Used aerial cable will not be measured for payment but shall be included in the cost of the item.

Basis of Payment: This item will be paid at the contract unit price per foot for AERIAL CABLE, ALUMINUM, WITH MESSENGER WIRE, 3-1/C up to NO. 2 of the size and number of conductors indicated which shall be payment in full for the work described herein.

The cost of disconnecting and abandoning in place the existing cables feeding underpass, sign, and ramp lighting and reconnecting to the temporary lighting system shall be included in the contract unit price for this item.

The cost of removing the used cable shall be included, in the cost of the new cable, The rewiring to facilitate relocation of the cable due to staging or other construction requirements shall be included, in the cost of this item.

TEMPORARY WOOD POLE

Description. This work shall consist of furnishing and installing a wood pole as shown on the plans, including all necessary hardware and accessories required for the intended temporary or permanent use of the pole.

Materials. Materials for the wood pole shall be in accordance with Article 1069.04.

Wood poles used for a temporary lighting installation may be previously used poles as approved by the Engineer. The poles shall be in good condition and shall be in according to the applicable ANSI requirements for sweep, crook, defects, and mechanical damage. Poles deemed unacceptable by the Engineer shall be removed from the jobsite.

Installation: Installation shall be as described in Article 830.03(c). Unless otherwise indicated, the Contractor shall provide all hardware to install the pole and mast arm as specified herein and indicated on the plans.

Unless otherwise indicated, the wood pole and mast arm, as applicable, shall remain the property of the owner and shall be removed as specified elsewhere herein.

Method Of Measurement: Wood poles shall be counted as, each installed.

Basis Of Payment: This item shall be paid at the contract unit price each for TEMPORARY WOOD POLE, of the mounting height, class, mast arm quantity and length indicated.

BREAKER, MAIN

Description: This item shall consist of removing (if upgrading), furnishing, and installing a main breaker, amperage and number poles as per plan or specified for overload and short circuit protection for conductors and connected apparatus as specified herein. All feeders, branch circuits, auxiliary, and control circuits shall have overcurrent and short circuit protection for conductors and connected apparatus. Unless otherwise indicated, the overcurrent protection shall be by means of circuit breakers.

Material: Unless otherwise indicated, main breakers shall be standard U1-- listed molded case, for reverse feed applications, thermal-magnetic bolt-on type circuit breakers with trip-free indicating handles. Unless otherwise indicated, main breakers shall have a UL-489 interrupting rating of not less than 35,000 rms symmetrical amperes at 480 volts and 65,000 rms symmetrical amperes at 240 Volts. Multi-pole main breakers larger than 100 amps size shall have instantaneous adjustable magnetic trip settings. The main breaker shall be equipped with auxiliary contacts

Removal: 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. No removal work shall be permitted without approval from the Engineer. Any damage resulting from the removal and/or transportation of the main breaker shall be repaired, to its original condition, or replaced in kind, at the Contractor's own expense, to the satisfaction of the Engineer.

Installation: Unless otherwise indicated, power wiring shall be of the size specified for the corresponding service conductors and shall be rated RHH/RHW, 600 volts and tagged with the self-sticking cable markers. The labor and material to make the appropriate terminal connections in the cabinet as directed by the Engineer shall be incidental to this pay item.

The manufacturer's recommendations shall be followed during the installation process. The wiring connections shall be made in accordance with the National Electric Code. The Contractor shall energize the system to assure that all the components are working in accordance with their specifications and carrying rated load. The main lugs shall be secured in line with Underwriters' Laboratories standards to prevent lugs from turning or loosening when incoming cables are installed. The current carrying parts shall be secured in place to prevent flexing and loosening or damage during and after installation. At the branch circuit, breakers and associated wiring shall be labeled to identify the location of equipment and/or loads used. The auxiliary contact switch, if used, shall be wired as directed by the Engineer.

Method of Measurement. Main breaker shall be counted, each, furnished and installed.

Basis of Payment: This item shall be paid at the contract unit price each of MAIN BREAKER, of the type and size indicated below, which shall be payment in full for furnishing and installing a main breaker as shown on the plan and as specified herein, with all related hardware necessary to provide a complete installation.

BREAKER, MAIN 2-POLE, 225 AMP

REMOVE AND REPLACE LIGHTING UNIT IDENTIFICATION DECAL

Description: The roadway lighting identification numbers for the existing light towers to remain in place shall be removed and replaced with new roadway lighting unit identification decal, where indicated in the plans and as directed by the Engineer.

This work shall be done as per the General Electrical Requirements mentioned in special provision and as per the Article 1069.06 of Standard Specifications.

Method of Measurement: This item will be measured for payment as each installed complete.

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 performing the work as described herein.

REMOVE TEMPORARY WOOD POLE

Description: This work shall consist of removing Temporary Wood Pole installed to support the aerial cables for Temporary Lighting, as shown in the plans and as directed by the Engineer.

This work shall be performed according to all applicable Articles of Section 841 of the Standard Specifications and as modified herein and shall include removal of all aerial cable, all associated apparatus and connections, guy wires, and removal of all wiring and connections to the associated existing lighting controller. The cost of this work shall include all labor, hardware, and equipment.

Basis of Payment: This work shall be paid for at the contractor unit price per each for REMOVE TEMPORARY WOOD POLE.

PEDESTRIAN LUMINAIRE, INSTALL ONLY

Description: This item shall consist of furnishing and installing a Cooper UTD style luminaire, or approved equal, and all required hardware and pole wire as detailed in the plans and specified herein.

The contractor shall contact the City of Elmhurst at (630) 530-3020 and pick-up the pedestrian lighting luminaires from City of Elmhurst's storage facility.

Installation of the luminaire shall be in accordance with Section 844 of the Standard Specifications and Supplemental Lighting Specifications. The luminaire shall be set plumb. The leveling area of the luminaire shall be set in a plane parallel to the roadway taking into consideration the up-grade or down-grade of the sidewalk. Luminaires shall be positioned on roadway light poles such that their lighting distributions are twenty (20) degrees apart, ten (10) degrees away from the street each. Luminaires shall be positioned on pedestrian poles such that their lighting distributions are perpendicular to the roadway.

Basis of Payment: This item shall be paid for at the contract unit price each for PEDESTRIAN LUMINAIRE, INSTALL ONLY which shall be payment in full for the work described herein.

LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 150W, INSTALL ONLY

Description: This item shall consist of furnishing and installing a Cooper OVF2S2D luminaire, or approved equal, and all required hardware and pole wire as detailed in the plans and specified herein. The contractor shall contact the City of Elmhurst at (630) 530-3020 and pick-up the luminaires from City of Elmhurst's storage facility.

Execution: Installation of the luminaire shall be in accordance with Section 844 of the Standard Specifications and District One Electrical Specifications. The luminaire shall be set plumb. The leveling area of the luminaire shall be set in a plane parallel to the roadway taking into consideration the up-grade or down-grade of the sidewalk.

Basis of Payment: This item shall be paid for at the contract unit price each for LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 150W, INSTALL ONLY which shall be payment in full for the work described herein.

ROADWAY LIGHT POLE, INSTALL ONLY

Description: This item shall consist of furnishing and installing a Valmont brand, or approved equal, light pole and base, complete with mast arm for roadway luminaires decorative arms for pedestrian luminaires and all required hardware as detailed on the plans and in accordance with Section 830 of the Standard Specifications for Road and Bridge Construction. The contractor shall contact the City of Elmhurst at (630) 530-3020 and pick-up the roadway light poles from City of Elmhurst's storage facility.

Certification and Guarantee: The submittal information shall include a written certification of compliance with the contract requirements from the Manufacturer. The certification shall specifically identify the project and contract number, as applicable, and shall identify specifically the equipment covered by the certification. The certification shall be made on the Manufacturer's corporate stationary and it shall be signed and dated by a responsible officer of the company, with the signer's title listed.

In addition, submittal information shall include the guarantee as specified under the General Electrical Requirements.

Poles shall not be installed until luminaires are available for installation at the same time. Poles shall not be installed and left standing without a coordinated installation of mast arm and luminaires. POLES SHALL NOT BE PAID UNLESS THE COORDINATED ASSEMBLY, INCLUDING MAST ARMS, BASE, AND LUMINAIRES ARE COMPLETE.

Basis of Payment: This item shall be paid for at the contract unit price each for ROADWAY LIGHT POLE, INSTALL ONLY which shall be payment in full for the work described herein.

PEDESTRIAN LIGHT POLE, INSTALL ONLY

Certification and Guarantee: The submittal information shall include a written certification of compliance with the contract requirements from the Manufacturer. The certification shall specifically identify the project and contract number, as applicable, and shall identify specifically the equipment covered by the certification. The certification shall be made on the Manufacturer's corporate stationary and it shall be signed and dated by a responsible officer of the company, with the signer's title listed. The contractor shall contact the City of Elmhurst at (630) 530-3020 and pick-up the pedestrian light poles from City of Elmhurst's storage facility.

In addition, submittal information shall include the guarantee as specified under the General Electrical Provisions.

Basis of Payment: This item shall be paid for at the contract unit price each for PEDESTRIAN LIGHT POLE, INSTALL ONLY which shall be payment in full for the work described herein.

TRAFFIC SURVEILLANCE

All work and equipment performed and installed under this contract, # 62093, Route FAU 3537 US Rte. 20 (Lake Street), STATE Section: (4Y & 22-3) R-2, shall be governed and shall comply with applicable sections of State of Illinois "Standard Specifications for Road and Bridge Construction" latest edition, herein referred to as the Standard Specifications; the State of Illinois "Manual on Uniform Traffic Control Devices for Streets and Highways," latest edition; the National Electrical Code,; latest edition; the National Electrical Manufacturers Association, herein referred to as NEMA: Standards Publication for Traffic Control Systems, latest edition; AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and the "Supplemental Specifications and Recurring Special Provisions" noted herein.

The following Special Provisions supplement the above specifications, manuals, and code. In case of conflict with any part or parts of said documents, these Special Provisions shall take precedence and shall govern.

In order to reduce possible vehicular conflicts with fixed objects and avoid public criticism, it is necessary to require that no posts, poles, heads, or cabinets be installed until all traffic surveillance equipment is brought to and located on the job site.

The construction, installation and/or removal work shall be accomplished at the following location(s) as shown in the plans on ramp F to Laucky Ave.

Description of Work. The work to be done under this contract consists of furnishing and installing all traffic surveillance items as specified on the Plans and as specified herein in a manner acceptable and approved by the Engineer.

TRAFFIC SURVEILLANCE - GENERAL

Effective: June 1, 1994 Revised: Aug. 12, 1997

1.0 The following supplements applicable sections of Section 800 of the Standard Specifications of the Road and Bridge Construction..

The intent of this Special Provision is to prescribe the materials and construction methods commonly used in traffic surveillance installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer.

When the road is open to traffic, except as otherwise provided the Contractor may request a turn on and inspection of all complete traffic surveillance installations system. This request must be made to the Engineer a minimum of seven (7) working days prior to the time of the requested inspection. Upon demonstration that all surveillance is operational and all work is completed in accordance with the contract and to the satisfaction of the Engineer, the Engineer will then allow all of the surveillance to be placed in continuous operation. The Agency that is responsible for the maintenance of the traffic surveillance installations will assume the maintenance upon successful completion of this inspection.

Projects which call for the storage and re-use of existing traffic surveillance equipment shall meet the requirements of Art. 873 of the Standard Specifications, which call for a 30 day test period prior to project acceptance.

1.1 DEFINITION OF TERMS

Whenever in these Special Provisions the following terms are used, the intent and meaning shall be interpreted as follows:

Induction Loop - A continuous non-spliced wire, three turns, permanently placed and sealed in sawcuts in the roadway and adjacent area, used in conjunction with an induction loop detector sensor unit.

T.S.C. - The Traffic Systems Center of the Illinois Department of Transportation with offices at 445 Harrison Street, Oak Park, Illinois 60304-1499.

State Highway Communications Center - The main communication control facility of the Illinois Department of Transportation with present offices at 201 W. Center Court, Schaumburg, Illinois 60196-1096.

1.2 PROSECUTION OF SURVEILLANCE WORK

The work shall be as indicated on the Plans and as required by the Specifications. Unless otherwise indicated, the Contractor shall furnish and install all required materials and equipment, including all associated appurtenances, to produce a complete and operational installation. The appurtenances shall be as indicated, and the costs shall be included in the unit prices bid for the pay items of this contract. The work shall be done in a workmanlike manner.

1.3 CONNECTIONS TO EXISTING INSTALLATIONS

Where new work connects to existing installations, the Contractor shall do all necessary cutting, fitting and foundation drilling to the existing installation and shall remove all existing work, as required, to make satisfactory connections, with the work to be performed under these Provisions, so as to leave the entire work in a finished and workmanlike manner, as approved by the Engineer. No raceways shall be allowed to enter cabinet through the sides or backwalls.

Some contracted work which does not call for a complete rebuilding of a surveillance location but the replacement of detector loops and lead-in cable only in conjunction with work such as pavement overlay, cut and grind, curb and gutter replacement and other similar type work where existing appurtenances have been in place for several years. This at times has created pre-existing conditions (such as blocked/broken lead-in conduits, buried handholes) which the contractor may have to repair/replace to make the location fully functioning. The Contractor will be compensated for such work utilizing contract items after a complete inspection by the T.S.C. Engineer, Resident Engineer and Electrical Contractor's Rep. with a full review on a case by case basis. Upon completing such work the Contractor shall notify the R.E. to contact the TSC Engineer for checks and test to insure the location is on-line and working correctly.

The Contractor shall furnish all labor and material to the furtherance of this end, whether or not distinctly shown on the plans, in any of the "Standard Specifications" or in the Special Provisions.

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.

1.4 STANDARD GUARANTEE

Manufacturers' warranties or guarantees on all electrical and mechanical equipment consistent with those provided as customary trade practice shall be obtained and transferred to the State.

1.5 IN-SERVICE WARRANTIES OR GUARANTEES

The Contractor shall provide warranties or guarantees providing for satisfactory in-service operation of the mechanical and electrical equipment and related components and shall be for a period of two (2) years following project acceptance. Cost of these warranties and guarantees shall be considered incidental to the Contract.

1.6 EQUIPMENT DOCUMENTS

The Contractor shall furnish five (5) diagrams of the internal and external connection of the equipment in each Traffic Systems Center cabinet. He shall also furnish the Operating and maintenance instructions for all equipment supplied. One copy of the wiring diagrams for each cabinet shall be retained in each field cabinet. Wiring diagram shall be contained in a plastic pouch that shall be permanently mounted to the door of each cabinet. Contractor shall permanently mark the cabinet for each termination and each terminal connection as to loop, tone, closure, phone, and lane function of each termination in the cabinet and provide a completed cable log and location as-built diagram at each location.

1.7 TERMINAL BLOCKS

Terminal blocks provided in field cabinets shall be the heavy duty barrier type. The terminal block shall be a minimum of 50.8 mm (2 inches) wide and 30.16 mm (1-3/16 inch) deep. Center to center of the terminal screws or studs shall be a minimum of 16.67 mm (21/32 inch) with barriers in between. Terminal blocks shall be rated at 45 amps 600 volts breakdown RMS line to line 11,000 V. and breakdown RMS line to ground 13,800 V. A marking strip shall be provided with each terminal block.

1.8 EXISTING EQUIPMENT

All existing equipment, replaced by new equipment shall remain the property of the State and shall be delivered to the Electrical Maintenance Contractor. The cost of removing and delivering the replaced equipment shall be paid for under separate pay item for Cabinet Housing Equipment - Removal.

1.9 TELECOMMUNICATION CABLE

When installing the telecommunication cable, the Contractor shall extend his installation and connections of the cable to the next adjacent Surveillance installations or junction box, beyond the limits of his contract section. He shall be responsible for insuring that the cable is continuous and connected from one contract section to the other.

The Contractor shall comply with the agreement between the State of Illinois and IBT/Ameritech as to connections, locations, and terminations of the phone lines (Telephone Company, Engineering, General Service Engineering Division, Outside Plant Engineering Notes 14-36A., March 1971, Administrative Aids and Procedures).

1.10 EXISTING SURVEILLANCE EQUIPMENT AND APPURTENANCES

Before starting work, the Contractor, in the presence of the Resident Engineer and Traffic Systems Center personnel and the State Electrical Maintenance Contractor's rep., shall inspect the existing equipment to be delivered or maintained by the Contractor and shall take an inventory of all defective, broken, and/or missing parts. Those parts found broken, defective, and/or missing shall be repaired or replaced by the State Electrical Maintenance contractor and shall be recorded as such. The Contractor shall be required to maintain all tone transmitters, tone receivers, tone power supplies, tone mounting frames, harnesses and wiring. The Contractor shall be required to maintain all metering and surveillance cabinets, foundation, concrete handhole, vehicle detection equipment, all interconnecting cables and all Surveillance appurtenances including signal heads. Contractor shall number each cabinet as indicated on the plans, with reflective decals as those used on lighting pole standard.

Should damage occur to any surveillance items during the Contractor's contract period, the Contractor shall repair or replace all damaged equipment at his own expense. The TSC Engineer shall determine what equipment shall be reusable and what shall be replaced. Replaced equipment shall be of equal or better quality and type.

The Contractor, prior to the commencement of his work, shall notify the TSC Engineer for a pre-construction inspection. If construction begins prior to this meeting, the Contractor assumes maintenance responsibilities of the locations within his contract limits and shall make any repairs or replace any damaged equipment pre-existing or damaged as a result of his own negligence at his own expense. This also relieves the Electrical Maintenance Contractor of providing one free locate of the surveillance installations within the contract limits.

1.11 AS-BUILT PLANS

Upon completion of the work, the Contractor shall furnish one (1) copy of "as-built" drawings on CD or 3-1/2" diskettes compatible with Micro Station J software at the Traffic Systems Center and four (4) full size sets of "as-built" plans to the Engineer.

The plans shall include definite locations and length of all cables, duct, conduit pushes, induction loop, lead-in, foundations, handhole and P-duct. The cost of the "as-built" plans shall be incidental to the contract. The Engineer will not authorize final inspection of any installations until the said plans are in his possession.

1.12 PROTECTION OF THE WORK

Electrical work, equipment and appurtenances shall be protected from damage during construction until final acceptance. Electrical raceway or duct openings, shall be capped or sealed from the entrance of water and dirt. Wiring shall be protected from mechanical injury.

1.13 STANDARDS OF INSTALLATION

Electrical work shall be installed in a neat and workmanlike manner in accordance with the best practices of the trade. Unless otherwise indicated, materials and equipment shall be installed in accordance with the manufacturer's recommendations.

Except as specified elsewhere herein, materials and equipment shall be in conformance with the requirements of Section 800 & 1085 of the Standard Specifications for Road and Bridge Construction.

In addition to the requirements of the Standard Specifications relating to control of materials, the Contractor shall comply with the following requirements.

The Contractor shall supply samples of all wire, cable, and equipment and shall make up and supply samples of each type of cable splice proposed for use in the work for the Engineer's approval.

Before equipment and/or material including cabinet, telemetry, and detectors are delivered to the job site, the Contractor shall obtain and forward to the Engineer a certified, notarized statement from the manufacturer, containing the catalog numbers of the equipment and/or material, guaranteeing that the equipment and/or material, after manufacture, comply in all respects with the requirements of the Specifications and these special Provisions. Re-manufactured or modified equipment other than by the original manufacturer shall not be allowed. Original manufacturer shall certify that he made modification to the equipment.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and equipment are paid, and no additional materials and equipment are paid, and no additional compensation will be allowed. Materials and equipment not complying with the above requirements that have been installed on the job will be done at the Contractor's own risk and may be subject to removal and disposal at the Contractor's expense.

1.14 PROCUREMENT

Materials and equipment shall be the products of established manufacturers, shall be new, and 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. 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 into the pay item bid price for the respective material or work.

1.15 EXCEPTIONS, DEVIATIONS AND SUBSTITUTIONS

Exceptions to and deviations from the requirements of the Contract Documents shall not be allowed. It is the Contractor's responsibility to note any deviations from contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions shall be permitted without the approval of the Engineer.

1.16 SUBMITTALS

Within 30 days after contract award, the Contractor shall submit, for approval, complete manufacturer's product data (for standard products and components) and detailed shop drawings (for fabricated equipment). All of the submittal information shall be assembled by the Contractor and submitted to the Engineer at one time. All equipment samples shall be submitted at this time. Partial and sporadic submittals may be returned without review. The Contractor may request, in writing, permission to make a partial submittal. The Engineer will evaluate the circumstances of the request and may accept to review such a partial submittal. However, no additional compensation or extension of time shall be allowed for extra costs or delays incurred due to partial or late submittals.

1.17 TESTING

Before final acceptance, the electrical equipment, material, induction loops and work provided under this contract shall be tested. Tests will not be made progressively, as parts of the work are completed they shall be all made at one time. Items which fail to test satisfactorily shall be repaired or replaced. Traffic Systems Center staff will witness all testing. TSC T400#4

TELEPHONE SERVICE INSTALLATION

Effective: June 1, 1994

Revised: Sept. 6, 1996

This item shall provide 50 mm (2 inch) galvanized steel conduit from the traffic surveillance cabinet, through the foundation, and underground to the nearest telephone service

Prior to the installation of the service conduit the Contractor shall contact the Traffic Systems Center Engineer at (708)524-2145. The Engineer will contact IBT/Ameritech Telephone Co. to confirm service location and request a hookup date.

If the service is pole mounted, the conduit shall be mounted a minimum of 3 m (10 feet) in height above the ground line and securely fastened in the same manner as the electrical service. A weatherhead shall be provided at the top of the pole mounted service.

If the service is ground mounted, the conduit shall be extended into the service box to a height which will not affect the operation of the telephone equipment and each end of the conduit shall be plugged with approved conduit putty.

A Siecior CAC 3000, or equal, plastic telephone network interface junction box shall be mounted within the controller cabinet. Telephone cable shall be installed from the network interface junction box to the telephone service. 1.5m (five feet) of excess cable shall be provided within the cabinet and at the service. TSC Engineer, in arrangement with the Telephone Company, will provide the Contractor with the 5 pair TELCO Service Cable where applicable.

BASIS OF PAYMENT

This work shall not be paid for separately, but shall be considered incidental to the price for Galvanized Steel Conduit in Trench, 50 mm (2 inch), which shall include all labor and materials necessary to install this service conduit complete. After installation the Illinois Department of Transportation shall be responsible for IBT/Ameritech hookup and service charges.

1.18 INSTALLATION/INSPECTION PROCEDURES

After all control boxes and equipment to be installed has been physically inspected and approved by TSC Engineer, the equipment supplier shall then deliver all equipment to the job site. The Contractor shall then install/safeguard all the equipment which has been delivered prior to requesting an inspection. No unapproved equipment shall be on the job site or installed as part of the job. This does not relieve the Contractor from replacement/repairs of equipment found to be damaged or in non-compliance of these provisions.

Certain items such as conduit, wire, duct, anchor bolts, and junction boxes will be inspected and may be tested by the Department's Bureau of Materials and these items shall not be delivered to the job site without inspection approval. Items such as cabinets shall be inspected by the Engineer at the contractor's or manufacturer's shop and these items shall not be delivered to the job site without T.S.C. staff inspection approval. It shall be the Contractor's responsibility to arrange inspection activities with the Engineer thirty (30) days prior to installation. 30 days prior to installation of the tone equipment being supplied and, prior to request for a turn-on, the T.S.C. Engineer will be contacted for the correct frequencies and "DB" setting for each location to be installed. When the work is complete, all equipment fully operational, the Contractor shall schedule a turn-on inspection with the Engineer. Acceptance will be made as a total system, not as parts. The Contractor shall request the inspection no less than seven (7) working days prior to the desired inspection date.

No inspection shall be made until the delivery of acceptable "as built" drawings, specified certifications, and the required guarantees.

It will be the responsibility of the installing contractor to provide a qualified technician representing the tone equipment supplier to be at the turn-on inspection of each location to provide the technical expertise to bring each location on line.

The Contractor shall furnish the necessary manpower and equipment to make the Inspection. The Engineer may designate the type of equipment required for the inspection tests.

A written record of the loop analyzer readings shall be submitted to the T.S.C. Engineer prior to the final inspection.

Any part or parts of the installation that are missing, broken, defective, or not functioning properly during the inspection shall be noted and shall be adjusted, repaired, or replaced as directed by the Engineer and another inspection shall be made at another date. Only upon satisfaction of all points shall the installation be acceptable.

After the subject inspections are completed the TSC Engineer will provide the contractor with a complete punchlist of items necessary to be completed prior to final inspection and acceptance for maintenance.

The Contractor shall furnish a written guarantee for all materials, equipment and work performed under the contract for a period of not less than two (2) years from the date of final acceptance.

INDUCTION LOOP

Effective: June 1, 1994

Revised: April 9, 1997

1. DESCRIPTION

This item shall consist of furnishing, installing and testing an induction loop, of the dimensions shown on the plans or of the dimension from Table 1, at the locations shown. The induction loop shall be installed in accordance with all details shown on the plans and applicable portions of section Art.886 Standard Specifications for Road and Bridge Construction. All sawcutting, cable installation, joint sealing, lead-ins and testing necessary to complete the installation shall conform with the following requirements.

MATERIALS

The cable used for induction loop shall be #14-7 strand XHHW XLP-600V, encased in orange Detecta-duct tubing as manufactured by Kris-Tech Wire Company, Inc., or comparable. All loop wire shall be UL listed. Lead-ins shall be Conoga 30003 or equal cable. The jacket of high density polyethylene shall be rated to 600 volts in accordance with UL 83 Section 36.

Joint sealer shall have sufficient strength and resiliency to withstand stresses set up by vibrations and differences in expansion and contraction due to temperature changes. The joint sealer shall have a minimum tensile strength of 100 P.I.E. when tested by ASTM Method D638-58T. Adhesion to clean dry, oil-free Portland Cement concrete shall be at least equal to the tensile strength of the concrete. The joint sealer, with qualities described above, shall be capable of curing in a maximum time of 30 minutes at all temperatures above 10 degrees C (50 degrees F) Curing shall be defined as the capability of withstanding normal traffic loads without degradation. A hard asphaltic base filling and insulating compound having a high softening point and a high pouring temperature shall be used if the outside installation temperature is below 10 degrees C (50 degrees F). The filling compound shall have a softening point of not less than 110 degrees C (235 degrees F) and a summer pouring temperature of 190 degrees C (375 degrees F); winter pouring temperature of 220 degrees C (425 degrees F). Sealant for Detector Loop(s): The sealer shall meet or exceed the following characteristics provided by OZ GEDNEY DOZSeal 230 filling compound.

3. INSTALLATION DETAILS

Slots in the pavement shall be cut with a concrete sawing machine in accordance with the applicable portions of Section 420.10 of the Standard Specifications for Road and Bridge Construction. The slot must be clean, dry, and oil-free.

Wire shall be inserted in the pavement slot with a blunt tool which will not damage the insulation. Loops shall not be dry cut. Loops should not be installed at an outside temperature below 10 degrees C (50° F) unless directed by Engineer.

Plastic sleeving shall be used to insulate the wire where loop wire crosses cracks and joints in the pavement. The sleeving shall be properly sealed with electrical tape to prevent joint sealer from entering sleeves. Sleeving shall extend a minimum of 20 cm (8 inch) each side of joint.

Induction loops on exit and entrance ramps shall be square or rectangular with edges perpendicular or parallel to traffic flow. All mainline loops shall be round loops, 1.8 m (6 feet) in diameter. Induction loops shall be centered on all ramps and in traffic lanes unless designated otherwise on the plans or by the Engineer. Traffic lanes shall be referred to by number and loop wire shall be color-coded and labeled accordingly. Lane one shall be the lane adjacent to the median, or that lane on the extreme left in the direction of the traffic flow; subsequent lanes are to be coded sequentially towards the outside shoulder. A chart which shows the coding for each installation shall be included in each cabinet. Core holes shall not be allowed at corner of loop. Sawcuts for all induction loops and lead ins shall not be greater than 7 cm (2.75 inches) in depth.

All excess joint sealer shall be removed so that the level of the sealer in the sawcut is at the same level as the adjoining pavement.

All induction loops shall contain three (3) turns of No. 14 wire min. Each induction loop shall have its own Canoga 30003 or equal home run or lead-in to the cabinet when said induction loops is over 45 m (150 feet) from cabinet. Induction loops shall not be connected in series with other loops. This wire shall be free from kinks or any insulation abrasions. The loop lead-in shall be a Canoga 30003 or equal cable. The loop lead-in shall be barrel sleeved, crimped, soldered and protected by heat shrinkable tubing to the loop #14 wire. Lead-ins shall be twisted in such a manner so as to prevent mechanical movement between the individual cables. Lead-ins shall be brought into a cabinet or handhole at the time the induction loop is placed in the pavement. Loops located over 300 m (1000 feet) from cabinet require four (4) turns of No. 14 wire.

Lead-in cable Canoga 30003 or equivalent will be installed where the lead in length from point of interception to the point of termination exceeds 45 meters (150 feet).

Where lead in runs are less than 45 meters (150 feet) the loop wire will be utilized as lead in to the point of termination w/o splices, being twisted 16 turns per meter (5 turns per foot). The loop wire will be paid for as "lead in" from last point of sawcut in pavement at dive hole to point of termination.

Loop lead-ins placed in handholes shall be coiled, taped and hung from the side of the handhole to protect against water damage. Any other method of installation will require prior written approval of the Engineer. Each loop lead-in shall be color coded and tagged in each handhole thru which it passes. The loop lead-in shall be color coded and tagged at the core hole, in each junction box it passes thru, and at the termination point in the cabinet.

Contractor shall core drill all mainline round loops 1.83 meters (6 feet) in diameter x .6 mm (.25 inch) in width x 7 cm (2.75 inch) in depth.

Loop lead-ins shall not be allowed in saw cuts in shoulders. The Engineer shall be contacted regarding proposed changes in loop locations necessitated by badly deteriorated pavement. The Engineer may relocate such loops. Loop Wire and lead-ins shall not be installed in the curb and gutter section or through the edge of pavement.

A hole shall be drilled at least 30 cm (12 inch) in from the edge of pavement through which the P-duct, loop wire and lead-in shall be installed. Saw cuts through shoulders to core hole shall not be allowed. Loop lead-ins shall not be allowed in saw cuts in shoulders.

RAMP LOOP TABLE

W (M)	S (M)
4.0m (13 ft)	2.8m (9 ft)
4.3m (14 ft)	3.1m (10 ft)
4.6m (15 ft)	3.4m (11 ft)
4.9m (16 ft)	3.7m (12 ft)
5.2m (17 ft)	4.0m (13 ft)
5.5m (18 ft)	4.3m (14ft)
5.8m (19 ft)	4.6m (15ft)
6.1m (20 ft)	4.9m (16 ft)
6.4m (21 ft)	5.2m (17 ft)
6.7m (22 ft)	5.5m (18 ft)
7.0m (23 ft)	5.8m (19 ft)
7.3m (24 ft.)	6.1m (20 ft)
7.6m (25 ft)	6.4m (21 ft)

Should the induction loop and/or core hole for the induction loop and loop lead-in cable be paved over by other construction operations, it shall be the contractor's responsibility for locating and finding the induction loop and/or the core hole for the repair of a bad loop or lead-in or for the installation of a new loop or loop lead-in. The locating of the core hole and the induction loop shall be incidental to the cost of the induction loop lead-in installation.

No extra compensation shall be allowed for finding and locating induction loops and/or core hole.

The loop shall be spliced to the lead-in wire with a barrel sleeve crimped and soldered. Epoxy filled heat shrink tubing shall be used to protect the splice. The soldered connection shall be made with a soldering iron or soldering gun. No other method will be acceptable, i.e. the use of a torch to solder will not be acceptable. The heat shrink tube shall be shrunk with a heat gun. Any other method will not be acceptable, i.e. the use of a torch will not be acceptable. No burrs shall be left on the wire when done soldering. Cold solder joints will not be acceptable. Refer to TSC typical(s) TY-1TSC-418 #2 & #3 for proper loop to loop lead-in splice detail.

Where there are continuous count stations or multiple lane exits or entrance ramps the loop in the left most lane shall be wrapped clockwise, the adjacent lane loop wrapped counterclockwise, etc, alternating wrapping the loops every other lane.

4.

TRAFFIC SYSTEMS CENTER LOOP SPLICING REQUIREMENT COLOR CODE

<u>MAINLINE LOOPS</u>				<u>METERING LOOPS</u>	
Lane 1	Blue	Lane 4	Violet	Loop 1	Green
Lane 2	Brown	Exit	Black	Loop 2	Yellow
Lane 3	Orange	Entrance	White	Loop 3	Red

When 2 or 3 loops are installed on an exit or entrance ramp the loop color code shall conform to the mainline loop color code and shall be marked as entrance or exit ramp loops.

In addition to color codes each loop shall be identified with a written label attached to the loop wire, or lead-in wire. The tags shall be Panduit #MP250W175-C or equivalent. All wires and cables shall be identified in each handhole or cabinet the cable passes through, or terminates in. The labels shall be attached to the cable by use of two cable ties.

5. PROSECUTION OF SURVEILLANCE WORK

The work shall consist of replacement and/or repairs caused by the pavement repair, removal and resurfacing to all induction loops, loop lead-in, poly-duct, steel conduits, all interconnecting cables and all Surveillance appurtenances. The Contractor shall make modifications to existing installations to render the location functional. The Contractor shall also furnish and install new induction loops, loop lead-ins, poly-duct, steel conduits, all interconnecting cables, and all Surveillance appurtenances.

Should damage occur to any Traffic Systems Center cabinets, housing telemetry equipment and/or vehicle detection equipment, the Contractor shall install and replace all damaged equipment at his own expense. The Traffic Systems Center staff shall determine what equipment shall be reusable and what shall be replaced. Replaced equipment shall be of equal or better quality and type.

6. CONNECTIONS TO EXISTING INSTALLATIONS

Where new work connects to existing installations, the Contractor shall do all necessary cutting, fitting and foundation drilling to the existing installation and shall remove all existing work, as required, to make satisfactory connections, with the work to be performed under these Provisions, so as to leave the entire work in a finished and workmanlike manner, as approved by the Engineer. No raceways shall be allowed to enter cabinet through the sides or backwalls.

7. PROTECTION OF WORK

Electrical work, equipment and appurtenances shall be protected from damage during construction until final acceptance. Electrical raceway or duct openings, shall be capped or sealed from the entrance of water and dirt. Wiring shall be protected from mechanical injury.

8. STANDARDS OF INSTALLATION

Electrical work shall be installed in a neat and workmanlike manner in accordance with the best practices of the trade. Unless otherwise indicated, materials and equipment shall be new and installed in accordance with the manufacturer's recommendations.

Except as specified elsewhere herein, materials and equipment shall be in conformance with the requirements of Section 106 of the Standard Specifications.

9. TESTING

Before final acceptance, the induction loops shall be tested. Tests will not be made progressively, as parts of the work are completed. They shall be all made at one time. Items which fail to test satisfactorily shall be repaired or replaced.

An electronic test instrument capable of measuring large values of electrical resistance, such as major megger, shall be used to measure the resistance of the induction loop and its lead-in. The resistance of the loop and its lead-in shall be a minimum of 100 megohms above ground under any conditions of weather or moisture. The resistance tests and all electronic tests shall be performed in the presence of the Engineer any number of times specified by the Engineer.

The loop and loop lead-in shall have an inductance between 100 microhenries and 700 microhenries. The continuity test of the loop and loop lead-in shall not have a resistance greater than two (2) ohms. The Contractor shall do all testing in the presence of the Engineer and all readings will be recorded by the Engineer. Testing shall be done with an approved loop tester.

10. FINAL ACCEPTANCE INSPECTION

When the work is complete, tested and fully operational, the Contractor shall schedule a Final Acceptance Inspection with the Engineer. Final acceptance will be made as a total system, not as parts.

The Contractor shall furnish the necessary manpower and equipment to make the Final Acceptance Inspection. The Engineer will designate the type of equipment required for the inspection tests.

11. METHOD OF MEASUREMENT

The induction loop measurement shall be the length of sawcut in the pavement which contain loop wire. The actual length of wire used in the sawcut shall not be considered in any measurement.

12. BASIS OF PAYMENT

This item will be paid at the contract unit price per lineal meter (foot) as INDUCTION LOOP. The price will be payment in full for furnishing and installing all materials listed complete and operating in place.

GALVANIZED STEEL CONDUIT

Effective: June 1, 1994

Revised: Oct. 23, 2002

1. DESCRIPTION:

This item shall consist of furnishing and installing galvanized steel conduit, fittings and accessories as specified herein and as shown on the contract drawings, either attached to structure, laid in trench, or pushed in place. The galvanized steel conduit shall conform to the requirements of applicable portions of Art. 810, 811 & 1088.01 of the Standard Specifications, and Section 1E-663#11 of the Recurring Special Provisions for Roadway Lighting (12/1992), except where more stringent requirements are specified herein.

2. MATERIALS:

2.1 GENERAL

- 2.1.1 Rigid steel conduit shall be manufactured in accordance with U.L. Standard 6 and shall be UL listed and labeled.
- 2.1.2 Rigid steel conduit shall meet Federal Specification WWC-581, ANSI Standard C80.1, and the requirements of NEC Article 344.
- 2.1.3 The conduit, after fabrication, shall be thoroughly cleaned and the inside and outside surfaces shall be galvanized.

- 2.1.4 Couplings and fittings shall meet ANSI Standard C80.4 and shall be hot-dip galvanized. Elbows and nipples shall conform to the specifications for conduit. The cost of fittings, couplings, elbows, nipples and other such conduit appurtenances shall be included in the bid unit price for conduit. All fittings and couplings for rigid conduit shall be of the threaded type.

2.2 PVC Coated Conduit

- 2.2.1 PVC coated conduit shall be manufactured in conformance to NEMA Standard No. RN1-1986.

- 2.2.2 The PVC coating shall have the following characteristics:

Hardness: 85+ Shore A Durometer

Dielectric Strength: 400V/mil @ 60 Hz

Aging: 1000 Hours Atlas Weatherometer

Temperature: The PVC compound shall conform at -18 ° C (0 degrees F)

to Federal Specifications PL-406b, Method 2051. Amendment 1 of 25 September 1952 (ASTMD-746)

Elongation: 200%

- 2.2.3 The exterior galvanized surfaces shall be coated with a primer before 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. The nominal thickness of the PVC coating shall be 40 mils. The PVC shall pass the following bonding test:

Two parallel cuts 12mm (1/2 inch) apart and 38mm (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 12mm (1/2") 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 any additional PVC coating separating from the substrate.

- 2.2.4 A two part urethane coating shall be applied to the interior of the conduit. The internal coating shall have a nominal thickness of 2 mils. The interior coating shall be applied in a manner so that 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. The urethane interior coating applied shall afford sufficient flexibility to permit field bending without cracking or flaking of the interior coating.
- 2.2.5 All conduit fitting covers shall be furnished with stainless steel screws which have been encapsulated with a polyester material on the head to ensure maximum corrosion protection.

2.3 Liquid-Tight Metal Flexible Conduit

- 2.3.1 Liquid-tight flexible metal conduit shall be manufactured to the requirements of UL 360 and be UL Listed.

- 2.3.2 The conduit shall have a temperature range of -20 degrees C to + 60 degrees C. (-4 degrees F to plus 140 degrees F)
- 2.3.3 The thermoplastic covering shall be oil resistant.
- 2.3.4 Conduit from 9.5mm (3/8") diameter to 30mm (1-1/4 ") diameter)shall have an integral copper ground wire.

3. INSTALLATION

3.1 General

- 3.1.1 Galvanized steel conduit shall be installed in conformance with the requirements of NEC Article 344 except where more stringent requirements are specified herein.
- 3.1.2 The ends of the conduit shall be cut square and thoroughly reamed before installation. All burrs and rough edges shall be removed.
- 3.1.3 Bends shall be made with a standard pipe bender. Bends shall be so made that the conduit will not be injured and that the internal diameter of the conduit will not be effectively reduced. The radius of the curve shall not be less than that shown on Table 344.24 of the National Electric Code and where larger radii are specified or shown on the Plans, the larger radii shall be used.
- 3.1.4 Conduit joints shall be threaded. All joints before assembly and exposed threads after assembly shall be coated with low resistance, conductive, joint compound. Running threads in conduits runs will not be permitted. Care shall be used to assure that conduits are not over-threaded. Threading shall be in accordance with the requirements of NEC Article 344.28. The protective coatings on all threads must be sufficient to prevent corrosion before installation is made. If threads become corroded before installation, the material shall be replaced with new material or the corroded parts must be thoroughly cleaned and recoated as directed by the Engineer.
- 3.1.5 Whenever possible, conduits shall be installed so as to drain to the nearest opening, box or fitting.
- 3.1.6 Ends of conduits shall be equipped with insulating bushings. Rigid steel conduits terminating in the base of lighting controllers, pedestal bases, transformer bases and other open enclosures shall be equipped with insulating bushings with ground lugs which shall be used to bond the conduits to the enclosure via a copper ground conductor.
- 3.1.7 Unless otherwise indicated, conduits terminating at cast or malleable iron boxes, or in sheet steel boxes below grade shall be terminated in conduit hubs. Hubs may be integral to the box or may be installed separately. Non-integral hubs or integral hubs which do not provide a flared, smooth entry shall be used where conductors are No. 4 or larger, in compliance with NEC Article 312.6(c), and in these cases two locknuts and an insulating bushing shall be used.

- 3.1.8 Threaded conduits terminating at sheet metal boxes or enclosures above grade, or where bushings cannot be brought into firm contact with the box or enclosure or where insulating bushings are required by the NEC, shall terminate with two locknuts and an insulating bushing. Conduit bushings constructed wholly of an insulating material shall not be used to secure a raceway.
- 3.1.9 Conduit connections shall be made tight to assure good ground continuity.
- 3.1.10 Expansion fittings, as specified herein, shall be installed in all raceway runs crossing structural expansion joints. Unless otherwise indicated or approved by the Engineer, expansion fittings shall include a 20cm (8 inch) expansion fitting with a bonding jumper plus a deflection fitting allowing not less than a 2cm (3/4 inches) deflection in any direction. Bonding jumpers for conduit attached to structure shall be external type. The drawings shall be examined to determine complete extent of expansion joints.
- 3.1.11 Fasteners used to mount conduit supports, and other associated items attached to the structure shall be suitable for the weight supported and shall be compatible with the structure material, i.e. wood screws shall be used for wood, toggle bolts shall be used for hollow masonry, expansion bolts or power-set studs shall be used for solid masonry or concrete and clamps shall be used for structural steel. Expansion anchors shall not be less than 6mm (1/4 inch) trade size and shall extend at least 50mm (2 inches) into the masonry or concrete. Power-set anchors shall not be less than 6mm (1/4 inch) trade size and they shall extend at least 30.0mm (1-1/4 inches) into masonry or concrete.
- 3.1.12 Raceways shall be protected from mechanical and corrosion damage during construction. Open ends shall be capped or fitted with plugs. Before cables are installed, raceways shall be cleared of all obstruction, moisture and burrs or rough edges. Conduits which have had mud, dirt or water inside shall be cleaned with a dry swab.

3.2 Conduit Pushed

- 3.2.1 Conduit which is pushed in place shall be installed in a manner so that it will not be less than 75cm (2.5 feet) below finished grade.
- 3.2.2 Unless otherwise required, pushed conduit shall extend 60cm (2 feet) beyond the shoulder, curb and/or guardrail, as applicable. If auguring is required to facilitate the push installation, the auguring shall be done at no additional cost to the State.
- 3.2.3 Immediately following the conduit push, the conduit shall be rodded and swabbed to remove all dirt and other foreign materials and it shall be capped until conductors are installed.

3.3 Conduit Attached to Structure

- 3.3.1 Unless otherwise indicated or specified, surface-mounted conduits shall be held in place by one-hole clamps and clamp backs.

Conduits which are mounted to steel beams or columns shall be held in place by suitable beam clamps. Clamps, clamp backs and beam clamps shall be stainless steel.

- 3.3.2 Unless otherwise indicated, raceways suspended from the structure shall be supported by trapeze or other hangers approved by the Engineer. Trapeze hangers shall be hot-dip galvanized steel channels or angle irons with conduits held in place by heavy-duty stainless steel U-bolts, nuts and lock washers. Trapeze hangers shall be hung using threaded stainless steel rods not less than 9mm (3/8 inch) diameter and appropriate anchors or by other means approved by the Engineer.

Table 3.1
 MAXIMUM DISTANCE

CONDUIT DIAMETER BETWEEN RIGID METAL CONDUIT SUPPORTS

Mm	(inch)	M	(feet)
12.7-19	1/2-3/4	1.52	1.5
25	1	1.8	6
30-38	1-1/4 - 1-1/2	2.1	7
50-62	2-2 1/2	2.4	8
75 and larger		3	10

Conduit Support

- 3.3.3 Raceway supports shall be as specified in Article 344.30 of the NEC, with a support within 1m (3 feet) of each cabinet, box or fitting except the maximum distance between supports shall be as indicated in table 3.1. The listed exceptions in NEC Article 341-12 shall not apply.

3.4 PVC Coated Conduit Attached to Structure

In addition to the methods described in section 3.3, the following methods shall be observed when installing PVC coated conduit.

- 3.4.1 PVC coated conduit pipe vise jaw adapters must be used when the conduit is being clamped to avoid damaging the PVC coating.
- 3.4.2 PVC coated conduit should be cut with a roller cutter or by other means as approved by the conduit manufacturer.
- 3.4.3 After any cutting or threading operations are completed, the bare steel shall be touched up with the conduit manufacturer's touch up compound.

3.5 Liquid-Tight Flexible Conduit

In addition to the methods described in section 3.3 the following methods shall be observed when installing liquid-tight flexible conduit.

- 3.5.1 Conduit shall be installed in accordance with NEC Article 350.

- 3.5.2 Liquid-tight conduit shall not exceed 1m (36 inches) in length.
- 3.5.3 Fittings designed for use with liquid-tight flexible conduit shall be used at all connections.
- 3.5.4 Flexible conduit shall not be used as a substitute for the bending of rigid conduit. Flexible conduit should only be used where movement of the conduit is anticipated or as indicated on the plans.

4. METHOD OF MEASUREMENT:

Conduit shall be measured for payment in linear meters (feet) in place. Measurement shall be made in straight lines along the centerline of the conduit between ends and changes in direction. Vertical conduit shall be measured for payment. Liquid-tight flexible metal conduit shall not be measured for payment, but shall be included in the bid price for conduit attached to structure regardless of size or type.

5. BASIS OF PAYMENT:

This item shall be paid for at the contract unit price per linear meter (foot) for CONDUIT IN TRENCH, GALVANIZED STEEL, CONDUIT PUSHED, GALVANIZED STEEL, or, CONDUIT ATTACHED TO STRUCTURE, GALVANIZED STEEL, or, CONDUIT ATTACHED TO STRUCTURE, GALVANIZED STEEL, PVC COATED, of the diameter indicated which shall be payment in full for the work as described herein.

POLYETHYLENE DUCT

Effective: June 1, 1994

Revised: Oct.23, 2002

DESCRIPTION

This item shall consist of furnishing and installing polyethylene duct of the type and size specified including all couplings, junctions, adapters, reducers, condulets and all incidental items necessary to complete the work at the locations indicated on the plans or directed by the Engineer in accordance with the following requirements.

MATERIALS

The flexible electrical plastic duct shall be manufactured to comply with the American Society for Testing and Materials Standards (latest edition) cited by ASTM Designation D 3485, and to the standards of NEMA Publication No. TC-7.

The duct shall be manufactured from black polyethylene complying with ASTM Designation D1248, Type III, Grade 3, Class C with the following exceptions and additions:

1. The Elongation when tested by the procedure in ASTM Designation D-638 shall be a minimum of 300%.
2. The Brittle Temperature when tested by Procedure A in ASTM Designation D-746 shall be -70 degrees C. (-94 degrees F.) or below.
3. The environmental Stress Crack Resistance when tested in accordance with ASTM Designation D-1693 shall produce not more than 2 failures per 10 specimens after 48 hours.

Construction: The duct shall be manufactured as polyethylene plastic pipe complying with ASTM Designation D-2104 with the following exceptions and additions:

1. The Outside Diameter, minimum wall thickness, and bending radius shall be as follows:

Nominal Size mm/(inches)	Outside Diameter mm/(inches)	Minimum Wall Thickness mm(inches)	Minimum Bending Radius mm(inches)
30/ (1-1/4")	42.16 ± 0.305 (1.660 ± 0.012")	2.692 ± 0.508 (0.106 ± 0.020)	450 (18 inches)
50/(2")	60.33 ± 0.305 (2.375 ± 0.012")	4.013 ± 0.508 (0.158 ± 0.020)	650 (26 in.)
75/(3")	88.90 ± 0.305 (3.500 ± 0.012")	5.740 ± 0.508 (0.226 ± 0.020)	1000 (40in.)

The duct may be manufactured to the dimensions in the above table, for Schedule 40. The duct must be capable of being bent in the minimum bending radius listed above.

2. When tested in accordance with the procedures and test methods referred to in ASTM Designation D-2104 the test pressures used shall be 75% of the values listed in Tables III, V, VI, VII.
3. The duct shall pass the following tests:

a) Freeze-up test:

A 3.0m (10 ft.)length of the duct bent into an upright "U" shape shall be filled with water and then placed in a low temperature cabinet and maintained at -20 degrees C. for twenty-four hours. The duct shall not crack or burst during the test.

b) Compression Test:

The test shall be conducted on three, 150.0mm (6 inch) samples of the duct, using equipment set at 50mm (2 in.)per minute. Samples are placed between 150.0mm (6 in.)plates and compressed at the rate of 12.0mm (1/2 in.) per minute until the distance between the plates is reduced by 50%, recording the load required to compress the duct. The samples are then removed and allowed to stand for exactly 5 minutes. The load required to compress the sample shall be equal to or greater than that listed below and the duct shall have returned to not less than 85% of its original diameter at the end of the 5 minutes.

Nominal Size mm (in)	Load N (lbs)
30.0 (1-1/4")	836.26 (188 lbs)
50.0(2 in.)	1334.50 (300 lbs)
75.0 (3 in)	1556.87 (350 lbs)

The duct shall be permanently marked at regular intervals on the outside with the manufacturer's name or trademark.

The manufacturer shall certify that these tests were made and the results conform to specifications, using the apparatus and test methods listed above and shall be submitted to the Engineer for approval, prior to installation of duct.

Couplings shall be high density polyethylene or acetyl butyl styrene drive on pipe fittings.

INSTALLATION DETAILS

Polyethylene duct will be installed in a prepared trench at a minimum depth in the ground of 750mm (30 inches). The Contractor shall exercise care in installing the duct to insure that the completed duct raceway is smooth, free of sharp bends and located in such a manner as will preclude damage from subsequent construction operations. Crushed or deformed polyethylene duct shall not be used or accepted. All joints, including those with galvanized steel conduit, shall be watertight.

Duct which passes through cabinet foundations shall have an upper termination approximately 50mm (2 inch) above the top of the foundation.

Duct terminations shall be temporarily capped to prevent water and other contaminants from entering during construction operations. The duct shall be swabbed and blown clean of any debris before installation of cable. If, in the opinion of the Engineer, water or any other debris is in the duct after the cable is installed the Contractor shall blow the duct clean and make any repair necessary to stop water leaking or debris entering.

Should damage occur to existing or newly installed polyethylene duct, the Contractor shall locate the damaged area and repair damaged area with new polyethylene duct. All repairs will be inspected by the T.S.C. Engineer. The cost of locating the damaged polyethylene duct shall be incidental to the cost of the new polyethylene duct.

Where new P-duct connects to existing installations or foundations the Contractor shall do all necessary cutting, fitting and foundation drilling to the existing installation as required, to make satisfactory connections, with the work to be performed under these Provisions, so as to leave the entire work in a finished and workmanlike manner, as approved by the Engineer. No raceways shall be allowed to enter cabinet through the sides or backwalls. All cutting, fitting and foundation drilling shall be incidental to the cost of the polyethylene duct.

METHOD OF MEASUREMENT

The length of measurement shall be the distance along a straight line measured between changes in direction of the polyethylene duct and its connection to terminal structures, galvanized steel conduit or condulets.

BASIS OF PAYMENT

This item will be paid at the contract unit price per lineal meter (foot) of CONDUIT IN TRENCH, HIGH DENSITY POLYETHYLENE, COILABLE. The price will be payment in full for furnishing the specified size duct in place and connected at its terminal. Trench and backfill will be paid for separately.

ELECTRICAL CABLE IN CONDUIT, (EPR)

Effective: June 1, 1994

Revised: Jan. 22, 1997

DESCRIPTION:

This work shall consist of furnishing materials and labor for installation of electric cables in conduit as shown on the contract drawings or as otherwise indicated, complete with all splicing, identification, terminating and testing.

MATERIALS:

GENERAL:

All cable shall be U.L. listed.

Unless otherwise indicated all cable shall be rated 600 volts.

The cable shall be rated 90 degrees C. (194 degrees F) dry and 75 degrees C (167 degrees F) wet and shall be suitable for installation in wet and dry locations, exposed to the weather, and shall be resistant to oils and chemicals.

The cable shall be in conformance with ICEA Standard S-68-516, NEMA Standard Publication No. WC-8 and UL Standard 44.

Any cable used for an electric service entrance run shall have a rating which includes a USE rating.

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.

The U.L. listing mark, cable voltage, insulation type and ratings, as well as the cable size shall all be clearly printed on the cable in a color contrasting with the insulation color.

Conductors:

Conductors shall be uncoated or coated copper. The manufacturer shall assure that the insulation curing process shall be non-injurious to the uncoated copper conductors.

Uncoated Conductors shall meet the requirements of ASTM Designation B-3, ICEA S-68-516, NEMA Standard Publication No. WC-8 and UL Standard 44. Coated conductors shall meet the applicable requirements of ASTM designation B-8, ICEA S-68-516, NEMA Standard Publication No. WC-8 and UL Standard 44.

Unless otherwise indicated, all conductors shall be stranded. Stranding shall meet the requirements of ASTM Designation B-8 (or may be compact ASTM Designation B-496 for conductors larger than No. 2 AWG), ICEA S-68-516, NEMA Standard Publication No. WC-8 and UL Standard 44.

Insulation:

Cable insulation shall incorporate ethylene propylene rubber (EPR) as specified and the insulation shall meet or exceed the requirements of ICEA S-68-516, NEMA Standard Publication No. WC-8, UL Standard 44 as applicable.

Unless otherwise indicated, cables sized No. 2 AWG and smaller shall be solid, full color coded as specified via insulation color or by a painting process approved by the Engineer. These cables shall be insulated with EPR insulation over the conductor with average thickness as indicated in table 2.1 or may be insulated with a bonded composite insulation of EPR insulation and a chlorosulfanated polyethylene jacket with average thicknesses as indicated in table 2.2.

Table 2.1
 Single Material Insulation Thickness

Conductor Size, AWG	Average EPR Thickness
No. 10 and smaller	45 mils
No. 8 through No. 2	60 mils

Table 2.2
 Bonded Composite Insulation Thickness

Conductor Size, AWG	Average EPR Thickness	Average Jacket Thickness
No. 10 and smaller	30 mils	15 mils
No. 8	45 mils	15 mils
No. 6 through No. 2	45 mils	30 mils

Any painting process used shall produce good adherence and shall be certified as non-injurious to the cable insulation.

COLOR CODING BY STRIPING WILL NOT BE ACCEPTABLE:

Unless otherwise indicated, cables sized larger than No. 2 AWG shall be color coded as specified by having not less than 30 cm (12 inch) of cable ends length field-taped with half-lapped color tape or by other means approved by the Engineer. Cables No. 2 AWG and larger shall be insulated by EPR insulation over the conductor and a chlorosulfanated jacket overall, with the average thicknesses as follows:

Table 2.3
 Insulation Thickness for Conductors Larger Than No. 2 AWG

Conductor Size, AWG	Average EPR Thickness	Average Jacket Thickness
No. 1 Through No. 4/0	55 mils	45 mils
250 MCM Through 500 MCM	65 mils	65 mils

Minimum insulation thickness at any point shall not be less than 90% of the average insulations thickness listed in tables 2.1, 2.2, and 2.3.

All electric cables installed on this Contract shall be color coded. Unless otherwise indicated, neutral wires shall be color coded white. Insulated ground wires, where applicable, shall be green. COLORED STRIPING OF CABLES WILL NOT BE ACCEPTABLE IN LIEU OF SPECIFIED COLOR CODING MEANS.

Quality Control:

Cables shall be the product of an established, reputable manufacturer and shall be manufactured and tested in accordance with Insulated Cable Engineers Association (ICEA) Publication S-68-516, otherwise referenced as NEMA Publication No. WC 8-1976(1982).

Submittal information shall include demonstration of compliance with all specified requirements.

All cables shall be new, having been manufactured within the time period indicated in table 2.4, preceding the date of delivery to the site. A certification from the cable manufacturer attesting to compliance with this requirement shall accompany the submittal.

Table 2.4
Maximum Cable Age

Plan Quantity	Time Period
Less than 600 m.(2000 ft.)	30 months
600 m. and greater (2000 ft.)	18 months

All cable shall be delivered to the site in full reels. Cable on the reels shall be protected from damage during shipment and handling by wood lagging or other means acceptable to the Engineer. Reels shall be tagged or otherwise identified to show the UL listing.

INSTALLATION:

Wires and cables shall be carefully installed to avoid damage to insulation and cable jackets as applicable.

Wire lubricant shall be used when pulling wires into conduits. The lubricant shall be non-injurious to conduits, conductors, insulations or jackets and the lubricant shall be UL listed.

Each run of cable shall have sufficient slack.

Where a number of wires are trained through a box, manhole or handhole, they shall be grouped by circuit where applicable and bundled using appropriate cable ties and supported to minimize pressure or strain on cable insulation.

Wire and cable shall not be bent to a radius less than the manufacturer's recommended bending radius, either in permanent placement or during installation.

Cable pulling apparatus shall have no sharp edges or protrusions which could damage cables or raceways.

Splices and terminations, as required, shall be incidental to this item and shall be in conformance with Basic Materials and Methods, elsewhere herein.

TESTING:

After installation, including any backfill operations, the cable shall be field tested. Cable failing to pass the field test shall be replaced with new cable at no additional cost. Tests shall include but not be limited to system voltages, cable insulation and ground resistance and continuity. Tests shall be arranged and made before the Final Acceptance Inspection in the presence of the TSC Field Engineer.

Voltage Measurements: Voltages AC line to neutral and DC voltages taken at the power supply with surveillance equipment connected on line.

Insulation Resistance: Insulation Resistance to ground at each surveillance cabinet and to service pole or ground mounted transformer shall be proved under this contract. Each individual segment interconnecting cabinets shall be disconnected before testing. Tests on new cable runs shall exceed 100 megohms. Tests on existing cable shall demonstrate to the satisfaction of the TSC Field Engineer that the cable runs are free from shorts and grounds. Measurements shall be taken with a megohm meter approved by the Engineer.

MEASUREMENT:

The cable shall be measured for payment in linear meter (feet) in place. Measurements shall be made in straight lines between changes in direction and to the center control cabinets. All vertical cable and permissible cable slack shall be measured for payment. A total of 1 meter (3 feet) slack shall be allowed for the end of a run terminating at a surveillance cabinet. Additional vertical distance for the height of barrier wall etc., as applicable, will be measured for payment for equipment so mounted. 2 meters (six feet) of slack shall be provided at all handhole locations.

BASIS OF PAYMENT:

This item will be paid for at the contract unit price per linear meter (foot) installed for **ELECTRIC CABLE IN CONDUIT, (EPR)** of the size, number and type of conductors indicated, which shall be payment in full for the work as described herein.

ELECTRIC CABLE NO. 19 - 6 CONDUCTORS OR 12 CONDUCTORS

Effective: June 1, 1994

Revised: Jan. 22, 1997

DESCRIPTION

This item shall consist of furnishing and installing telephone cable intended for direct burial in P-duct or G.S. conduit. The number of conductors shall be twisted into pairs stranded into a cable core and enclosed in two polyethylene jackets, with a copper shield between the inner and outer jackets. All

No. 19 electric cable shall conform with these specifications and the current addition of the Rural Electrification Specification for fully color-coded, polyethylene or crystalline propylene/ethylene copolymer-insulated, double polyethylene copolymer-insulated, double polyethylene-jacketed telephone cables for direct burial PE 54. The No. 19 cables shall be installed in complete spans.

MATERIAL AND TESTING

No. 19 electric cable shall meet the requirement set forth in the REA Specification PE 54.

CONSTRUCTION

CONDUCTORS: Each conductor shall be a solid round wire of commercially pure annealed copper. Conductors shall meet the requirements of ASTM Designation B-3, latest issue, except that the requirements for dimensions and permissible variations are waived.

CONDUCTOR INSULATION: Each conductor shall be insulated with colored insulating grade high density polyethylene or crystalline propylene/ethylene copolymer. The manufacturer shall have the option of using either of the above materials.

IDENTIFICATION OF PAIRS: The polyethylene or propylene copolymer compounds used for conductor insulation shall be colored so as to identify (1) the "tip" and "ring" conductor of each pair, and (2) each pair in the completed cable.

STANDARDS OF COLOR: The colors of insulated conductors supplied in accordance with this specification shall fall within the limits of standards of color as defined by the Munsell Color Notations specified in paragraph 4.031.

TWISTING OF PAIRS: The insulated conductors shall be twisted into pairs.

In order to provide sufficiently high crosstalk losses at voice and carrier frequencies, the pair twists shall be designed to enable the cable to meet the pair-to-pair capacitance unbalance requirements and the crosstalk requirements.

CORE COVERING: The core shall consist of an inner jacket of polyethylene applied over the completed core, a metal shield, and an outer jacket of polyethylene.

SHIELD: A gopher-resistant corrugated shield of fully annealed copper shall be applied longitudinally over the inner jacket. The shield shall completely cover the inner jacket and shall be so constructed that the completed cable shall meet the bending requirements given in paragraph 9 of Rural Electrification Specification PE-54. The shield shall provide 100% electrical shielding plus resistance to gopher attack or other severe service conditions.

MUTUAL CAPACITANCE: The average mutual capacitance of all pairs in any reel shall be in accordance with the following table:

<u>Number of Cable Pairs</u>	<u>Average Mutual Capacitance mf/mile (mf/km)</u>
3	0.083 plus or minus 0.010 (0.052 plus or minus 0.006)
6, 12	0.083 plus or minus 0.007 (0.052 plus or minus 0.004)
18 or more	0.083 plus or minus 0.004 (0.052 plus or minus 0.002)

Mutual capacitance is the effective capacitance between the two wires of a pair.

CAPACITANCE UNBALANCE: (Pair to Pair): Pair-to-pair capacitance unbalances as measured on the completed cable at a frequency of 1000 plus or minus 100 Hz shall not exceed the following values:

<u>Number of Cable Pairs</u>	<u>Pair-to-Pair Capacitance Unbalance (Max)</u>	
	<u>mmf/kf</u>	<u>(mmf/km)</u>
	<u>Max. Individual</u>	
Less than 12	100 (181.1)	

CAPACITANCE UNBALANCE - (Crosstalk Loss): The r.m.s. output-to-output far-end crosstalk loss as measured on the completed cable at a frequency of 150 kHz shall be not less than 73 db per 1,000 feet (67.8 db per kilometer) for cable sizes of 6 pairs and larger. The r.m.s. calculation shall be based on the combined total of all adjacent and alternate pair combinations within the same layer and center to first layer pair combinations.

CAPACITANCE UNBALANCE - (Pair to Shield): Pair-to-shield direct capacitance unbalances as measured on the completed cable at a frequency of 1000 plus or minus 100 Hz shall not exceed the following values:

<u>Number of Cable Pairs</u>	<u>Pair-to-Shield Capacitance Unbalance (Max)</u>	
	<u>mmf/kf</u>	<u>(mmf/km)</u>
	<u>Max. Individual</u>	
Less than 12	250 (820)	

CONDUCTOR RESISTANCE: The d.c. resistance of any conductor as measured on the completed cable shall not exceed the following values when measured at or corrected to 20° C.

<u>AWG</u>	<u>Maximum Resistance</u>	
	<u>ohms/kf</u>	<u>(ohms/km)</u>
19	8.7	(28.5)

BASIS OF PAYMENT

This work will be paid for at the contract price per lineal meter (foot) for ELECTRIC CABLE NO. 19 of the number of conductors specified, which price or prices shall be payment in full for furnishing all materials, making all electrical connection and installing the cable in place.

CONCRETE FOUNDATION

Effective: June 1, 1994

Revised: Oct. 11, 2002

DESCRIPTION:

This item shall consist of constructing a concrete foundation for the installation of a traffic signal, cabinet, and cabinet with pedestal, anchor bolt, and ground rod in accordance with the following requirements and conforming in all respects to the lines, grades and dimensions shown on the plans or as directed by the Engineer and in applicable portions of Section 878 of the Standard Specifications and the Standard Drawing for Concrete Foundations, Standard 2378.

MATERIALS

The materials shall conform to the specifications of Class SI concrete and concrete Reinforcement Bars in the Standard Specifications for Road and Bridge Construction.

The conduit and fittings within the limits of the foundation shall conform to the same requirements as that specified for the conduit outside these limits.

Anchor bolts shall meet the requirements of Section 505 of the Standard Specifications and the material shall conform to the requirements of Article 1006.09 of the Standard Specifications for Road and Bridge Construction. A ground rod shall be installed in each foundation and shall conform to Section 807. Unless otherwise indicated in plans, ground rods shall be one piece copper-clad steel rods 2cm x 3 m (3/4" x 10')

CONSTRUCTION DETAILS

Concrete foundations shall be Type A or Type D and location as specified on the plans. The top of the foundation shall be finished level. Shimming will not be permitted. All edges along the top of the foundation shall be given a 25mm (1 inch) bevel. A form extending a minimum of 225mm (9 inches) below the top surface of the foundation is required. The form shall be set level and means shall be provided for holding same rigidly in place while the concrete is being deposited. Whenever the excavation is irregular, a form shall be used to provide the proper dimension of the entire foundation below the ground surface. Where a concrete foundation is contiguous to a sidewalk, preformed joint filler of 12mm (1/2 inch) thickness shall be placed between the foundation and the sidewalk.

All conduit in the foundation shall be installed rigidly in place before concrete is deposited in the form. Insulated bushings shall be provided at the ends of conduit. Anchor bolts shall be set in place before the concrete is deposited by means of a template constructed to space the anchor bolts in accordance with the pattern of the bolt holes in the base. After installation of cables, all conduit openings in foundations shall be sealed with an approved mastic. The required number and size of galvanized steel conduits shall be installed in every concrete foundation as shown on the plans. An excess of galvanized steel conduits shall be installed in every concrete foundation. These excess stubs shall be 50 mm (2 inches) in diameter. Placement and quantity shall be determined by the Engineer, and the ends of the stubs shall be capped.

Incidental to the cost of each control box foundation, the Contractor shall construct a 125 mm (5") P.C.C. sidewalk of a rectangular area 1 mm (3 ft.) by 1.2 meter (4 ft.) immediately adjacent to the cabinet door, with the 1.2 meter (4') dimension of the rectangle parallel to the cabinet door when closed. This paragraph shall be applicable at all cabinet foundation locations included in this Section. The only situations where this paragraph shall no apply are as follows: When the foundation is immediately adjacent to or within a paved sidewalk or shoulder area and no further surfacing is require. The Engineer shall be the sole judge as to the applicability of this paragraph in all questions arising there from.

BASIS OF PAYMENT

This work will be paid for at the contract unit price per meter/foot for CONCRETE FOUNDATION of the type specified, which price shall be payment in full for all necessary excavating, backfilling, disposal of surplus material and formwork and furnishing all materials, anchor bolts, stubs and ground rod within the limits of the foundation.

HANDHOLE

Effective: June 1, 1994

Revised: Oct. 23, 2002

DESCRIPTION

This item shall consist of constructing a handhole, a heavy-duty handhole, or a double handhole, cast in place, complete with frame and cover and in accordance with the following requirements and conforming in all respects to the lines, grades, and dimensions shown on the plans or as directed by the Engineer. All handholes shall be installed in accordance with the Standard Specifications Sec. 814.

MATERIALS

All materials shall conform to Article 1088.10 of the Standard Specifications. All handholes shall be constructed of Class SI concrete meeting the requirements of the Standard Specifications for Road and Bridge Construction Section 1020.

CONSTRUCTION DETAILS

Handhole of the type specified shall be constructed in accordance with the details shown on the plans and conform to the following requirements:

1. Concrete: Concrete construction shall be done in accordance with the provisions of Concrete for Structures and Incidental Construction contained in the Standard Specifications for Road and Bridge Construction Sec. 503.
2. Placing Castings: Castings shall be set accurately to the finished elevation so that no subsequent adjustment will be necessary. Castings shall be set flush with a sidewalk or pavement surface. When installed in an earth shoulder away from the pavement edge, the top surface of the casting shall be 25.4mm (1 in.) above the finished surface of the ground.
3. Backfilling: Any backfilling necessary under a pavement, shoulder, sidewalk or within 60cm (2 ft.) of the pavement edge shall be made with sand or stone screenings.
4. Forming: Forms will be required for the inside face of the handhole wall, and across all trenches leading into the handholes excavation. The ends of conduits leading into the handhole shall fit into a conduit bell which shall fit tightly against the inside form and the concrete shall be carefully placed around it so as to prevent leakage.
5. French Drain: A French drain conforming to the dimensions shown on the plans shall be constructed in the bottom of the handhole excavation.
6. Steel Hooks: Each handhole shall be provided with four galvanized steel hooks of appropriate size, one on each wall of the handhole.
7. Frame and Cover: The outside of the cover shall contain a recessed ring Type "G" for lifting and a legend "IDOT TSC" cast-in.
8. Cleaning: The handhole shall be thoroughly cleaned of any accumulation of silt, debris, or foreign matter of any kind, and shall be free from such accumulations at the time of final inspection.

BASIS OF PAYMENT

This work will be paid for at the contract unit price each for HANDHOLE or HEAVY DUTY HANDHOLE, or CONCRETE HEAVY DUTY HANDHOLE (SPECIAL), as the case may be, which price shall be payment in full for all necessary excavating, backfilling, disposal of surplus material and form work, frame and cover, and furnishing all materials.

TRENCH AND BACKFILL

Effective: June 1, 1994

Revision: Jan. 22, 1997

DESCRIPTION

This item shall consist of constructing a trench for the accommodation of the poly-duct or conduit and backfilling it at the locations indicated by the Engineer. Included is the furnishing of the backfill material and disposing of surplus materials. All work shall be done in accordance with these specifications and Section Art. 815 & 1066.05 of the Standard Specifications.

CONSTRUCTION METHODS

The trench shall be excavated in a manner to prevent cave-ins and to a depth of not less than 750mm (30 inch) below final grade. Excavated material cannot fall back onto the trench. The width of the trench shall be at least 75.0mm (3 inches). Where the duct enters the foundation or rigid steel conduit, the bottom of the trench shall be built up to provide a smooth bed for the duct.

The duct 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.

If the trench is for an electrical power line, a cable marker shall be installed 30 cm (12 in) below finished grade. The marker shall be a 15 cm (6 in) wide (match trench width for smaller trenches) reinforced metallic detection tape consisting of a reinforced polyethylene tape with a metallic core. The tape shall be red with black lettering to read "CAUTION-ELECTRICAL LINE BURIED BELOW". The tape shall have a thickness of not less than 8 mils. The tensile strength of a 75.0mm (3 in.) wide specimen shall be a minimum of 2669 N (600 lbs). Splicing of the tape shall be accomplished with metal clips to maintain electrical continuity along the entire length of the tape. In addition to metal clips, all splices must be wrapped with a waterproof adhesive tape to prevent corrosion of the metal core.

The trench shall be backfilled by placing backfill material in uniform layers not exceeding 15 cm (6 inch) in depth (loose measure). The material in each layer shall be thoroughly compacted to a density equal to the existing ground or as approved by the Engineer in such a manner as not to injure the duct.

No stone or rock greater than 25mm (1 in.) in maximum dimension shall be allowed in any layer or backfill.

No sod, frozen material, or any material which, by decay or otherwise, might cause settlement shall be used as backfill. Deleterious substances, such as coal, lignite, shells, clay lumps, and conglomerate and cemented particles shall not exceed 5 percent by weight in any one sample of backfill material.

Any material excavated from the trench may be used as backfill provided it does not conflict with the above and that the material meets with the approval of the Engineer.

The Engineer will inspect:

1. The trench before the duct or conduit is placed in the trench.
2. The duct in the trench before the first layer of backfill.
3. The trench at any other time during excavation or backfilling.

Trenches under and within 60cm (2 ft.) of pavement, curb, gutter, or curb and gutter and other locations indicated by the Engineer shall be filled with sand or stone screenings complying with Articles 1003.01 and 1003.04 of the Standard Specifications. Extra compensation shall not be allowed for such sand or stone screenings.

The method and type of equipment to be used in compacting the backfill material shall be approved by the Engineer before any work is started.

All areas and plant material damaged by the installation shall be replaced as follows:

1. Grass Areas: Replace top soil to a depth of 8cm (3 inch) , regrade shoulders, ditch slopes, and open areas back to former existing grades. Fertilize, seed and mulch all damaged areas.
2. Sodded Areas: Fertilize and re-sod all damaged areas.
3. Plant Materials: Remove and replace damaged trees, shrubs, and vines with the same varieties that existed prior to the damage.
4. Shoulders Other than Stabilized Shoulders and backslopes: Replace shoulders to original condition and restore edge of backslope to original lines and grades.

All damaged landscape shall be replaced in accordance with Sections 250 through 254 of the Standard Specifications for Road and Bridge Construction.

METHOD OF MEASUREMENT

The length of measurement shall be the distance along a straight line measured between changes in direction of the trench.

BASIS OF PAYMENT

This work shall be paid for at the contract unit price per lineal meter (foot)for TRENCH AND BACKFILL FOR ELECTRICAL WORK, which price shall include the cost of all excavation, cable marker, furnishing and placing all backfill material, and the disposal of surplus excavations. Any boring made for the purpose of placing conduit or cable under sidewalks or driveways shall be paid for at the same contract unit price per lineal meter and designated as Trench and Backfill. This price shall include the cost of seeding or sodding the surface of the trench, when and as directed by the Engineer.

SPECIFICATIONS FOR FURNISHING AND INSTALLING TONE EQUIPMENT - PROGRAMMABLE

Effective: June 1, 1994

Revised:Jan. 22, 1997

1.0 General

- 1.1 Telemetry equipment shall be furnished and installed in the Traffic Systems Center Office and along expressway at locations designated in these Special Provisions and in strict accordance with these specifications.

- 1.2 Communication link from field located cabinets to the Traffic Systems Center Office will be via 3002 Channel, C1 conditioning, Type 7 FDDC telephone pairs leased by the Traffic Systems Center, or telecommunication cable in barrier wall.
 - 1.3 All tone transmitters and tone receivers shall be three frequency frequency-shift; that is equipment which the center frequency is normally on at all times and is electrically shifted +30 Hz to a higher frequency (mark) or -30 Hz to a lower frequency (space). Other frequency shifts from +10 to +300 shall be user selectable.
 - 1.4 All transmitters, receivers, and power supplies shall be of the modular plug-in type construction. The circuitry of each unit shall be protected by a U-shaped metal chassis, cadmium plated with iridite finish.
 - 1.5 All tone equipment shall be physically interchangeable with existing Traffic Systems Center tone equipment, that is furnished tone equipment shall be directly compatible with and replaceable by existing tone equipment with no modification to any hardware.
 - 1.6 All transmitters, receivers, and power supplies shall be solid state. All transistors shall be silicon, excepting the power transistors in power supplies. All transmitters and receivers I.C.s shall be plug in
 - 1.7 All transmitters, and receivers shall be programmable frequency-shift key units. These units shall have a universal card which is field programmable for any channel frequency or shift. The frequencies available shall be in the range of 120 Hz to 5235 Hz in increments of 5 Hz. The shifts available shall be 10, 25, 30, 35, 42.5, 60, 70, 75, 120, 150, 240 and 300 Hz. A new center frequency or shift shall be field programmed by simply changing setting of the program switch.
 - 1.8 All transmitters and receivers shall be capable of being operated at any frequency program switches. The center frequency shall be clearly visible through or on the front of each transmitter and receiver. Such indication shall be clearly visible through or on the front of each transmitter and receiver. Such indication shall always correspond to the frequency of the elements currently operating in each module. Contractor shall supply 500 complete sets of pre-printed tags for labeling the units indicating the center frequency.
 - 1.9 Transmitters and receivers shall work into a communication link with standard impedance of 00 ohms.
 - 1.10 Transmitters and receivers shall be individually fused.
- 2.0 Mechanical and Environmental Requirements
- 2.1 Field Units
 - 2.1.1 Receivers, transmitters and power supplies shall be capable of operation in field cabinets which provide protection against direct contact with the elements with no special provisions for environment control.

- 2.1.2 All field located tone equipment shall be mounted in the surveillance cabinets as designated elsewhere in these specifications.
- 2.1.3 All field located tone equipment shall be capable of operation on a temperature range of -30° to +60° C (-22 degrees F to 140 degrees F) and shall have P.C. boards coated for protection against humidity in the range of 0% to 96%.
- 2.1.4 All field tone equipment shall be capable of being tipped, while in operation, from the vertical to the horizontal position and back again, without having adverse effect on the continuous operation of the transmitter, receiver or power supply.

SPECIFICATIONS FOR FURNISHING AND INSTALLING TONE EQUIPMENT - POWER SUPPLY

Effective: June 1, 1994

Revised: Oct.10, 2002

1.0 Power Supply

- 1.1 The power supply shall operate on input voltage of 117 VAC allowing for 10% variation in line voltage.
- 1.2 The power supply shall provide a regulated 12 VDC output at 1.7 amps.
- 1.3 Each tone equipment mounting frame field located or office located, shall have its own regulated power supply, capable of operating at least ten tone modules in any combination of transmitters and receivers.
- 1.4 The power supply shall have floating type gold plated connections to insure good connection.
- 1.5 The front panel of the power supply shall have an on/off switch and a Red LED that indicates the status of the output DC voltage.
- 1.6 The power supply shall contain a switch and L.E.D. on the front panel to permit the monitoring of the supply voltage with the existing Traffic Systems Center tone test meter.
- 1.7 The power supply shall be fused.
- 1.8 The power supply shall have a DC voltage control.

BASIS OF PAYMENT

This item shall be paid for at the contract unit price each for TONE EQUIPMENT - POWER SUPPLY, installed, operating, and completely in place.

Terminal boards, wiring, and miscellaneous hardware will not be paid for separately, but shall be considered as incidental to the cost of this item.

**SPECIFICATIONS FOR FURNISHING AND INSTALLING TONE EQUIPMENT - 3
FREQUENCY PROGRAMMABLE RECEIVER**

Effective: June 1, 1994

Revised: Oct. 10, 2002

- 1.0 Receiver
 - 1.1 The requirements as to the programmable channel frequency range, channel spacing, holding of shifted frequency, and operating voltage shall be the same as those for 3 Frequency Transmitter.
 - 1.2 Input sensitivity of tone receiver shall be adjustable down to -45 dbm. The dynamic range shall be 25 db.
 - 1.3 Adjacent channel attenuation shall be at least 35 db.
 - 1.4 Each receiver shall be capable of test operation of at least 30 pulses per second.
 - 1.5 Each receiver shall have one single pole, double throw, mark relay output and one single pole, double throw space output relay.
 - 1.6 Each receiver shall also have a carrier detector circuit with one single pole, double throw relay output.
 - 1.7 All output relay contacts shall be capable of handling a minimum of 30 VA continuously. Any substitution shall be subject to written approval of the Engineer.
 - 1.8 Receiver shall have L.E.D. indicators for Mark-Red, Space-Yellow and Carrier-Green, visible through the face panel.
 - 1.9 The receiver shall have a floating type gold plated connector to insure good connection.
 - 1.10 Receiver shall operate in a space hold, 2 state operation.
 - 1.11 An attenuation plug shall be provided to set sensitivity level of receiver.
 - 1.12 Each receiver shall come with 2 spare relays as outlined in Sec. 1.5 of this specification.
 - 1.13 Test points through front face plate shall be provided to test for DC voltage levels.

BASIS OF PAYMENT

This item will be paid for at the contract unit price each for TONE EQUIPMENT - 3 FREQUENCY PROGRAMMABLE RECEIVER, installed, operating, and completely in place.

Terminal boards, wiring, optical-isolator, relays, cable assemblies and miscellaneous hardware will not be paid for separately, but shall be considered as this item.

**SPECIFICATIONS FOR FURNISHING AND INSTALLING TONE EQUIPMENT - 3
FREQUENCY PROGRAMMABLE TRANSMITTER**

Effective: June 1, 1994

Revised: October 10, 2002

- 1.0 Transmitter
- 1.1 The tone transmitter shall operate on an input of a regulated 12 VDC.
- 1.2 The tone frequencies shall be programmable in the audio frequency range between 120 and 3820hertz.
- 1.3 The transmission quality shall be such that there may be as many as 25 channels of tone transmitters operating over one telephone pair with perfect discrimination by the associated tone receivers. The frequency of one tone transmitter shall have no adverse effect on the operation of the frequency of any other transmitter connected to the same telephone pair.
- 1.4 Output level of tone transmitters shall be adjustable over a range of -40 to +13 dbm.
- 1.5 Transmitter harmonic output shall be at least 42 db down from the fundamental for each harmonic component.
- 1.6 Each unit furnished shall have an external jumper wire on the barrier type terminal block to provide a two frequency space-hold operation.
- 1.7 The transmitter shall have a floating type gold plate connector to insure good connection.
- 1.8 The transmitter shall be capable of holding any of its assigned frequencies (mark, space) continuously without degradation in life of performance.
- 1.9 Each transmitter shall be capable of test operation of at least 30 pulses per second.
- 1.10 No transmitter plugs shall be required for tone output. A toggle switch thru the face plate shall put the transmitter "on line" and "off line".
- 1.11 Transmitter shall have L.E.D. indicators for Mark-Red, Space-Yellow and Carrier-Green visible thru the face panel.
- 1.12 Test points through front face plate shall be provided to test for DC voltage levels.

BASIS OF PAYMENT

This item will be paid for at the contract unit price each for TONE EQUIPMENT - 3 FREQUENCY PROGRAMMABLE TRANSMITTER, installed, operating and completely in place.

Terminal boards, wiring, and miscellaneous hardware will not be paid for separately, but shall be considered as incidental to the cost of this item.

ITEM CODE NO. X0322445 TONE EQUIPMENT-MOUNT FRAME

Revised: Oct. 10, 2002

DESCRIPTION:

Under this item, for a unit price each, the Contractor shall furnish and install an Iniven 1X 11-1 mounting rack or equivalent in strict accordance with supplement and specified herein.

Each tone equipment mounting frame field located or office located, shall have with power supply added, 11 slots capable of operating at least ten tone modules in any combination of transmitters and receivers.

Each mounting frame shall provide a separate barrier type terminal block with screw-type terminal for each transmitter, receiver, and power supply.

Each mounting frame shall be constructed of steel with zinc bonderizing and hard baked finish of gold metallic epoxy paint.

Where the mounting frame is not completely filled with tone modules, the unused modules spaces shall be provided with the barrier type terminal blocks, within each mounting frame, shall be wired to the 12 VDC power supply.

Each mounting frame for the field equipment shall be of a size that shall hold the power supply, all transmitters and all receivers required at each field cabinet as specified elsewhere in these Special Provisions.

In all field cabinet locations where mounting frames are specified the mounting frames shall be bolted to the rear wall of the cabinet by means of a swing bracket as per field mounting frame with cradle assembly drawing #TY-1TSC 400#6.

The bracket cradle shall have three (3) position stops: horizontal, 45 degree and vertical.

The bracket cradles shall be constructed of ¼" (6.35mm) steel, cadmium plated with an irridite finish, as shown on plan for cradle assembly drawing #TY-1TSC 400#7.

BASIS OF PAYMENT

This work shall be paid at the contract unit price each for **TONE EQUIPMENT MOUNT FRAME**, which shall be payment in full for all work as described herein and as directed by the Engineer.

CONTROL OF TRAFFIC SURVEILLANCE MATERIALS

Effective: June 1, 1994

Revised: October 23, 2002

Control of materials shall meet the requirements of Section 801 of the Standard Specifications, except for the following:

DOCUMENTATION

The Contractor shall submit the following traffic surveillance material documentation for the Engineer's approval.

The material shall be submitted prior to the delivery of equipment to the job site, or within 30 consecutive calendar days after the contract is awarded, or within 15 consecutive calendar days after the preconstruction meeting.

- (A) One (1) complete set of manufacturer's descriptive literature, drawings, and specifications of the traffic surveillance equipment, handholes, junction box, cable, conduit and all associated items that will be installed on the contract.
- (B) Eight (8) complete shop drawings of the cabinets, showing in detail the fabrication, anchor bolts, and reinforcing materials.
- (C) Eight (8) copies of a letter listing the manufacturer's name and model numbers of the proposed equipment to be supplied, as noted in Paragraphs (A) and (B) of this Special Provision. The letter will be reviewed by the Traffic Surveillance Engineer to determine whether the equipment to be used is approved. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.
- (D) (A), (B), and (C) above shall be stamped with the Contract Number, Permit Number, or Intersection for FAUS projects.

Unless otherwise approved by the Engineer, all of the above items shall be submitted to the Engineer at the same time. Each item shall be properly identified by route, section and contract numbers. Failure to submit the required information above may result in any request for 120-day delay under Article 802.06 being denied.

ACCEPTANCE

Acceptance of the traffic surveillance equipment by the Department shall be based upon inspection results at the Traffic Surveillance "turn on". If approved, traffic surveillance acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic surveillance equipment and associated maintenance thereof until Departmental acceptance is granted.

At or prior to the "Turn On" inspection of the traffic surveillance installation, the Contractor shall provide the Traffic Surveillance Inspector with one (1) copy of the letter described in Paragraph (C) above. In addition the Contractor shall provide the Engineer with one (1) copy of the operation and service manuals of the associated equipment and five (5) copies of the cabinet wiring diagrams and cable log and location diagram. If these items are not delivered, the traffic surveillance installation(s) will not be placed in operation.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and surveillance equipment are paid, and no additional compensation will be allowed. Materials and equipment not complying with the above requirements will be subject to removal and disposal at the Contractor's expense.

CABINET HOUSING EQUIPMENT, MOUNTING AND SIZE AS SPECIFIED

Effective: June 1, 1994

Revised: Jan. 23, 1997

DESCRIPTION

This item shall consist of furnishing and installing cabinets of the type and size specified in place including anchor bolts, bases, pedestals, posts, fans, cable harnesses, ground rods, terminal boards, shelves, mounting hardware, and all miscellaneous items at locations as directed by the Engineer.

MATERIALS

Cabinets shall be of fabricated aluminum supplied in sizes with minimum inside dimensions as listed below.

<u>TYPE</u>	<u>HEIGHT</u>	<u>WIDTH</u>	<u>DEPTH</u>	<u>THICKNESS</u>	<u>OPENING</u>
E.S.P. 1	571.5mm	362mm	248mm	4.7mm	457mm x 279mm
E.S.P. 2	914.4mm	508mm	381mm	4.7mm	711mm x 444.5mm
E.S.P. 3	1257.3mm	762mm	432mm	4.7mm	965mm x 698.5mm
E.S.P. 4	1397mm	1117.6mm	660.4mm	4.7mm	1079.5mm x 1054.1mm
E.S.P. 1	22-1/2"	14-1/4"	9-3/4"	3/16"	18" x 11"
E.S.P. 2	36"	20"	15"	3/16"	28" x 17-1/2"
E.S.P. 3	49-1/2"	30"	17"	3/16"	38" x 27-11/2"
E.S.P. 4	55"	44"	26"	3/16"	42-1/2" x 41-1/2"

Cabinets shall be watertight. Doors shall be gasketed to provide a waterproof seal. Bases shall be caulked to obtain a moisture-proof bond. All cabinet types shall have a minimum of two (2) shelves for setting detectors and other equipment on, and Type 2 Corbin brass locks or equal.

E.S.P. Type 3 and Type 4 cabinets shall be fitted with a thermostatically controlled fan. It shall be mounted at the top of the cabinet for a forced air fan system that has a screened air exhaust opening under roof overhang and no opening in top of cabinetry. The fan shall be capable of operating at 3.68m³/min (130C.F.M.) at 4.1mm (.160") of water static pressure.

Where the E.S.P. Type 3 cabinet is used to house equipment controlling ramp metering signals, the E.S.P. Type 3 cabinet shall have a signal load relay installed. The signal load relay shall consist of two components, a base which is mounted on the E.S.P. Type 3 cabinet wall and a locking screw. The coil of this relay shall be connected to the mark output of the signal change tone receiver. The one set contacts of the load relay shall be used to change the ramp signals and one set of contacts shall be used to key the mark input to the signal change transmitter. This relay shall be incidental to the cost of the cabinet when used.

Materials shall conform to controller cabinets as listed in the Standard Specifications 1074.03 except that the door shall not have any outside designation nor shall the cabinet door be equipped with a police door or louvers. Post top mounted cabinets, shall have a 6.4mm (1/4") bottom of cabinet welded.

INSTALLATION DETAILS

Installation shall conform to applicable portions of Section 863 the Standard Specifications.

Cabinets, cabinet posts, and cabinet pedestals shall be primed and painted in accordance with TSC Specification T712#1. The final coat color shall be specified by the T.S.C. at the time of the pre-construction meeting. Interior of all cabinets shall be painted high gloss white.

CMS Type 4 cabinets shall be serviced by 117 volts AC power with a 60 amp circuit breaker minimum.

All cabinets shall be serviced by 117 volts AC power and a telecommunication system. Each cabinet shall be equipped with a 10 ampere circuit breaker, ground rod, 115 VAC RFI filtering surge protector (ACD-340 surrestor), 130 volt, 70 joules, 10 amp varistor, lightning protection for each loop (SRA-6LC surrestor), data line protection for each leg of the four (4) wire telecommunication system (SRA 64C surrestor), a pull chain porcelain base light fixture with a 3 prong 110 volt outlet.

The porcelain fixture shall be mounted on metal plate, that shall be mounted on the cabinet ceiling. No holes shall be drilled thru the cabinet exterior for internal equipment mounting.

Each wire entering a cabinet shall be trained in a workmanlike manner and lugged at each terminal strip or switch. If more than one wire has a common terminal on a terminal strip, the adjacent strip shall be used and an appropriate jumpered connection shall be made.

All cables and wiring entering a cabinet shall be dressed, harnessed, tied, laced, and clamped to produce a workmanlike wiring installation.

All cables (loopwires, power, phone) shall be labeled with a panduit type cable tag. The tag will identify the type of cable and the cable destination.

A copper grounding bus shall be mounted on the rear wall of the cabinets. Each cabinet shall contain a wiring diagram of the installation in addition to the diagrams which are to be submitted to the Engineer.

Prior to the wiring of the cabinet, the contractor shall submit box print for approval before cabinet wiring shall begin.

The Contractor shall furnish three (3) diagrams of the internal and external connections of the equipment in each Traffic Systems Center cabinet. He shall also furnish the operating and maintenance instructions for all equipment supplied. One copy of the wiring diagrams for each cabinet shall be retained in each field cabinet. Wiring diagram shall be contained in a plastic pouch that shall be permanently mounted to the door of each cabinet. Contractor shall permanently mark the cabinet for each termination and each terminal connection as to loop, tone, closure, phone, and lane function of each termination in the cabinet.

Incidental to the cost of each cabinet, the Contractor shall construct 127mm (5") P.C.C. sidewalk of a rectangular area 1 meter by 1.2m (3' x 4') immediately adjacent to the cabinet foundation on the same side of the foundation as the cabinet door, with the 1.2m (4') dimension of the rectangle parallel to the cabinet door when closed. If the width of the required cabinet foundation is greater than the 1 meter (3 feet) width of the standard concrete foundation. Type D, the 1.2m (4') dimension of the sidewalk area shall be increased to equal the width of the foundation plus 30 cm (1ft), the area to extend 15 cm (6") beyond each side of the foundation. This paragraph shall be applicable at all cabinet locations included in this Section. The only situations where this paragraph shall not apply are as follows: When the foundation is immediately adjacent to or within a paved sidewalk or shoulder area and no further surfacing is required. The Engineer shall be the sole judge as to the applicability of this paragraph in all questions arising there from.

No raceways shall be allowed to enter cabinet through the sides, top or back walls.

Anchor bolts shall be installed for pedestal and base mounted cabinets. These shall be considered as incidental to the cost of the cabinets.

Cable harnesses, terminal boards, and mounting hardware shall be installed as needed. These items shall be considered as incidental to the cost of the contract.

Terminal blocks provided in field cabinets shall be the heavy duty barrier type. The terminal block shall be a minimum of 50.8mm (2") wide and 30.2mm (1-3/16") deep. Center to center of the terminal screws or studs shall be a minimum of 16 mm (21/32") with barriers in-between. Terminal blocks shall be rated at 45 amps 600 volts breakdown RMS line to line 11,000 V. and breakdown RMS line to ground 13,800 V. A marking strip shall be provided with each terminal block.

METHOD OF MEASUREMENT

Cabinets will be accepted as concrete foundation mounted, pole mounted, pedestal mounted, or attached to structure. Each cabinet installed complete and in place will be counted as a single unit.

BASIS OF PAYMENT

This work will be paid for at the contract price each for CABINET HOUSING EQUIPMENT, mounting and size specified, installed complete and in place.

CABINET HOUSING EQUIPMENT - REMOVAL

Effective: Aug. 12, 1997

Revised: May 7, 1999

DESCRIPTION

This item shall consist of removing the existing cabinet from its present location, as shown on the plans, storing it for TSC Engineer Inspection, and transporting it to the State's Electrical Maintenance Contractor or as directed by the T.S.C. Engineer. The cabinet shall be removed from present location without damage to the cabinet or to the existing equipment and hardware in the cabinet. The TSC Engineer will inspect cabinet and control equipment to determine salvageability. The Contractor shall transport salvaged equipment to EMC for inclusion in State stock. Any damage resulting from the removal, transportation of the cabinet, 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 T.S.C. Engineer. The T.S.C. Engineer shall be the sole judge to determine the extent of damage.

BASIS OF PAYMENT

This item will be paid for at the contract unit price each for CABINET HOUSING EQUIPMENT-REMOVAL, which price shall be payment in full for removal and delivery of cabinet, equipment and miscellaneous hardware. Any cabinet or equipment damaged by the Contractor's removal and transportation operation shall be replaced by the Contractor by the same type and kind of cabinet. The Traffic Systems Center Equipment Engineer shall be the sole judge of type and kind of replacement.

SPECIFICATIONS FOR FURNISHING DIGITAL LOOP DETECTOR SENSOR UNIT

Effective: June 1, 1994

Revised: Oct. 10, 2002

1.0 Scope

- 1.1 This item shall consist of furnishing digital four or two channel loop detector sensor units complete with associated enclosures, cable harness, quick disconnect plugs, and operation manuals in strict accordance with these specifications.

2.0 Functional Requirements

- 2.1 The sensor unit shall operate on a regulated 117 VAC. The sensor unit shall be of solid state design throughout. Each sensor unit shall include four or two complete loop detector channels in the space that is normally occupied by an INDUCTION LOOP DETECTOR SENSOR UNIT.

- 2.2 The loop connected to each of the four channels or two shall be sequentially scanned at a rate of not less than 148 times per second. Only one loop shall operate at a time in the system to eliminate cross-talk.
- 2.3 The digital loop sensor unit shall be automatically and instantaneously self-tuning requiring no burn-in or warm-up time. Then it shall also track environmental changes.
- 2.4 The digital loop sensor unit shall be self-tracking and fully automatic in its recovery from power failure.
- 2.5 The digital loop sensor unit shall be of sufficient sensitivity to detect the smallest licenseable motor vehicle, including motorbikes. The sensor unit shall detect a Honda CT-170 and hold the detection for minimum of four minutes.
- 2.6 The sensor unit shall be designed to operate in conjunction with three turns of a loop of wire embedded up to 76.2mm (3") deep in a reinforced concrete roadway. The loop and lead-ins will measure at least 100 megohms above ground and have a minimum inductance of 50 microhenries and a continuity resistance of not more than 2 ohms. Digital sensor unit shall be capable of tuning to an inductance range of 0 to 2000 microhenries.
- 2.7 Vehicle detection shall be indicated by a single optically isolated solid state output per channel.
- 2.8 Output circuit shall be an optically coupled output. It shall be a 2N37. Polarity of interface between telemetry and sensor unit must be observed.
- 2.9 Any size or type of motor vehicle from motorcycle to a high bed tractor-trailer moving over the loop shall be detected and each vehicle shall produce only one output for the length of time the vehicle is over the loop.
- 2.10 Detection shall be positive for all vehicle speeds 0 to 129km (80 mi.) per hour.
- 2.11 The sensor unit shall be capable of reliable operations when placed up to 304.8m (1000 ft.) away from loops and connected with type No. 14 AWG, stranded copper wire. The loops will vary in size from 1.52m by 1.83m (5 ft. x 6 ft) up to 5.49m by 1.83m (18 ft. x 6 ft). Loop system with 304.8m (1000 ft.) of lead-in shall perform with sensitivity to detect and hold the smallest motorbike.
- 2.12 Each detection channel shall have its own output incandescent indicator lamp and 16 position thumbwheel switch. The thumbwheel switch shall select the sensitivity and mode. The thumbwheel switch shall provide eight sensitivities, .0025% to .33% and 3 modes: off, pulse, and presence.
- 2.13 In the pulse mode each new vehicle shall produce an output pulse of 225 milliseconds duration. A vehicle remaining on a loop for more than two seconds shall be "tuned out" allowing operation of the loop to other vehicles.
- 2.14 In the presence mode output duration shall be equal to the percent of time the vehicle is present on the loop. Vehicle detection and hold times shall not be less than 30 minutes.

- 2.15 Electrical connections from the sensor unit to incoming and outgoing circuits shall be made by one MS type multiple positive connection plug and jack, or equivalent arrangement, to permit rapid replacement with similar existing units without disconnecting or reconnecting individual wires.
- 2.16 All the tuning adjustments shall be made with controls provided on the sensor unit without requiring movement of the sensor unit.
- 2.17 These controls shall be identified and it shall not be necessary to remove or change wires or contacts nor to use any tools other than a screw driver in tuning or making sensitivity adjustments.
- 2.18 A properly tuned sensor unit shall detect all high vehicles (truck) with chassis 1.22m (4 feet) above pavement surface with one contact closure and yet shall not detect vehicles passing in lanes adjacent to loop installation.
- 2.19 All transistors shall be silicon type. The main logic of the unit shall be a single MOS-LSI chip to simplify the electronics, increase reliability and improve maintainability.
- 2.20 The sensor unit shall be contained in a rigid high quality metal enclosure providing complete protection to all components and electrical connections.
- 2.21 During normal detection operation the state of the output indicator shall correspond exactly to the state of the optically coupled output.
- 2.22 A frequency switch shall be provided to raise or lower the loop oscillator frequency for the elimination of cross-talk between sensor unit, should it ever occur.
- 2.23 The digital sensor unit shall be provided with a circuit breaker.
- 2.24 Special circuitry shall be provided so that the sensor unit shall continue in proper operation even though the induction loop is shorted or leaking to ground.
- 2.25 Induction loops shall be coupled to a transformer to provide for rejection of induction loop lead-in cable noise and shall allow low inductance operation (0 to 50 microhenries).
- 2.26 A reset shall be provided to reset all channels.
- 2.27 There shall be a write-on pad mounted on sensor to identify traffic lane with channel indication.

3.0 BASIS OF PAYMENT

This item will be paid for at the contract unit price each for DIGITAL LOOP DETECTOR SENSOR UNIT, channels specified, installed, operating and completely in place.

Terminal boards, cable harness wiring and miscellaneous will not be paid for separately, but shall be considered as incidental to the cost of the item.

CLEANING AND PAINTING SURVEILLANCE CABINETS AND APPURTENANCES

Effective: June 1, 1994

Revised: Nov. 12, 1998

This item shall consist of cleaning and surface preparation of areas designated for painting. The furnishing, application and protection of the paint coatings, and all other work described herein.

General Requirements

All existing surveillance cabinets and appurtenances shall receive a low pressure 5.5mPa to 10.3mPa (800 to 1500 psi) power washer/or a standard sand blaster to remove excessive loose paint and dirt.

After cleaning/sandblasting, prime with approved primer allowing 24 hours to dry. Then apply one full coat of approved finish coat to all designated areas.

Weather Conditions

The surfaces to be painted after cleaning must remain free of moisture and other contaminants. The Contractor shall control his/her operations to insure that dust, dirt or moisture do not come in contact with surfaces cleaned or painted that day. In addition to the paint system's manufacturer's written instructions for painting and cleaning, the following conditions shall apply. (When in conflict, the most restrictive conditions shall govern).

- (1) Cleaning and painting shall be done between April 15 and November 15.
- (2) The minimum temperature of the air shall be 4.4 degrees C (40 degrees F.) unless otherwise specified. Coatings shall not be applied to surfaces hotter than 54.4 degrees C. (130 degrees F) or when the air temperature exceeds 37.7 degrees C (100 degrees F)
- (3) The surface temperature shall be at least -15 degrees C (5 degrees F) above the dewpoint of the air surrounding the surface. In addition, the relative humidity of this air shall be less than 85%.
- (4) Spray painting will not be permitted when wind velocities are greater than 24km/h (15 mph).

These conditions will be determined by the Engineer at locations representative of the surfaces to be cleaned and painted. Work accomplished under unfavorable weather conditions will be considered unacceptable and complete recleaning and repainting of these areas will be required at the Contractor's expense.

Equipment

All cleaning and painting equipment shall include gauges capable of accurately measuring fluid and air pressures and shall have valves capable of regulating the flow of air, water or paint all as recommended by the equipment manufacturer. The equipment shall be maintained in proper working order.

Spray painting and cleaning equipment shall utilize filters, traps or separators recommended by the manufacturer of the equipment and shall be kept clean to prevent oil, water, dried paint and other foreign materials from being deposited on the surface. The filters, traps and separators shall be cleaned or drained by means and at intervals recommended by the manufacturer of the equipment. Airspray paint pots shall be equipped with air operated continuous mixing devices.

Diesel or gasoline powered equipment shall be positioned or vented in a manner to prevent deposition of combustion contaminants on any part of the structure.

Prior to beginning all painting operations, air equipment shall pass the requirements of ASTM D 4285. This test will be repeated as determined by the Engineer.

Power tools shall be equipped with vacuums with HEPA filters.

Painting

Painting shall be done in a neat and workmanlike manner. Paint may be applied with spray methods, rollers, or brushes. If applied with conventional or airless spray methods, paint shall be applied in a uniform layer with overlapping at the edges of the spray pattern. During application, the gun shall be held perpendicular to the surface and at a distance which will insure that a wet layer of paint is deposited on the surface. The trigger of the gun shall be released at the end of each stroke. All runs and sags shall be brushed out immediately. The paint pressure to the gun shall be in accordance with the paint manufacturer's recommendations. Brushes shall be round or oval, except flat brushes may be used if they do not exceed 101.6mm (4 inches) in width. When air spray application is used, the atomizing air pressure at the gun shall be high enough to properly atomize the paint, but not so high as to cause excessive fogging of paint, excessive evaporation or loss by over spray.

Painting shall be accomplished in accordance with these specifications and as specified in the paint manufacturer's written instructions and product data sheets for the paint system used. The prime and finish coats shall all be supplied by the same paint manufacturer.

All ingredients in any container of paint shall be thoroughly mixed by mechanical power mixers in original containers before use or mixing with other containers of paint. The paint shall be power mixed in a manner which will break up all lumps, completely disperse pigment and result in a uniform composition. Paint shall be carefully examined after mixing for uniformity and to verify that no unmixed pigment remains on the bottom of the container. Excessive skinning or partial hardening due to improper or prolonged storage will be cause for rejection of the paint, even though it may have been previously inspected and accepted

Application

The paint shall not be applied when the ambient temperature is expected to drop below the manufacturer's minimum application temperature within 72 hours of application of the paint.

The Alkyd coats shall be applied in accordance with the paint manufacturer's printed instructions. Thinning will be considered unacceptable and thinned coatings shall be removed at the Contractor's expense. In cool weather, the paint may be warmed to reduce the viscosity, if necessary. Such warming shall be done by heating the paint containers in water or by other approved indirect methods.

If the dried paint coating is too thin or if portions of the steel are not coated completely, such portions of the work shall be corrected as directed by the Engineer at the Contractor's expense.

If the paint coat wrinkles or shows evidence of having been applied under unfavorable conditions, or if the workmanship is poor, the Engineer shall order it removed and the metal cleaned and repainted at the Contractor's expense. All areas where the paint film exceeds the maximum thickness shall be corrected by the Contractor at his/her expense using methods approved by the Engineer.

Each coat of paint shall be applied as a continuous film of uniform thickness free of pores. Each coat of paint shall be in a proper state of cure before the application of the succeeding coat. Paint shall be considered dry for recoating when an additional coat can be applied without the development of film irregularities; such as lifting, wrinkling, or loss of adhesion of the under coat. The time interval between coating applications shall be in compliance with the paint manufacturer's instructions. If surfaces are contaminated, washing shall be accomplished prior to intermediate and final coats.

Paint

The paints for shop, field and maintenance painting shall comply with the requirements hereinafter specified. Samples of any or all ingredients used in the manufacture of this paint may be requested by the Department and shall be supplied upon request, along with the supplier's name and identification for the material.

- (a) Primer - This paint shall meet the requirements of Section 4 (composition) and Section 5 (properties) of the Steel Structures Painting Council's Paint Specification No. 25 for red iron oxide, zinc oxide, raw linseed oil and alkyd primer as outlined in Volume 2, Systems and Specifications, Third Edition.
- (b) Intermediate Coat - This paint shall meet the same requirements as the primer except that it shall contain a contrasting shade of red iron oxide and/or be tinted or shaded to produce a distinct contrast of at least 10 Hunter Delta E. Units compared with the primer.
- (c) Final Finish Coat - This paint shall meet the requirements of Section 4 (composition) and Section 5 (properties) of the Steel Structures Painting Council's Paint Specification No. 21 for lead free white or colored silicone alkyd paint, Type 1, high gloss as outlined in Volume 2, Systems and Specifications, Third Edition. The color of the paint shall match the specified Munsell Color Standard within 2 Hunter Delta E. Units and shall pass the following accelerated weathering test.

Accelerated Weathering - The paint shall be applied to an aluminum alloy panel (Federal Test Standard No. 141, Method 2013) with an 0.25mm (.0098 inches) gap clearance film applicator and allowed to air dry for 168 hours. The coated panel shall be subjected for 300 hours to accelerated weathering using the light and water exposure apparatus (fluorescent UV-condensation type) as specified in ASTM G53. The cycle shall consist of 8 hours UV exposure at 60 degrees C (140 degrees F) followed by four hours of condensation at 40 degrees C (104 degrees F) At the end of the exposure period, the panel shall show a color change of not more than 5 Hunter Delta E. Units and the 60 degrees specular gloss shall not be less than 50.

The specified color shall meet the requirements in the following table. The pigments listed, or any combination thereof, shall make up the pigmentation for the color specified. Small amounts of other lightfast tinting and/shading pigments may be used when necessary to match the specified color provided the enamel complies with the requirements of this specification. Extender pigments are not allowed.

Edens	Walnut*
Kennedy	Blue Streak**
Eisenhower	Caribbean Blue*
I-290/IL53/I355	Post Office Blue**
Ryan	Yellow Stone II**
I-55	Medium Bronze*
I-57	Red Baron**
Cal-King	Blue Streak**
Elgin-O'Hare	Blood Red*
Lake Shore Drive	Green*
I-80	Statuary Bronze**

All ramp metering cabinets Lime Green***. All posts, T.S. heads and services will be painted Federal Yellow 89-19****.

- * Morton Powder Paint Color or equivalent
- ** O'Brien Powder Paint Color or equivalent
- *** Benjamin Moore Enamel Color or equivalent
- **** Mautz paint or equivalent

No Additional compensation shall be allowed for conforming to color requirements.

Special Instructions

- (1) Painting Date - At the completion of the work, the Contractor shall stencil in black color paint the date of painting the cabinet. The letters shall be capitals, not less than 1 inch 25.4mm (1 inch) and not more than 50.8mm (2 inches) in height.

The stencil shall show the month and year in which the painting was completed. This shall be stenciled at bottom front of the cabinet facing traffic flow.

- (2) Cleanup - All surfaces painted inadvertently shall be cleaned immediately.

It is understood and agreed that the cost of all work outlined above, unless otherwise specified, has been included in the bid, and no extra compensation will be allowed.

EXPRESSWAY	BENJAMIN MOORE	O'BRIEN POWDER PAINT	MORTON POWDER PAINT
Dan Ryan		Yellow Stone II PFY-504-S9	
Kennedy		Blue Streak PFK-400-S9	
Ike			Caribbean Blue 20-1593
I290/I153/I355		Post Office Blue PFK-503-S8	
Edens			Walnut 20-8002
I-55			Medium Bronze 20-8249
I-57		Red Baron PFR-400-S9	
Cal-King		Blue Streak PFK-400-S9	
Lake Shore Drive North/South			Green 20-6081
Elgin O'Hare			Blood Red 20-4064
I-80		Statuary Bronze PFJ-407-A5	
All Metering	YL-59 Lime Green		

1. All cross-connect cabinets are to be painted the color of the expressway.
2. All speed and count cabinets to be left natural.

ELECTRIC SERVICE DISCONNECT

Description:

This item shall consist of furnishing and installing an Electric Service Disconnect, mounted on a wood pole as specified below, shown on accompanying details drawing and as directed by the Engineer.

Materials:

The disconnect box shall be NEMA 4X stainless steel, nominally 12" x 16" x 8" with piano hinged door, steel back panel, fast acting stainless steel enclosure clamps, padlock provisions and door stop kit, Hoffman catalog #A-16H1208SS6LP/A-16P12/A-DSTOPK/C-PMK12, or approved equal.

Circuit Breakers shall be thermal magnetic bolt-on type with a minimum interrupt capacity of 10,000 symmetrical amperes at 120 volts. Breakers shall be lockable in the off position for lock out/tag-out compliance.

Disconnect surge protector shall be suitable for 240/120 volt single phase 60 Hz. AC electrical service. Protector shall have a surge energy capability of 3600 joules or better at 8/20 microseconds, rated -40 to 60 degrees C., with LED operating indicators and shall be UL listed per UL 1449. Protector shall be a Cutler Hammer CMOV230L65XST or approved equal.

Conduit and wire to complete the installation of the disconnect box shall be paid for via pay items elsewhere herein.

Bus bars, connectors and lugs shall be copper, insulated and isolated, and configured to prevent shorted conditions from tightening terminations. Lug and connectors shall be rated for 75 degrees C. Overall bus section shall be configured behind an insulating barrier shield which is removable for access to connections.

Combination ground and neutral bar shall be configured with separate ground and neutral sections and spare terminals as indicated. The heads of ground screws shall be painted green. The heads of neutral screws shall be painted white.

A plastic laminated layout and circuit diagram shall be affixed to the interior side of the enclosure door.

A 2-color engraved plastic nameplate, attached with screws and engraved as indicated, shall be provided for each main breaker.

The exact mounting height of the box shall be field determined and marked by the Engineer.

Electrical service shall be of the voltage indicated. Where 120 volt service is indicated, service drop cable shall be installed accordingly.

The electric service equipment assembly shall be UL labeled, suitable for use as service equipment.

Stainless steel unistrut channel stainless steel "L" shaped brackets, and stainless steel hardware shall be provided for proper installation of the disconnect, as shown on disconnect mounting detail. (TY-1TSC-400 #20).

Installation:

The box shall be installed as per accompanying disconnect mounting detail ITY-1TSC-400#19)

Note detail drawing for installation of stainless steel straps and iron conduit straps (TY-1TSC-400#19).

Disconnect shall be installed a minimum of 10 feet above final grade, as shown on electric service detail (TY-1TSC-400#20).

One Electric Service Disconnect may be used for more than one location as shown on plans. If so, an extra circuit breaker shall be installed to control the 2nd location. The 2nd circuit breaker supplied shall be considered incidental to the Electric Service Disconnect pay item.

Removal of existing Electric Service Type "C" shall be considered as incidental to Electric Service Disconnect pay item. Contractor shall not be entitled to extra compensation for removal of Type "C" service.

All work beginning to end shall be coordinated with the power utility company. Contractor shall call the power utility company to set up all service calls.

Method of Measurement:

Each Electric Service Disconnect mounted on a wood pole for the Surveillance System, installed as per the above specifications and as directed by Engineer, shall count as a unit for payment.

Basis of Payment:

This item shall be paid at the contract unit price each for ELECTRIC SERVICE DISCONNECT, which shall be payment in full for the material and work as described herein. To make Electric Service and Disconnect complete, ground rod and miscellaneous hardware shall be included in contract unit price for ELECTRIC SERVICE DISCONNECT.

UNIT DUCT, 600 V, WITH 5-1/C NO. 6, 3-1/C NO. 2, AND 1/C NO. 6 GROUND, 2" DIA POLYETHYLENE

Description: This work shall consist of furnishing and installing preassembled cable in coilable nonmetallic conduit (unit duct), complete with all splicing, identifications, and terminations. All work shall be consistent with Section 816 of the Standard Specifications.

Method of Measurement: The unit duct will be measured in feet (meters) in place and as indicated in Section 816 of the Standard Specifications.

Basis of Payment. The work will be paid for at the contract unit price per foot (meter) installed for UNIT DUCT, WITH 5-1/C NO. 6, 3-1/C NO. 2, AND 1/C NO. 6 GROUND.

BITUMINOUS PRIME COAT FOR HOT-MIX ASPHALT PAVEMENT (FULL DEPTH) (D-1)

Effective: May 1, 2007

Revise Article 407.06(b) of the Standard Specifications to read:

“A bituminous prime coat shall be applied between each lift of HMA according to Article 406.05(b) at a rate of 0.02 to 0.05 gal/sq yd (0.1 to 0.2 L/sq m), the exact rate to be determined by the Engineer.”

Revise the second paragraph of Article 407.12 of the Standard Specifications to read:

“Prime Coat will be paid for at the contract unit price per gallon (liter) or per ton (metric ton) for BITUMINOUS MATERIALS (PRIME COAT).”

COARSE AGGREGATE FOR HOT-MIX ASPHALT (HMA) (D-1)

Effective: March 16, 2009

Revise Article 1004.03 of the Standard Specifications to read:

1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA). The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	Gravel Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA All Other	Stabilized Subbase Shoulders	or Gravel Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag Crushed Concrete The coarse aggregate for stabilized subbase, if approved by the Engineer, may be produced by blending aggregates according to Article 1004.04(a).
HMA High ESAL Low ESAL	IL-25.0, IL-19.0, or IL-19.0L	Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF)
HMA High ESAL Low ESAL	C Surface IL-12.5,IL-9.5, or IL-9.5L	Gravel (only when used in IL-9.5L) Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag (except when used as leveling binder)

Use	Mixture	Aggregates Allowed
HMA High ESAL	D Surface IL-12.5 or IL-9.5	<p>Crushed Gravel Crushed Stone (other than Limestone) Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag (except when used as leveling binder)</p> <p>Limestone may be used in Mixture D if blended by volume in the following coarse aggregate percentages: Up to 25% Limestone with at least 75% Dolomite. Up to 50% Limestone with at least 50% any aggregate listed for Mixture D except Dolomite. Up to 75% Limestone with at least 25% Crushed Slag (ACBF) or Crushed Sandstone.</p>
HMA High ESAL	E Surface IL-12.5 or IL-9.5	<p>Crushed Gravel Crushed Stone (other than Limestone and Dolomite) Crushed Sandstone</p> <p>No Limestone.</p> <p>Dolomite may be used in Mixture E if blended by volume in the following coarse aggregate percentages: Up to 75% Dolomite with at least 25% Crushed Sandstone, Crushed Slag (ACBF), or Crushed Steel Slag. When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 25% to a maximum of 75% of either Slag by volume. Up to 50% Dolomite with at least 50% of any aggregate listed for Mixture E.</p> <p>If required to meet design criteria, Crushed Gravel or Crushed Stone (other than Limestone or Dolomite) may be blended by volume in the following coarse aggregate percentages: Up to 75% Crushed Gravel or Crushed Stone (other than Limestone or Dolomite) with at least 25% Crushed Sandstone, Crushed Slag (ACBF), or Crushed Steel Slag. When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 25% to a maximum of 50% of either Slag by volume.</p>
HMA High ESAL	F Surface IL-12.5 or IL-9.5	<p>Crushed Sandstone</p> <p>No Limestone.</p> <p>Crushed Gravel, Crushed Concrete, or Crushed Dolomite may be used in Mixture F if blended by volume in the following coarse aggregate percentages: Up to 50% Crushed Gravel, Crushed Concrete or Crushed Dolomite with at least 50% Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or any Other Crushed Stone (to include Granite, Diabase, Rhyolite or Quartzite). When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 50% to a maximum of 75% of either Slag by volume.</p>

(b) Quality. For surface courses and binder courses when used as surface course, the coarse aggregate shall be Class B quality or better. For Class A (seal or cover coat), other binder courses, and surface course IL-9.5L (Low ESAL), the coarse aggregate shall be Class C quality or better. For All Other courses, the coarse aggregate shall be Class D quality or better.

(c) Gradation. The coarse aggregate gradations shall be as listed in the following table.

Use	Size/Application	Gradation No.
Class A-1, 2, & 3	3/8 in. (10 mm) Seal	CA 16
Class A-1	1/2 in. (13 mm) Seal	CA 15
Class A-2 & 3	Cover	CA 14
HMA High ESAL	IL-25.0 IL-19.0 IL-12.5 IL-9.5	CA 7 ^{1/} or CA 8 ^{1/} CA 11 ^{1/} CA 16 and/or CA 13 CA 16
HMA Low ESAL	IL-19.0L IL-9.5L	CA 11 ^{1/} CA 16
HMA All Other	Stabilized Subbase or Shoulders	CA 6 ^{2/} , CA 10, or CA 12

1/ CA 16 or CA 13 may be blended with the gradations listed.

2/ CA 6 will not be permitted in the top lift of shoulders.

FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (D-1)

Effective: May 1, 2007

Revised: January 15, 2010

Add the following to the gradation tables of Article 1003.01(c) of the Standard Specifications:

FINE AGGREGATE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	3/8	No. 4	No. 8	No. 16	No. 200
FA 22	100	6/	6/	8±8	2±2

FINE AGGREGATE GRADATIONS (metric)					
Grad No.	Sieve Size and Percent Passing				
	9.5 mm	4.75 mm	2.36 mm	1.16 mm	75 µm
FA 22	100	6/	6/	8±8	2±2

6/ For the fine aggregate gradations FA 22, the aggregate producer shall set the midpoint percent passing, and the Department will apply a range of ± ten percent. The midpoint shall not be changed without Department approval.

Revise Article 1003.03(a) of the Standard Specifications to read:

“(a) Description. Fine aggregate for HMA shall consist of sand, stone sand, chats, slag sand, or steel slag sand. For gradation FA 22, uncrushed material will not be permitted.”

Revise Article 1003.03 (c) of the Standard Specifications to read:

“(c) Gradation. The fine aggregate gradation for all HMA shall be FA1, FA 2, FA 20, FA 21 or FA 22. When Reclaimed Asphalt Pavement (RAP) is incorporated in the HMA design, the use of FA 21 Gradation will not be permitted.

Gradation FA 1, FA 2, or FA 3 shall be used when required for prime coat aggregate application for HMA.”

HOT MIX ASPHALT MIXTURES, EGA MODIFIED PERFORMANCE GRADED (PG) ASPHALT BINDER

Effective: March 16, 2009

Description. This work shall consist of constructing Hot Mix Asphalt (HMA) mixtures containing ethylene-glycidyl-acrylate (EGA) Modified Performance Graded (PG) Asphalt Binder. Work shall be according to Sections 406, 1030, and 1032 of the Standard Specifications, except as modified herein.

The asphalt binder shall meet the following requirements:

EGA Modified Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 “Standard Specification for Performance Graded Asphalt Binder” for the grade shown on the plans. An ethylene-glycidyl-acrylate (EGA) terpolymer with a maximum of 0.3 percent polyphosphoric acid by weight of asphalt binder, shall be added to the base asphalt binder to achieve the specified performance grade. Asphalt modification at hot-mix asphalt plants will not be allowed. The modified asphalt binder shall be smooth, homogeneous, and be according to the requirements shown in the following table for the grade shown on the plans.

Ethylene-Glycidyl-Acrylate (EGA) Modified Asphalt Binders		
Test	Asphalt Grade EGA PG 70-22 EGA PG 70-28	Asphalt Grade EGA PG 76-22 EGA PG 76-28
Separation of Polymer Illinois Test Procedure, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions.	4 (2) max.	4 (2) max.
TEST ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240)		
Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, %	60 min.	70 min.

USE OF RAP (DIST 1)

Effective: January 1, 2007

Revised: July 1, 2009

In Article 1030.02(g) of the Standard Specifications, delete the last sentence of the first paragraph in (Note 2).

Revise Section 1031 of the Standard Specifications to read:

“SECTION 1031. RECLAIMED ASPHALT PAVEMENT

1031.01 Description. Reclaimed asphalt pavement (RAP) results from the cold milling or crushing of an existing hot-mix asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction. The contractor can also request that a processed pile be tested by the Department to determine the aggregate quality as described in Article 1031.04, herein.

1031.02 Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. Stockpiles shall be identified by signs indicating the type and size as listed below (i.e. "Homogenous Surface").

Prior to milling or removal of an HMA pavement, the Contractor may request the District to provide verification of the existing mix composition to clarify appropriate stockpile.

- (a) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures and represent: 1) the same aggregate quality, but shall be at least C quality; 2) the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag); 3) similar gradation; and 4) similar asphalt binder content. If approved by the Engineer, combined single pass surface/binder millings may be considered "homogenous" with a quality rating dictated by the lowest coarse aggregate quality present in the mixture.
- (b) Conglomerate 5/8. Conglomerate 5/8 RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate 5/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 5/8 in. (16 mm) or smaller screen.
- (c) Conglomerate 3/8. Conglomerate 3/8 RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least B quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate 3/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 3/8 in (9.5 mm) or smaller screen.
- (d) Conglomerate Variable Size. Conglomerate variable size RAP shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least B quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate variable size RAP shall be processed prior to testing by crushing and screening to where all RAP is separated into various sizes. All the conglomerate variable size RAP shall pass the 3/4 in. (19 mm) screen and shall be a minimum of two sizes.
- (e) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from Class I, Superpave (High or Low ESAL), HMA (High or Low Esal), or equivalent mixtures. The coarse aggregate in this RAP may be crushed or round but shall be at least D quality. This RAP may have an in consistent gradation and/or asphalt binder content.

- (f) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as “Non-Quality”.

RAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

1031.03 Testing. When used in HMA, the RAP shall be sampled and tested either during or after stockpiling.

For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Before extraction, each field sample shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

- (a) Testing Conglomerate 3/8 and Conglomerate Variable Size. In addition to the requirements above, conglomerate 3/8 and variable size RAP shall be tested for maximum theoretical specific gravity (G_{mm}) at a frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).
- (b) Evaluation of Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation and, when applicable G_{mm} . Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	Homogeneous/ Conglomerate	Conglomerate “D” Quality
1 in. (25 mm)		± 5 %
3/4 in. (19mm)		
1/2 in. (12.5mm)	± 8 %	± 15 %
No. 4 (4.75 mm)	± 6 %	± 13 %
No. 8 (2.36 mm)	±5 %	
No. 16 (1.18 mm)		± 15 %
No. 30 (600 μm)	± 5. %	
No. 200 (75 μm)	± 2.0 %	± 4.0 %
Asphalt Binder	± 0.4 % ^{1/}	± 0.5 %
G _{mm}	±0.02 % ^{2/}	
G _{mm}	±0.03 % ^{3/}	

- 1/ The tolerance for conglomerate 3/8 shall be ± 0.3 %.
- 2/ Applies only to conglomerate 3/8. When variation of the G_{mm} exceeds the ± 0.02 % tolerance, a new conglomerate 3/8 stockpile shall be created which will also require an additional mix design.
- 3/ Applies only to conglomerate variable size. When variation of the G_{mm} exceeds the ± 0.03 tolerance, a new conglomerate variable size stockpile shall be created which will also require an additional mix design.

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt binder content test results fall outside the appropriate tolerances, the RAP shall not be used in HMA unless the RAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the Illinois Test Procedure, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)".

1031.04 Quality Designation of Aggregate in RAP. The quality of the RAP shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

- (a) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) surface mixtures are designated as containing Class B quality coarse aggregate.
- (b) RAP from Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder and IL-9.5L surface mixtures are designated as Class D quality coarse aggregate.
- (c) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.
- (d) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.

Aggregate Quality Testing of RAP:

The processed pile shall have a maximum tonnage of 5,000 tons (4500 metric tons). The pile shall be crushed and screened with 100 percent of the material passing the 3/4 in. (19mm) sieve. The pile shall be tested for AC content and gradation and shall conform to all requirements of Article 1031.03 Testing, herein. Once the uniformity of the gradation and AC content has been established, the Contractor shall obtain a representative sample with district oversight of the sampling. This sample shall be no less than 50 lbs (25 kg) and this sample shall be delivered to a Consultant Lab, prequalified by the Department for extraction testing according to Illinois Modified AASHTO T 164. After the AC has been extracted, the Consultant Lab shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid directly by the Contractor. The District will forward the sample to the BMPR Aggregate Lab for MicroDeval Testing, according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent will be applied for all HMA applications.

1031.05 Use of RAP in HMA. The use of RAP in HMA shall be as follows.

- (a) Coarse Aggregate Size. The coarse aggregate in all RAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.
- (b) Use in HMA Surface Mixtures (High and Low ESAL). RAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall be either homogeneous or conglomerate 3/8 or variable size in which the coarse aggregate is Class B quality or better.
- (c) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be homogeneous, conglomerate 5/8, or conglomerate 3/8, conglomerate variable size, in which the coarse aggregate is Class C quality or better.
- (d) Use in Shoulders and Subbase. RAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be homogeneous, conglomerate 5/8, conglomerate 3/8, conglomerate variable size, or conglomerate DQ.
- (e) The use of RAP shall be a contractor's option when constructing HMA in all contracts. When the Contractor chooses the RAP option, the percentage of RAP shall not exceed the amounts indicated in the table for a given N Design.

Maximum Mixture RAP Percentage

HMA Mixtures ^{1/3/}		Maximum % Rap	
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified
30	30/40 ^{2/}	30	10
50	25/40 ^{2/4/}	15/25 ^{2/}	10 ^{4/}
70	25/30 ^{2/}	10/20 ^{2/}	10
90	10/15 ^{2/}	10/15 ^{2/}	10
105	10/15 ^{2/}	10/15 ^{2/}	10

- 1/ For HMA Shoulder and Stabilized Sub-Base (HMA) N-30, the amount of RAP shall not exceed 50% of the mixture.
- 2/ Value of Max % RAP If 3/8 Rap or conglomerate variable size RAP is utilized.
- 3/ When RAP exceeds 20% the AC shall be PG58 -22. However, when RAP exceeds 20% and is used in full depth HMA pavement the AC shall be PG58 -28.
- 4/ Polymerized Leveling Binder, IL-4.75 is 15 %

1031.06 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP material meeting the above detailed requirements.

RAP designs shall be submitted for volumetric verification. If additional RAP stockpiles are tested and found that no more than 20 percent of the results, as defined under "Testing" herein, are outside of the control tolerances set for the original RAP stockpile and HMA mix design, and meets all of the requirements herein, the additional RAP stockpiles may be used in the original mix design at the percent previously verified.

1031.07 HMA Production. The coarse aggregate in all RAP used shall be equal to or less than the nominal maximum size requirement for the HMA mixture being produced.

To remove or reduce agglomerated material, a scalping screen, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAP feed system to remove or reduce oversized material.

If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If the RAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAP and either switch to the virgin aggregate design or submit a new RAP design. When producing mixtures containing conglomerate 3/8 or conglomerate variable size RAP, a positive dust control system shall be utilized.

HMA plants utilizing RAP shall be capable of automatically recording and printing the following information.

(a) Drier Drum Plants

- (1) Date, month, year, and time to the nearest minute for each print.
- (2) HMA Mix number assigned by the Department
- (3) Accumulated weight of dry aggregate (combined or individual) in tons (metric tons)
Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton)
- (4) Accumulated dry weight of RAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton)
- (5) Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
- (6) Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
- (7) Residual asphalt binder in the RAP material (per size) as a percent of the total mix to the nearest 0.1 unit.
- (8) Aggregate and RAP moisture compensators in percent as set on the control panel (Required when accumulated or individual aggregate and RAP are printed in wet condition).

(b) Batch Plants

- (1) Date, month, year, and time to the nearest minute for each print.
- (2) HMA mix number assigned by the Department.
- (3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram)
- (4) Mineral filler weight to the nearest pound (kilogram).
- (5) Individual RAP Aggregate weight to the nearest pound (kilogram).
- (6) Virgin asphalt binder weight to the nearest pound (kilogram)
- (7) Residual asphalt binder of each RAP size material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

1031.08 RAP in Aggregate Surface Course and Aggregate Shoulders. The use of RAP in aggregate surface course and aggregate shoulders shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Other". The testing requirements of Article 1031.03 shall not apply.
- (b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5 mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded or single sized will not be accepted."

TEMPERATURE CONTROL FOR CONCRETE PLACEMENT (DISTRICT ONE)

Effective: May 1, 2007

Delete the second and third sentences of the second paragraph of Article 1020.14(a) of the Standard Specifications.

TEMPORARY PAVEMENT

Effective: March 1, 2003

Revised: April 10, 2008

Description. This work shall consist of constructing a temporary pavement at the locations shown on the plans or as directed by the engineer.

The contractor shall use either Portland cement concrete according to Sections 353 and 354 of the Standard Specifications or HMA according to Sections 355, 356, 406 of the Standard Specifications, and other applicable HMA special provisions as contained herein. The HMA mixtures to be used shall be specified in the plans. The thickness of the Temporary Pavement shall be as described in the plans. The contractor shall have the option of constructing either material type if both Portland cement concrete and HMA are shown in the plans.

Articles 355.08 and 406.11 of the Standard Specifications shall not apply.

The removal of the Temporary Pavement, if required, shall conform to Section 440 of the Standard Specification.

Method of Measurement. Temporary pavement will be measured in place and the area computed in square yards (square meters).

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for TEMPORARY PAVEMENT and TEMPORARY PAVEMENT (INTERSTATE).

Removal of temporary pavement will be paid for at the contract unit price per square yard (square meter) for PAVEMENT REMOVAL.

POROUS GRANULAR EMBANKMENT, SUBGRADE

Effective: September 30, 1985

Revised: August 1, 2008

This work consists of furnishing, placing, and compacting porous granular material to the lines and grades shown on the plans or as directed by the Engineer in accordance with applicable portions of Section 207 of the Standard Specifications. The material shall be used as a bridging layer over soft, pumpy, loose soil and for placing under water and shall conform with Article 1004.05 of the Standard Specifications except the gradation shall be as follows:

1. Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete

<u>Sieve Size</u>	<u>Percent Passing</u>
*6 in. (150 mm)	97 ± 3
*4 in. (100 mm)	90 ± 10
2 in. (50 mm)	45 ± 25
No. 200 (75 μm)	5 ± 5

2. Gravel** and Crushed Gravel

<u>Sieve Size</u>	<u>Percent Passing</u>
*6 in. (150 mm)	97 ± 3
*4 in. (100 mm)	90 ± 10
2 in. (50 mm)	55 ± 25
No. 4 (4.75 mm)	30 ± 20
No. 200 (75 μm)	5 ± 5

* For undercut greater than 18 inches (450 mm) the percent passing the 6 inch (150 mm) sieve may be 90 ± 10 and the 4 inch (100 mm) sieve requirements eliminated.

** Not to be used in 30 or 40 year extended life concrete pavement or extended life bituminous concrete pavement (full depth).

The porous granular material shall be placed in one lift when the total thickness to be placed is 2 feet (600 mm) or less or as directed by the Engineer. Each lift of the porous granular material shall be rolled with a vibratory roller meeting the requirements of Article 1101.01(g) of the Standard Specifications to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

A 3 inch (75 mm) nominal thickness top lift of capping aggregate having a gradation of CA 6 will be required when Aggregate Subgrade is not specified in the contract and Porous Granular Embankment, Subgrade will be used under the pavement and shoulders. Capping aggregate will not be required when embankment meeting the requirements of Section 207 of the Standard Specifications or granular subbase is placed on top of the porous granular material.

Construction equipment not necessary for the completion of the replacement material will not be allowed on the undercut areas until completion of the recommended thickness of the porous granular embankment subgrade.

Full depth subgrade undercut should occur at limits determined by the Engineer. A transition slope to the full depth of undercut shall be made outside of the undercut limits at a taper of 1 foot (300 mm) longitudinal per 1 inch (25 mm) depth below the proposed subgrade or bottom of the proposed aggregate subgrade when included in the contract.

Method of Measurement. This work will be measured for payment in accordance with Article 207.04 of the Standard Specifications. When specified on the contract, the theoretical elevation of the bottom of the aggregate subgrade shall be used to determine the upper limit of Porous Granular Embankment, Subgrade. The volume will be computed by the method of average end areas.

Basis of Payment. This work shall be paid for at the contract unit price per cubic yard (cubic meter) for POROUS GRANULAR EMBANKMENT, SUBGRADE.

The Porous Granular Embankment, Subgrade shall be used as field conditions warrant at the time of construction. No adjustment in unit price will be allowed for an increase or decrease in quantities from the estimated quantities shown on the plans.

ALKALI-SILICA REACTION FOR CAST-IN-PLACE CONCRETE (BDE)

Effective: August 1, 2007

Revised: January 1, 2009

Description. This special provision is intended to reduce the risk of a deleterious alkali-silica reaction in concrete exposed to humid or wet conditions. The special provision is not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate or sodium formate. The special provision shall not apply to the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy. The special provision shall also not apply to precast products or precast prestressed products.

Aggregate Expansion Values. Each coarse and fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.05 percent will be assigned to limestone or dolomite coarse aggregates and 0.03 percent to limestone or dolomite fine aggregates (manufactured stone sand); however the Department reserves the right to perform the ASTM C 1260 test.

Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

AGGREGATE GROUPS			
Coarse Aggregate or Coarse Aggregate Blend ASTM C 1260 Expansion	Fine Aggregate or Fine Aggregate Blend ASTM C 1260 Expansion		
	≤ 0.16%	> 0.16% - 0.27%	> 0.27%
≤ 0.16%	Group I	Group II	Group III
> 0.16% - 0.27%	Group II	Group II	Group III
> 0.27%	Group III	Group III	Group IV

Mixture Options. Based upon the aggregate group, the following mixture options shall be used; however, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silica reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

Group I - Mixture options are not applicable. Use any cement or finely divided mineral.

Group II - Mixture options 1, 2, 3, 4, or 5 shall be used.

Group III - Mixture options 1, 2 and 3 combined, 4, or 5 shall be used.

Group IV - Mixture options 1, 2 and 4 combined, or 5 shall be used.

For Class PP-3 concrete the mixture options are not applicable, and any cement may be used with the specified finely divided minerals.

- a) Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used.

When a coarse or fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

$$\text{Weighted Expansion Value} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots$$

Where: a, b, c... = percentage of aggregate in the blend;
A, B, C...= expansion value for that aggregate.

- b) Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow. The replacement ratio is defined as "finely divided mineral:portland cement".

1) Class F Fly Ash. For Class PV, BS, MS, DS, SC, and SI concrete and cement aggregate mixture II (CAM II), Class F fly ash shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

2) Class C Fly Ash. For Class PV, MS, SC, and SI Concrete, Class C fly ash with 18 percent to less than 26.5 percent calcium oxide content, and less than 2.0 percent loss on ignition, shall replace 20 percent of the portland cement at a minimum replacement ratio of 1:1; or at a minimum replacement ratio of 1.25:1 if the loss on ignition is 2.0 percent or greater. Class C fly ash with less than 18 percent calcium oxide content shall replace 20 percent of the portland cement at a minimum replacement ratio of 1.25:1.

For Class PP-1, RR, BS, and DS concrete and CAM II, Class C fly ash with less than 26.5 percent calcium oxide content shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

3) Ground Granulated Blast-Furnace Slag. For Class PV, BS, MS, SI, DS, and SC concrete, ground granulated blast-furnace slag shall replace 25 percent of the portland cement at a minimum replacement ratio of 1:1.

For Class PP-1 and RR concrete, ground granulated blast-furnace slag shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

For Class PP-2, ground granulated blast-furnace slag shall replace 25 to 30 percent of the portland cement at a minimum replacement ratio of 1:1.

4) Microsilica or High Reactivity Metakaolin. Microsilica solids or high reactivity metakaolin shall be added to the mixture at a minimum 25 lb/cu yd (15 kg/cu m) or 27 lb/cu yd (16 kg/cu m) respectively.

- c) Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.60 percent. When aggregate in Group II is involved, any finely divided mineral may be used with a portland cement.

- d) Mixture Option 4. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.45 percent. When aggregate in Group II or III is involved, any finely divided mineral may be used with a portland cement.
- e) Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is ≤ 0.16 percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly. For latex concrete, the ASTM C 1567 test shall be performed without the latex. The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$), a new ASTM C 1567 test will not be required.

Testing. If an individual aggregate has an ASTM C 1260 expansion value > 0.16 percent, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The ASTM C 1293 test shall be performed with Type I or II cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container or wick of absorbent material, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 or 1567 test result. The Engineer will not accept the result if the precision and bias for the test methods are not met.

The laboratory performing the ASTM C 1567 test shall either be accredited by the AASHTO Materials Reference Laboratory (AMRL) for ASTM C 227 under Portland Cement Concrete or Aggregate; or shall be inspected for Hydraulic Cement - Physical Tests by the Cement and Concrete Reference Laboratory (CCRL) and shall be approved by the Department. The laboratory performing the ASTM C 1293 test shall be inspected for Portland Cement Concrete by CCRL and shall be approved by the Department.

ALKALI-SILICA REACTION FOR PRECAST AND PRECAST PRESTRESSED CONCRETE (BDE)

Effective: January 1, 2009

Description. This special provision is intended to reduce the risk of a deleterious alkali-silica reaction in precast and precast prestressed concrete exposed to humid or wet conditions. The special provision is not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate or sodium formate. The special provision shall not apply to the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy. The special provision shall also not apply to cast-in-place concrete.

Aggregate Expansion Values. Each coarse and fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260.

The test will be performed with Type I or II cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.05 percent will be assigned to limestone or dolomite coarse aggregates and 0.03 percent to limestone or dolomite fine aggregates (manufactured stone sand); however the Department reserves the right to perform the ASTM C 1260 test.

Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

AGGREGATE GROUPS			
Coarse Aggregate or Coarse Aggregate Blend ASTM C 1260 Expansion	Fine Aggregate or Fine Aggregate Blend ASTM C 1260 Expansion		
	≤ 0.16%	> 0.16% - 0.27%	> 0.27%
≤ 0.16%	Group I	Group II	Group III
> 0.16% - 0.27%	Group II	Group II	Group III
> 0.27%	Group III	Group III	Group IV

Mixture Options. Based upon the aggregate group, the following mixture options shall be used; however, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silica reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

- Group I - Mixture options are not applicable. Use any cement or finely divided mineral.
- Group II - Mixture options 1, 2, 3, 4, or 5 shall be used.
- Group III - Mixture options 1, 2 and 3 combined, 4, or 5 shall be used.
- Group IV - Mixture options 1, 2 and 4 combined, or 5 shall be used.

- a) Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used.

When a coarse or fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

$$\text{Weighted Expansion Value} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots$$

Where: a, b, c... = percentage of aggregate in the blend;
 A, B, C...= expansion value for that aggregate.

- b) Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow. The replacement ratio is defined as "finely divided mineral:portland cement".
 - 1) Class F Fly Ash. For Class PC concrete, precast products, and PS concrete, Class F fly ash shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

- 2) Class C Fly Ash. For Class PC Concrete, precast products, and Class PS concrete, Class C fly ash with 18 percent to less than 26.5 percent calcium oxide content, and less than 2.0 percent loss on ignition, shall replace 20 percent of the portland cement at a minimum replacement ratio of 1:1; or at a minimum replacement ratio of 1.25:1 if the loss on ignition is 2.0 percent or greater. Class C fly ash with less than 18 percent calcium oxide content shall replace 20 percent of the portland cement at a minimum replacement ratio of 1.25:1.
- 3) Ground Granulated Blast-Furnace Slag. For Class PC concrete, precast products, and Class PS concrete, ground granulated blast-furnace slag shall replace 25 percent of the portland cement at a minimum replacement ratio of 1:1.
- 4) Microsilica or High Reactivity Metakaolin. Microsilica solids or high reactivity metakaolin shall be added to the mixture at a minimum 25 lb/cu yd (15 kg/cu m) or 27 lb/cu yd (16 kg/cu m) respectively.
- c) Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.60 percent. When aggregate in Group II is involved, any finely divided mineral may be used with a portland cement.
- d) Mixture Option 4. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.45 percent. When aggregate in Group II or III is involved, any finely divided mineral may be used with a portland cement.
- e) Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is ≤ 0.16 percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly. The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$), a new ASTM C 1567 test will not be required.

Testing. If an individual aggregate has an ASTM C 1260 expansion value > 0.16 percent, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The ASTM C 1293 test shall be performed with Type I or II cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container or wick of absorbent material, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 or 1567 test result. The Engineer will not accept the result if the precision and bias for the test methods are not met.

The laboratory performing the ASTM C 1567 test shall either be accredited by the AASHTO Materials Reference Laboratory (AMRL) for ASTM C 227 under Portland Cement or Aggregate; or shall be inspected for Hydraulic Cement - Physical Tests by the Cement and Concrete Reference Laboratory (CCRL) and shall be approved by the Department. The laboratory performing the ASTM C 1293 test shall be inspected for Portland Cement Concrete by CCRL and shall be approved by the Department.

APPROVAL OF PROPOSED BORROW AREAS, USE AREAS, AND/OR WASTE AREAS (BDE)

Effective: November 1, 2008

Revised: November 1, 2010

Replace the first paragraph of Article 107.22 of the Standard Specifications with the following:

“All proposed borrow areas, including commercial borrow areas; use areas, including, but not limited to temporary access roads, detours, runarounds, plant sites, and staging and storage areas; and/or waste areas are to be designated by the Contractor to the Engineer and approved prior to their use. Such areas outside the State of Illinois shall be evaluated, at no additional cost to the Department, according to the requirements of the state in which the area lies; and approval by the authority within that state having jurisdiction for such areas shall be forwarded to the Engineer. Such areas within Illinois shall be evaluated as described herein.

A location map delineating the proposed borrow area, use area, and/or waste area shall be submitted to the Engineer for approval along with an agreement from the property owner granting the Department permission to enter the property and conduct cultural and biological resource reconnaissance surveys of the site for archaeological resources, threatened or endangered species or their designated essential habitat, wetlands, prairies, and savannahs. The type of location map submitted shall be a topographic map, a plat map, or a 7.5 minute quadrangle map. Submittals shall include the intended use of the site and provide sufficient detail for the Engineer to determine the extent of impacts to the site. The Engineer will initiate cultural and biological resource reconnaissance surveys of the site, as necessary, at no cost to the Contractor. The Engineer will advise the Contractor of the expected time required to complete all surveys. If the proposed area is within 150 ft (45 m) of the highway right-of-way, a topographic map of the proposed site will be required as specified in Article 204.02.”

CEMENT (BDE)

Effective: January 1, 2007

Revised: April 1, 2009

Revise Section 1001 of the Standard Specifications to read:

“SECTION 1001. CEMENT

1001.01 Cement Types. Cement shall be according to the following.

- (a) Portland Cement. Acceptance of portland cement shall be according to the current Bureau of Materials and Physical Research’s Policy Memorandum, “Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants”.

Portland cement shall be according to ASTM C 150, and shall meet the standard physical and chemical requirements.

Type I or Type II may be used for cast-in-place, precast, and precast prestressed concrete. Type III may be used according to Article 1020.04, or when approved by the Engineer. All other cements referenced in ASTM C 150 may be used when approved by the Engineer.

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. The total of all inorganic processing additions shall be a maximum of 4.0 percent by weight (mass) of the cement. However, a cement kiln dust inorganic processing addition shall be limited to a maximum of 1.0 percent. Organic processing additions shall be limited to grinding aids that improve the flowability of cement, reduce pack set, and improve grinding efficiency. Inorganic processing additions shall be limited to granulated blast-furnace slag according to the chemical requirements of AASHTO M 302, Class C fly ash according to the chemical requirements of AASHTO M 295, and cement kiln dust.

- (b) Portland-Pozzolan Cement. Acceptance of portland-pozzolan cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland-pozzolan cement shall be according to ASTM C 595 and shall meet the standard physical and chemical requirements. Type IP may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. The pozzolan constituent for Type IP shall be a maximum of 21 percent of the weight (mass) of the portland-pozzolan cement.

For cast-in-place construction, portland-pozzolan cement shall not be used in concrete mixtures when the air temperature is below 40 °F (4 °C) without permission of the Engineer. If permission is given, the mix design strength requirement may require the Contractor to increase the cement or eliminate the cement factor reduction for a water-reducing or high range water-reducing admixture which is permitted according to Article 1020.05(b).

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids as defined in (a) above. Inorganic processing additions shall be limited to cement kiln dust at a maximum of 1.0 percent.

- (c) Portland Blast-Furnace Slag Cement. Acceptance of portland blast-furnace slag cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland blast-furnace slag cement shall be according to ASTM C 595 and shall meet the standard physical and chemical requirements. Type IS portland blast-furnace slag cement may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. The blast-furnace slag constituent for Type IS shall be a maximum of 25 percent of the weight (mass) of the portland blast-furnace slag cement.

For cast-in-place construction, portland blast-furnace slag cement shall not be used in concrete mixtures when the air temperature is below 40 °F (4 °C) without permission of the Engineer. If permission is given, the mix design strength requirement may require the Contractor to increase the cement or eliminate the cement factor reduction for a water-reducing or high range water-reducing admixture which is permitted according to Article 1020.05(b).

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids as defined in (a) above. Inorganic processing additions shall be limited to cement kiln dust at a maximum of 1.0 percent.

(d) **Rapid Hardening Cement.** Rapid hardening cement shall be used according to Article 1020.04 or when approved by the Engineer. The cement shall be on the Department's current "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs", and shall be according to the following.

- (1) The cement shall have a maximum final set of 25 minutes, according to Illinois Modified ASTM C 191.
- (2) The cement shall have a minimum compressive strength of 2000 psi (13,800 kPa) at 3.0 hours, 3200 psi (22,100 kPa) at 6.0 hours, and 4000 psi (27,600 kPa) at 24.0 hours, according to Illinois Modified ASTM C 109.
- (3) The cement shall have a maximum drying shrinkage of 0.050 percent at seven days, according to Illinois Modified ASTM C 596.
- (4) The cement shall have a maximum expansion of 0.020 percent at 14 days, according to Illinois Modified ASTM C 1038.
- (5) The cement shall have a minimum 80 percent relative dynamic modulus of elasticity; and shall not have a weight (mass) gain in excess of 0.15 percent or a weight (mass) loss in excess of 1.0 percent, after 100 cycles, according to AASHTO T 161, Procedure B.

(e) **Calcium Aluminate Cement.** Calcium aluminate cement shall be used only where specified by the Engineer. The cement shall meet the standard physical requirements for Type I cement according to ASTM C 150, except the time of setting shall not apply. The chemical requirements shall be determined according to ASTM C 114 and shall be as follows: minimum 38 percent aluminum oxide (Al_2O_3), maximum 42 percent calcium oxide (CaO), maximum 1 percent magnesium oxide (MgO), maximum 0.4 percent sulfur trioxide (SO_3), maximum 1 percent loss on ignition, and maximum 3.5 percent insoluble residue.

1001.02 Uniformity of Color. Cement contained in single loads or in shipments of several loads to the same project shall not have visible differences in color.

1001.03 Mixing Brands and Types. Different brands or different types of cement from the same manufacturing plant, or the same brand or type from different plants shall not be mixed or used alternately in the same item of construction unless approved by the Engineer.

1001.04 Storage. Cement shall be stored and protected against damage, such as dampness which may cause partial set or hardened lumps. Different brands or different types of cement from the same manufacturing plant, or the same brand or type from different plants shall be kept separate."

CONCRETE ADMIXTURES (BDE)

Effective: January 1, 2003

Revised: April 1, 2009

Replace the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

“(b) Admixtures. The use of admixtures to increase the workability or to accelerate the hardening of the concrete will be permitted when approved by the Engineer. Admixture dosages shall result in the mixture meeting the specified plastic and hardened properties. The Department will maintain an Approved List of Corrosion Inhibitors. Corrosion inhibitor dosage rates shall be according to Article 1020.05(b)(12). The Department will also maintain an Approved List of Concrete Admixtures, and an admixture technical representative shall be consulted when determining an admixture dosage from this list. The dosage shall be within the range indicated on the approved list unless the influence by other admixtures, jobsite conditions (such as a very short haul time), or other circumstances warrant a dosage outside the range. The Engineer shall be notified when a dosage is proposed outside the range. To determine an admixture dosage, air temperature, concrete temperature, cement source and quantity, finely divided mineral sources(s) and quantity, influence of other admixtures, haul time, placement conditions, and other factors as appropriate shall be considered. The Engineer may request the Contractor to have a batch of concrete mixed in the lab or field to verify the admixture dosage is correct. An admixture dosage or combination of admixture dosages shall not delay the initial set of concrete by more than one hour. When a retarding admixture is required or appropriate for a bridge deck or bridge deck overlay pour, the initial set time shall be delayed until the deflections due to the concrete dead load are no longer a concern for inducing cracks in the completed work. However, a retarding admixture shall not be used to further extend the pour time and justify the alteration of a bridge deck pour sequence.

When determining water in admixtures for water/cement ratio, the Contractor shall calculate 70 percent of the admixture dosage as water, except a value of 50 percent shall be used for a latex admixture used in bridge deck latex concrete overlays.”

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 shall 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 as to manufacturer and trade name of the material they contain.

Corrosion inhibitors will be maintained on the Department's Approved List of Corrosion Inhibitors. All other concrete admixture products will be maintained on the Department's Approved List of Concrete Admixtures. For the admixture submittal, a report prepared by an independent laboratory accredited by the AASHTO Materials Reference Laboratory (AMRL) for Portland Cement Concrete shall be provided. 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. However, for corrosion inhibitors the ASTM G 109 test information specified in ASTM C 1582 is not required to be from an independent lab. All other information in ASTM C 1582 shall be from an independent lab.

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 5.65 cwt/cu yd (335 kg/cu m). Compressive strength test results for six months and one year will not be required.

Prior to the approval of an admixture, the Engineer reserves the right to request a sample for testing. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). For freeze-thaw testing, the Department will perform the test according to AASHTO T 161, Procedure B. The flexural strength test will be performed according to AASHTO T 177. If the Engineer decides to test the admixture, 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 5.65 cwt/cu yd (335 kg/cu m). The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by AASHTO.

The manufacturer shall include in the submittal the following admixture information: the manufacturing range for specific gravity, the midpoint and manufacturing range for residue by oven drying, and the manufacturing range for pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

For air-entraining admixtures according to Article 1021.02, the specific gravity allowable manufacturing range shall be established by the manufacturer and the test method shall be according to ASTM C 494. For residue by oven drying and pH, the allowable manufacturing range and test methods shall be according to ASTM C 260.

For admixtures according to Articles 1021.03, 1021.04, 1021.05, 1021.06, and 1021.07, the pH allowable manufacturing range shall be established by the manufacturer and the test method shall be according to ASTM E 70. For specific gravity and residue by oven drying, the allowable manufacturing range and test methods shall be according to ASTM C 494.

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 AASHTO.

All admixtures, except chloride-based accelerators, shall contain a maximum of 0.3 percent chloride by weight (mass).

Random field samples may be taken by the Department to verify an admixture meets specification. A split sample will be provided to the manufacturer if requested. Admixtures that do not meet specification requirements or an allowable manufacturing range established by the manufacturer shall be replaced with new material.

1021.02 Air-Entraining Admixtures. Air-entraining admixtures shall be according to AASHTO M 154.

1021.03 Retarding and Water-Reducing Admixtures. The admixture shall be according to the following.

- (a) The retarding admixture shall be according to AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) The water-reducing admixture shall be according to AASHTO M 194, Type A.
- (c) The high range water-reducing admixture shall be according to AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).

1021.04 Accelerating Admixtures. The admixture shall be according to AASHTO M 194, Type C (accelerating) or Type E (water reducing and accelerating).

1021.05 Self-Consolidating Admixtures. The self-consolidating admixture system shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a concrete mixture that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

The high range water-reducing admixture shall be according to AASHTO M 194, Type F.

The viscosity modifying admixture shall be according to ASTM C 494, Type S (specific performance).

1021.06 Rheology-Controlling Admixture. The rheology-controlling admixture shall be capable of producing a concrete mixture with a lower yield stress that will consolidate easier for slipform applications used by the Contractor. The rheology-controlling admixture shall be according to ASTM C 494, Type S (specific performance).

1021.07 Corrosion Inhibitor. The corrosion inhibitor shall be according to one of the following.

- (a) Calcium Nitrite. The corrosion inhibitor shall contain a minimum 30 percent calcium nitrite by weight (mass) of solution, and shall comply with the requirements of AASHTO M 194, Type C (accelerating).
- (b) Other Materials. The corrosion inhibitor shall be according to ASTM C 1582.”

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term “equipment” refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment’s respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 ^{1/}	600-749	2002
	750 and up	2006

June 1, 2011 ^{2/}	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 ^{2/}	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

- 1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.
- 2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<http://www.epa.gov/otaq/retrofit/verif-list.htm>), or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verde/verdev.htm>); or
- b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

Diesel Retrofit Deficiency Deduction

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

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

CONSTRUCTION AIR QUALITY - DIESEL VEHICLE EMISSIONS CONTROL (BDE)

Effective: April 1, 2009

Revised: July 1, 2009

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

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

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

The Contractor shall submit copies of monthly summary reports and include certified copies of the ULSD diesel fuel delivery slips for diesel fuel delivered to the jobsite for the reporting time period, noting the quantity of diesel fuel used.

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

Any costs associated with bringing any diesel powered equipment into compliance with these diesel vehicle emissions controls shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

The Contractor's compliance with this notice and any associated regulations shall also not be grounds for a claim.

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

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

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

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

CONSTRUCTION AIR QUALITY - IDLING RESTRICTIONS (BDE)

Effective: April 1, 2009

Idling Restrictions. The Contractor shall establish truck-staging areas for all diesel powered vehicles that are waiting to load or unload material at the jobsite. Staging areas shall be located where the diesel emissions from the equipment will have a minimum impact on adjacent sensitive receptors. The Department will review the selection of staging areas, whether within or outside the existing highway right-of-way, to avoid locations near sensitive areas or populations to the extent possible. Sensitive receptors include, but are not limited to, hospitals, schools, residences, motels, hotels, daycare facilities, elderly housing and convalescent facilities. Diesel powered engines shall also be located as far away as possible from fresh air intakes, air conditioners, and windows. The Engineer will approve staging areas before implementation.

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

- 1) The motor vehicle has a gross vehicle weight rating of less than 8000 lb (3630 kg).
- 2) The motor vehicle idles while forced to remain motionless because of on-highway traffic, an official traffic control device or signal, or at the direction of a law enforcement official.
- 3) The motor vehicle idles when operating defrosters, heaters, air conditioners, or other equipment solely to prevent a safety or health emergency.
- 4) A police, fire, ambulance, public safety, other emergency or law enforcement motor vehicle, or any motor vehicle used in an emergency capacity, idles while in an emergency or training mode and not for the convenience of the vehicle operator.

- 5) The primary propulsion engine idles for maintenance, servicing, repairing, or diagnostic purposes if idling is necessary for such activity.
- 6) A motor vehicle idles as part of a government inspection to verify that all equipment is in good working order, provided idling is required as part of the inspection.
- 7) When idling of the motor vehicle is required to operate auxiliary equipment to accomplish the intended use of the vehicle (such as loading, unloading, mixing, or processing cargo; controlling cargo temperature; construction operations, lumbering operations; oil or gas well servicing; or farming operations), provided that this exemption does not apply when the vehicle is idling solely for cabin comfort or to operate non-essential equipment such as air conditioning, heating, microwave ovens, or televisions.
- 8) When the motor vehicle idles due to mechanical difficulties over which the operator has no control.
- 9) The outdoor temperature is less than 32 °F (0 °C) or greater than 80 °F (26 °C).

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

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

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

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

DETERMINATION OF THICKNESS (BDE)

Effective: April 1, 2009

Revise Articles 353.12 and 353.13 of the Standard Specifications to Articles 353.13 and 353.14 respectively.

Add the following Article to the Standard Specifications:

“353.12 Tolerance in Thickness. The thickness of base course pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous area, except for temporary construction, bike paths, and individual locations less than 500 ft (150 m) long, will be evaluated. Temporary construction is defined as those areas constructed and removed under the same contract. If the base course cannot be cored for thickness prior to placement of the cover layer(s), the Engineer will determine the thickness of the cover layer(s), and subtract them from the measured core thickness to determine the base course thickness.

The procedure described in Article 407.10(b) will be followed, except the option of correcting deficient pavement with additional lift(s) shall not apply.”

Revise Article 354.09 of the Standard Specifications to read:

“354.09 Tolerance in Thickness. The thickness of base course widening pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous area, except for temporary construction; bike paths and individual locations less than 3 ft (1 m) wide or 1000 ft (300 m) long, will be evaluated. Temporary construction is defined as those areas constructed and removed under the same contract. If the base course widening cannot be cored for thickness prior to placement of the cover layer(s), the Engineer will determine the thickness of the cover layer(s), and subtract them from the measured core thickness to determine the base course widening thickness.

The procedure described in Article 407.10(b) will be followed, except:

- (a) The width of a unit shall be the width of the widening along one edge of the pavement.
- (b) The length of the unit shall be 1000 ft (300 m).
- (c) The option of correcting deficient pavement with additional lift(s) shall not apply.”

Revise Article 355.09 of the Standard Specifications to read:

“355.09 Tolerance in Thickness. The thickness of HMA base course pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous area, except for temporary construction; bike paths and individual locations less than 500 ft (150 m) long, will be evaluated according to Article 407.10(b). Temporary construction is defined as those areas constructed and removed under the same contract. If the base course cannot be cored for thickness prior to placement of the cover layer(s), the Engineer will determine the thickness of the cover layer(s), and subtract them from the measured core thickness to determine the base course thickness.”

Revise Article 356.07 of the Standard Specifications to read:

“356.07 Tolerance in Thickness. The thickness of HMA base course widening pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous area, except for temporary construction; bike paths and individual locations less than 3 ft (1 m) wide or 1000 ft (300 m) long, will be evaluated according to Article 407.10(b) except, the width of a unit shall be the width of the widening along one edge of the pavement and the length of a unit shall be 1000 ft (300 m). Temporary locations are defined as those constructed and removed under the same contract. If the base course widening cannot be cored for thickness prior to placement of the cover layer(s), the Engineer will determine the thickness of the cover layer(s) and subtract them from the measured core thickness to determine the base course widening thickness.”

Revise Article 407.10 of the Standard Specifications to read:

“407.10 Tolerance in Thickness. Determination of pavement thickness shall be performed after the pavement surface tests and corrective action have been completed according to Article 407.09. Pay adjustments made for pavement thickness will be in addition to and independent of those made for pavement smoothness. Pavement pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous pavement shall be evaluated with the following exclusions: temporary pavements; variable width pavements; radius returns; short lengths of contiguous pavements less than 500 ft (125 m) in length; and constant width portions of turn lanes less than 500 ft (125 m) in length. Temporary pavements are defined as pavements constructed and removed under the same contract.

The method described in Article 407.10(a), shall be used except for those pavements constructed in areas where access to side streets and entrances necessitates construction in segments less than 1000 ft (300 m).

The method described in Article 407.10(b) shall be used in areas where access to side streets and entrances necessitates construction in segments less than 1000 ft (300 m).

(a) Percent Within Limits. The percent within limits (PWL) method shall be as follows.

- (1) Lots and Sublots. The pavement will be divided into approximately equal lots of not more than 5000 ft (1500 m) in length. When the length of a continuous strip of pavement is 500 ft (150 m) or greater but less than 5000 ft (1500 m), these short lengths of pavement, ramps, turn lanes, and other short sections of continuous pavement will be grouped together to form lots approximately 5000 ft (1500 m) in length. Short segments between structures will be measured continuously with the structure segments omitted. Each lot will be subdivided into ten equal sublots. The width of a subplot and lot will be the width from the pavement edge to the adjacent lane line, from one lane line to the next, or between pavement edges for single-lane pavements.
- (2) Cores. Cores 2 in. (50 mm) in diameter shall be taken from the pavement by the Contractor, at locations selected by the Engineer. The exact location for each core will be selected at random, but will result in one core per subplot. Core locations will be specified prior to beginning the coring operations.

The Contractor and the Engineer shall witness the coring operations, as well as the measuring and recording of the core lengths. The cores will be measured with a device supplied by the Department immediately upon removal from the core bit and prior to moving to the next core location. Upon concurrence of the length, the core samples shall be disposed of according to Article 202.03.

Upon completion of each core, all water shall be removed from the hole and the hole then filled with a rapid hardening mortar or concrete. The material shall be mixed in a separate container, placed in the hole, consolidated by rodding, and struck-off flush with the adjacent pavement.

- (3) Deficient Sublot. When the length of the core in a subplot is deficient by more than ten percent of plan thickness, the Contractor may take three additional cores within that subplot at locations selected at random by the Engineer. If the Contractor chooses not to take additional cores, the pavement in that subplot shall be removed and replaced.

When the three additional cores are taken, the length of those cores will be averaged with the original core length. If the average shows the subplot to be deficient by ten percent or less, no additional action is necessary. If the average shows the subplot to be deficient by more than ten percent, the pavement in that subplot shall be removed and replaced; however, when requested in writing by the Contractor, the Engineer may permit in writing such deficient sublots to remain in place. For deficient sublots allowed to remain in place, additional lift(s) may be placed, at no additional cost to the Department, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The area(s) to be overlaid, material to be used, thickness(es) of the lift(s), and method of placement will be approved by the Engineer.

When a deficient subplot is removed and replaced, or additional lifts are placed, the corrected subplot shall be retested for thickness.

The length of the new core taken in the subplot will be used in determining the PWL for the lot.

When a deficient subplot is left in place, and no additional lift(s) are placed, no payment will be made for the deficient subplot. The length of the original core taken in the subplot will be used in determining the PWL for the lot.

- (4) Deficient Lot. After addressing deficient sublots, the PWL for each lot will be determined. When the PWL of a lot is 60 percent or less, the pavement in that lot shall be removed and replaced; however, when requested in writing by the Contractor, the Engineer may permit in writing such deficient lots to remain in place. For deficient lots allowed to remain in place, additional lift(s) may be placed, at no additional cost to the Department, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The area(s) to be overlaid, material to be used, thickness(es) of the lift(s), and method of placement will be approved by the Engineer.

When a deficient lot is removed and replaced, or additional lifts are placed, the corrected lot shall be retested for thickness. The PWL for the lot will then be recalculated based upon the new cores; however, the pay factor for the lot shall be a maximum of 100 percent.

When a deficient lot is left in place, and no additional lift(s) are placed, the PWL for the lot will not be recalculated.

- (5) Right of Discovery. When the Engineer has reason to believe the random core selection process will not accurately represent the true conditions of the work, he/she may order additional cores. The additional cores shall be taken at specific locations determined by the Engineer. The Engineer will provide notice to the Contractor containing an explanation of the reasons for his/her action. The need for, and location of, additional cores will be determined prior to commencement of coring operations.

When the additional cores show the pavement to be deficient by more than ten percent of plan thickness, more additional cores shall be taken to determine the limits of the deficient pavement and that area shall be removed and replaced; however, when requested in writing by the Contractor, the Engineer may permit in writing such areas of deficient pavement to remain in place. The area of deficient pavement will be defined using the length between two acceptable cores and the full width of the subplot. An acceptable core is a core with a length of at least 90 percent of plan thickness.

For deficient areas allowed to remain in place, additional lift(s) may be placed, at no additional cost to the Department, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The area(s) to be overlaid, material to be used, thickness(es) of the lift(s), and method of placement will be approved by the Engineer.

When an area of deficient pavement is removed and replaced, or additional lifts are placed, the corrected pavement shall be retested for thickness.

When an area of deficient pavement is left in place, and no additional lift(s) are placed, no payment will be made for the deficient pavement.

When the additional cores show the pavement to be at least 90 percent of plan thickness, the additional cores will be paid for according to Article 109.04.

(6) Profile Index Adjustment. After any area of pavement is removed and replaced or any additional lifts are placed, the corrected areas shall be retested for pavement smoothness and any necessary profile index adjustments and/or corrections will be made based on these final profile readings prior to retesting for thickness.

(7) Determination of PWL. The PWL for each lot will be determined as follows.

Definitions:

- x_i = Individual values (core lengths) under consideration
- n = Number of individual values under consideration (10 per lot)
- \bar{x} = Average of the values under consideration
- LSL = Lower Specification Limit (98% of plan thickness)
- Q_L = Lower Quality Index
- S = Sample Standard Deviation
- PWL = Percent Within Limits

Determine \bar{x} for the lot to the nearest two decimal places.

Determine S for the lot to the nearest three decimal places using:

$$S = \sqrt{\frac{\sum(x_i - \bar{x})^2}{n - 1}} \quad \text{where} \quad \sum(x_i - \bar{x})^2 = (x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \dots + (x_{10} - \bar{x})^2$$

Determine Q_L for the lot to the nearest two decimal places using:

$$Q_L = \frac{(\bar{x} - LSL)}{S}$$

Determine PWL for the lot using the Q_L and the following table. For Q_L values less than zero the value shown in the table must be subtracted from 100 to obtain PWL.

(8) Pay Factors. The pay factor (PF) for each lot will be determined, to the nearest two decimal places, using:

$$PF \text{ (in percent)} = 55 + 0.5 (PWL)$$

If \bar{x} for a lot is less than the plan thickness, the maximum PF for that lot shall be 100 percent.

(9) Payment. Payment of incentive or disincentive for pay items subject to the PWL method will be calculated using:

$$\text{Payment} = (((TPF/100)-1) \times CUP) \times (TOTPAVT - DEFPAVT)$$

TPF = Total Pay Factor
CUP = Contract Unit Price
TOTPAVT = Area of Pavement Subject to Coring
DEFPAVT = Area of Deficient Pavement

The TPF for the pavement shall be the average of the PF for all the lots; however, the TPF shall not exceed 102 percent.

Area of Deficient pavement (DEFPAVT) is defined as an area of pavement represented by a subplot deficient by more than ten percent which is left in place with no additional thickness added.

Area of Pavement Subject to Coring (TOTPAVT) is defined as those pavement areas included in lots for pavement thickness determination.

PERCENT WITHIN LIMITS							
Quality Index (Q _L)*	Percent Within Limits (PWL)	Quality Index (Q _L)*	Percent Within Limits (PWL)	Quality Index (Q _L)*	Percent Within Limits (PWL)	Quality Index (Q _L)*	Percent Within Limits (PWL)
0.00	50.00	0.40	65.07	0.80	78.43	1.20	88.76
0.01	50.38	0.41	65.43	0.81	78.72	1.21	88.97
0.02	50.77	0.42	65.79	0.82	79.02	1.22	89.17
0.03	51.15	0.43	66.15	0.83	79.31	1.23	89.38
0.04	51.54	0.44	66.51	0.84	79.61	1.24	89.58
0.05	51.92	0.45	66.87	0.85	79.90	1.25	89.79
0.06	52.30	0.46	67.22	0.86	80.19	1.26	89.99
0.07	52.69	0.47	67.57	0.87	80.47	1.27	90.19
0.08	53.07	0.48	67.93	0.88	80.76	1.28	90.38
0.09	53.46	0.49	68.28	0.89	81.04	1.29	90.58
0.10	53.84	0.50	68.63	0.90	81.33	1.30	90.78
0.11	54.22	0.51	68.98	0.91	81.61	1.31	90.96
0.12	54.60	0.52	69.32	0.92	81.88	1.32	91.15
0.13	54.99	0.53	69.67	0.93	82.16	1.33	91.33
0.14	55.37	0.54	70.01	0.94	82.43	1.34	91.52
0.15	55.75	0.55	70.36	0.95	82.71	1.35	91.70
0.16	56.13	0.56	70.70	0.96	82.97	1.36	91.87
0.17	56.51	0.57	71.04	0.97	83.24	1.37	92.04
0.18	56.89	0.58	71.38	0.98	83.50	1.38	92.22
0.19	57.27	0.59	71.72	0.99	83.77	1.39	92.39
0.20	57.65	0.60	72.06	1.00	84.03	1.40	92.56
0.21	58.03	0.61	72.39	1.01	84.28	1.41	92.72
0.22	58.40	0.62	72.72	1.02	84.53	1.42	92.88
0.23	58.78	0.63	73.06	1.03	84.79	1.43	93.05
0.24	59.15	0.64	73.39	1.04	85.04	1.44	93.21
0.25	59.53	0.65	73.72	1.05	85.29	1.45	93.37
0.26	59.90	0.66	74.04	1.06	85.53	1.46	93.52
0.27	60.28	0.67	74.36	1.07	85.77	1.47	93.67
0.28	60.65	0.68	74.69	1.08	86.02	1.48	93.83
0.29	61.03	0.69	75.01	1.09	86.26	1.49	93.98
0.30	61.40	0.70	75.33	1.10	86.50	1.50	94.13
0.31	61.77	0.71	75.64	1.11	86.73	1.51	94.27
0.32	62.14	0.72	75.96	1.12	86.96	1.52	94.41
0.33	62.51	0.73	76.27	1.13	87.20	1.53	94.54
0.34	62.88	0.74	76.59	1.14	87.43	1.54	94.68
0.35	63.25	0.75	76.90	1.15	87.66	1.55	94.82
0.36	63.61	0.76	77.21	1.16	87.88	1.56	94.95
0.37	63.98	0.77	77.51	1.17	88.10	1.57	95.08
0.38	64.34	0.78	77.82	1.18	88.32	1.58	95.20
0.39	64.71	0.79	78.12	1.19	88.54	1.59	95.33

*For Q_L values less than zero, subtract the table value from 100 to obtain PWL

PERCENT WITHIN LIMITS (continued)					
Quality Index (Q _L)*	Percent Within Limits (PWL)	Quality Index (Q _L)*	Percent Within Limits (PWL)	Quality Index (Q _L)*	Percent Within Limits (PWL)
1.60	95.46	2.00	98.83	2.40	99.89
1.61	95.58	2.01	98.88	2.41	99.90
1.62	95.70	2.02	98.92	2.42	99.91
1.63	95.81	2.03	98.97	2.43	99.91
1.64	95.93	2.04	99.01	2.44	99.92
1.65	96.05	2.05	99.06	2.45	99.93
1.66	96.16	2.06	99.10	2.46	99.94
1.67	96.27	2.07	99.14	2.47	99.94
1.68	96.37	2.08	99.18	2.48	99.95
1.69	96.48	2.09	99.22	2.49	99.95
1.70	96.59	2.10	99.26	2.50	99.96
1.71	96.69	2.11	99.29	2.51	99.96
1.72	96.78	2.12	99.32	2.52	99.97
1.73	96.88	2.13	99.36	2.53	99.97
1.74	96.97	2.14	99.39	2.54	99.98
1.75	97.07	2.15	99.42	2.55	99.98
1.76	97.16	2.16	99.45	2.56	99.98
1.77	97.25	2.17	99.48	2.57	99.98
1.78	97.33	2.18	99.50	2.58	99.99
1.79	97.42	2.19	99.53	2.59	99.99
1.80	97.51	2.20	99.56	2.60	99.99
1.81	97.59	2.21	99.58	2.61	99.99
1.82	97.67	2.22	99.61	2.62	99.99
1.83	97.75	2.23	99.63	2.63	100.00
1.84	97.83	2.22	99.66	2.64	100.00
1.85	97.91	2.25	99.68	≥ 2.65	100.00
1.86	97.98	2.26	99.70		
1.87	98.05	2.27	99.72		
1.88	98.11	2.28	99.73		
1.89	98.18	2.29	99.75		
1.90	98.25	2.30	99.77		
1.91	98.31	2.31	99.78		
1.92	98.37	2.32	99.80		
1.93	98.44	2.33	99.81		
1.94	98.50	2.34	99.83		
1.95	98.56	2.35	99.84		
1.96	98.61	2.36	99.85		
1.97	98.67	2.37	99.86		
1.98	98.72	2.38	99.87		
1.99	98.78	2.39	99.88		

*For Q_L values less than zero, subtract the table value from 100 to obtain PWL

(b) Minimum Thickness. The minimum thickness method shall be as follows.

- (1) Length of Units. The length of a unit will be a continuous strip of pavement 500 ft (150 m) in length.
- (2) Width of Units. The width of a unit will be the width from the pavement edge to the adjacent lane line, from one lane line to the next, or between pavement edges for single-lane pavements.

- (3) Thickness Measurements. Pavement thickness will be based on 2 in. (50 mm) diameter cores.

Cores shall be taken from the pavement by the Contractor at locations selected by the Engineer. When determining the thickness of a unit, one core shall be taken in each unit.

The Contractor and the Engineer shall witness the coring operations, as well as the measuring and recording of the cores. Core measurements will be determined immediately upon removal from the core bit and prior to moving to the next core location. Upon concurrence of the length, the core samples may be disposed of according to Article 202.03.

Upon completion of each core, all water shall be removed from the hole and the hole then filled with a rapid hardening mortar or concrete. The material shall be mixed in a separate container, placed in the hole, consolidated by rodding, and struck-off flush with the adjacent pavement.

- (4) Unit Deficient in Thickness. In considering any portion of the pavement that is deficient, the entire limits of the unit will be used in computing the deficiency or determining the remedial action required.
- (5) Thickness Equals or Exceeds Specified Thickness. When the thickness of a unit equals or exceeds the specified plan thickness, payment will be made at the contract unit price per square yard (square meter) for the specified thickness.
- (6) Thickness Deficient by Ten Percent or Less. When the thickness of a unit is less than the specified plan thickness by ten percent or less, a deficiency deduction will be assessed against payment for the item involved. The deficiency will be a percentage of the contract unit price as given in the following table.

Percent Deficiency (of Plan Thickness)	Percent Deduction (of Contract Unit Price)
0.0 to 2.0	0
2.1 to 3.0	20
3.1 to 4.0	28
4.1 to 5.0	32
5.1 to 7.5	43
7.6 to 10.0	50

- (7) Thickness Deficient by More than Ten Percent. When a core shows the pavement to be deficient by more than ten percent of plan thickness, additional cores shall be taken on each side of the deficient core, at stations selected by the Contractor and offsets selected by the Engineer, to determine the limits of the deficient pavement. No core shall be located within 5 ft (1.5 m) of a previous core obtained for thickness determination. The first acceptable core obtained on each side of a deficient core will be used to determine the length of the deficient pavement. An acceptable core is a core with a thickness of at least 90 percent of plan thickness. The area of deficient pavement will be defined using the length between two acceptable cores and the full width of the unit.

The area of deficient pavement shall be removed and replaced; however, when requested in writing by the Contractor, the Engineer may permit in writing such areas of deficient pavement to remain in place. For deficient areas allowed to remain in place, additional lift(s) may be placed, at no additional cost to the Department, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The area(s) to be overlaid, material to be used, thickness(es) of the lift(s), and method of placement will be approved by the Engineer.

When an area of deficient pavement is removed and replaced, or additional lifts are placed, the corrected pavement shall be retested for thickness. The thickness of the new core will be used to determine the pay factor for the corrected area.

When an area of deficient pavement is left in place, and no additional lift(s) are placed, no payment will be made for the deficient pavement. In addition, an amount equal to two times the contract cost of the deficient pavement will be deducted from the compensation due the Contractor.

The thickness of the first acceptable core on each side of the core more than ten percent deficient will be used to determine any needed pay adjustments for the remaining areas on each side of the area deficient by more than ten percent. The pay adjustment will be determined according to Article 407.10(b)(6).

- (8) Right of Discovery. When the Engineer has reason to believe any core location does not accurately represent the true conditions of the work, he/she may order additional cores. These additional cores shall be taken at specific locations determined by the Engineer. The Engineer will provide notice to the Contractor containing an explanation of the reasons for his/her action.

When the additional cores show the pavement to be deficient by more than ten percent of plan thickness, the procedures outlined in Article 407.10(b)(7) shall be followed, except the Engineer will determine the additional core locations.

When the additional cores, ordered by the Engineer, show the pavement to be at least 90 percent of plan thickness, the additional cores will be paid for according to Article 109.04.

- (9) Profile Index Adjustment. After any area of pavement is removed and replaced or any additional lifts are added, the corrected areas shall be retested for pavement smoothness and any necessary profile index adjustments and/or corrections will be made based on these final profile readings prior to retesting for thickness.”

Revise Article 482.06 of the Standard Specifications to read:

“482.06 Tolerance in Thickness. The shoulder shall be constructed to the thickness shown on the plans. When the contract includes square yards (square meters) as the unit of measurement for HMA shoulder, thickness determinations shall be made according to Article 407.10(b)(3) and the following.

- (a) Length of the Units. The length of a unit shall be a continuous strip of shoulder 2500 ft (750 m) long.

- (b) Width of the Units. The width of the unit shall be the full width of the shoulder.
- (c) Thickness Deficient by More than Ten Percent. When a core shows the shoulder to be deficient by more than ten percent of plan thickness, additional cores shall be taken on each side of the deficient core, at stations selected by the Contractor and offsets selected by the Engineer, to determine the limits of the deficient shoulder. No core shall be located within 5 ft (1.5 m) of a previous core obtained for thickness determination. The first acceptable core obtained on each side of a deficient core will be used to determine the length of the deficient shoulder. An acceptable core is a core with a thickness of at least 90 percent of plan thickness. The area of deficient shoulder will be defined using the length between two acceptable cores and the full width of the unit. The area of deficient shoulder shall be brought to specified thickness by the addition of the applicable mixture, at no additional cost to the Department and subject to the lift thickness requirements of Article 312.05, or by removal and replacement with a new mixture. However, the surface elevation of the completed shoulder shall not exceed by more than 1/8 in. (3 mm) the surface elevation of the adjacent pavement. When requested in writing by the Contractor, the Engineer may permit in writing such thin shoulder to remain in place. When an area of thin shoulder is left in place, and no additional lift(s) are placed, no payment will be made for the thin shoulder. In addition, an amount equal to two times the contract unit price of the shoulder will be deducted from the compensation due the Contractor.

When an area of deficient shoulder is removed and replaced, or additional lifts are placed, the corrected pavement shall be retested for thickness.

- (d) Right of Discovery. When the Engineer has reason to believe any core location does not accurately represent the true conditions of the work, he/she may order additional cores. When the additional cores, ordered by the Engineer, show the shoulder to be at least 90 percent of plan thickness, the additional cores will be paid for according to Article 109.04. When the additional core shows the shoulder to be less than 90 percent of plan thickness, the procedure in (c), above shall be followed.”

Revise Article 483.07 of the Standard Specifications to read:

“483.07 Tolerance in Thickness. The shoulder shall be constructed to the thickness shown on the plans. Thickness determinations shall be made according to Article 482.06 except the option of correcting deficient pavement with additional lift(s) shall not apply.”

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (DBE)

Effective: September 1, 2000

Revised: January 1, 2010

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

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

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract 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 companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined 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 **20.00%** 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 only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

- (a) The bidder documents that enough 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 IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting.

Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at www.dot.il.gov.

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

(a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.

(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. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The names and addresses of DBE firms that will participate in the contract;

(2) A description, including pay item numbers, of the work each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state 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) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;

(5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,

(6) If the contract goal is not met, evidence of good faith efforts.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document the good faith efforts of the bidder before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan commits sufficient commercially useful DBE work performance to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR part 26, Appendix A.

The Utilization Plan will not be approved by the Department if the Utilization Plan does not commit sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort 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, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

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

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

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the 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 apparent successful 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 the bidder has failed to meet the requirements of this Special Provision and that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons why good faith efforts have not been found.

(c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after receipt of 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 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. 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 working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted.

A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR part 26.55, the provisions of which govern over the summary contained herein.

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

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

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

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

(1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

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

(e) DBE as a material supplier:

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

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

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

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan.

After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal.

(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) The Contractor must notify and obtain written approval from the Department's Bureau of Small Business Enterprises prior to replacing a DBE or making any change in the participation of a DBE. Approval for replacement will be granted only if it is demonstrated that the DBE is unable or unwilling to perform. The Contractor must make every good faith effort to find another certified DBE subcontractor to substitute for the original 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 original DBE, to the extent needed to meet the contract goal.

(c) Any deviation from the DBE condition-of-award or contract specifications must be approved, in writing, by the Department. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract.

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

- (1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or
- (2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or
- (3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonably competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A, must be signed and submitted.

(f) If the commitment of work is in the form of additional tasks assigned to an existing subcontract, than a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(g) 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. 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 of Small Business Enterprises and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau of Small Business Enterprises 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.

(h) 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 therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes 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 Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (j) of this part.

(i) 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.

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

ENGINEER'S FIELD OFFICE TYPE A (BDE)

Effective: April 1, 2007

Revised: January 1, 2011

Revise Article 670.02 of the Standard Specifications to read:

“670.02 Engineer's Field Office Type A. Type A field offices shall have a minimum ceiling height of 7 ft (2 m) and a minimum floor space 450 sq ft (42 sq m). The office shall be provided with sufficient heat, natural and artificial light, and air conditioning.

The office shall have an electronic security system that will respond to any breach of exterior doors and windows. Doors and windows shall be equipped with locks. Doors shall also be equipped with dead bolt locks or other secondary locking device.

Windows shall be equipped with exterior screens to allow adequate ventilation. All windows shall be equipped with interior shades, curtains, or blinds. Adequate all-weather parking space shall be available to accommodate a minimum of ten vehicles.

Suitable on-site sanitary facilities meeting Federal, State, and local health department requirements shall be provided, maintained clean and in good working condition, and shall be stocked with lavatory and sanitary supplies at all times.

Sanitary facilities shall include hot and cold potable running water, lavatory and toilet as an integral part of the office where available. Solid waste disposal consisting of two waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service.

In addition, the following furniture and equipment shall be furnished.

- (a) Four desks with minimum working surface 42 x 30 in. (1.1 m x 750 mm) each and five non-folding chairs with upholstered seats and backs.
- (b) One desk with minimum working surface 48 x 72 in. (1.2 x 1.8 m) with height adjustment of 23 to 30 in. (585 to 750 mm).
- (c) One four-post drafting table with minimum top size of 37 1/2 x 48 in. (950 mm x 1.2 m). The top shall be basswood or equivalent and capable of being tilted through an angle of 50 degrees. An adjustable height drafting stool with upholstered seat and back shall also be provided.
- (d) Two free standing four drawer legal size file cabinet with lock and an underwriters' laboratories insulated file device 350 degrees one hour rating.
- (e) One 6 ft (1.8 m) folding table with six folding chairs.
- (f) One equipment cabinet of minimum inside dimension of 44 in. (1100 mm) high x 24 in. (600 mm) wide x 30 in. (750 mm) deep with lock. The walls shall be of steel with a 3/32 in. (2 mm) minimum thickness with concealed hinges and enclosed lock constructed in such a manner as to prevent entry by force. The cabinet assembly shall be permanently attached to a structural element of the field office in a manner to prevent theft of the entire cabinet.

- (g) One refrigerator with a minimum size of 16 cu ft (0.45 cu m) with a freezer unit.
- (h) One electric desk type tape printing calculator.
- (i) A minimum of two communication paths. The configuration shall include:
 - (1) Internet Connection. An internet service connection using telephone DSL, cable broadband, or CDMA wireless technology. Additionally, an 802.11g/N wireless router shall be provided, which will allow connection by the Engineer and up to four Department staff.
 - (2) Telephone Lines. Three separate telephone lines.
- (j) One plain paper copy machine capable of reproducing prints up to 11 x 17 in. (280 x 432 mm) with an automatic feed tray capable of storing 30 sheets of paper. Letter size and 11 x 17 in. (280 x 432 mm) paper shall be provided.
- (k) One plain paper fax machine with paper.
- (l) Two telephones, with touch tone, where available, and a digital telephone answering machine, for exclusive use by the Engineer.
- (m) One electric water cooler dispenser.
- (n) One first-aid cabinet fully equipped.
- (o) One microwave oven, 1 cu ft (0.03 cu m) minimum capacity.
- (p) One fire-proof safe, 0.5 cu ft (0.01 cu m) minimum capacity.
- (q) One electric paper shredder.
- (r) One post mounted rain gauge, located on the project site for each 5 miles (8 km) of project length.”

Revise the first sentence of the first paragraph of Article 670.07 of the Standard Specifications to read:

“The building or buildings fully equipped as specified will be paid for on a monthly basis until the building or buildings are released by the Engineer.”

Revise the last sentence of the first paragraph of Article 670.07 of the Standard Specifications to read:

“This price shall include all utility costs and shall reflect the salvage value of the building or buildings, equipment, and furniture which become the property of the Contractor after release by the Engineer, except that the Department will pay that portion of the monthly long distance and monthly local telephone bills that, when combined, exceed \$150.”

EQUIPMENT RENTAL RATES (BDE)

Effective: August 2, 2007

Revised: January 2, 2008

Replace the second and third paragraphs of Article 105.07(b)(4)a. of the Standard Specifications with the following:

“Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).”

Replace Article 109.04(b)(4) of the Standard Specifications with the following:

“(4) Equipment. Equipment used for extra work shall be authorized by the Engineer. The equipment shall be specifically described, be of suitable size and capacity for the work to be performed, and be in good operating condition. For such equipment, the Contractor will be paid as follows.

- a. Contractor Owned Equipment. Contractor owned equipment will be paid for by the hour using the applicable FHWA hourly rate from the “Equipment Watch Rental Rate Blue Book” (Blue Book) in effect when the force account work begins. The FHWA hourly rate is calculated as follows.

$$\text{FHWA hourly rate} = (\text{monthly rate}/176) \times (\text{model year adj.}) \times (\text{Illinois adj.}) + \text{EOC}$$

Where: EOC = Estimated Operating Costs per hour (from the Blue Book)

The time allowed will be the actual time the equipment is operating on the extra work. For the time required to move the equipment to and from the site of the extra work and any authorized idle (standby) time, payment will be made at the following hourly rate: $0.5 \times (\text{FHWA hourly rate} - \text{EOC})$.

All time allowed shall fall within the working hours authorized for the extra work.

The rates above include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, overhaul and maintenance of any kind, depreciation, storage, overhead, profits, insurance, and all incidentals. The rates do not include labor.

The Contractor shall submit to the Engineer sufficient information for each piece of equipment and its attachments to enable the Engineer to determine the proper equipment category. If a rate is not established in the Blue Book for a particular piece of equipment, the Engineer will establish a rate for that piece of equipment that is consistent with its cost and use in the industry.

- b. Rented Equipment. Whenever it is necessary for the Contractor to rent equipment to perform extra work, the rental and transportation costs of the equipment plus five percent for overhead will be paid. In no case shall the rental rates exceed those of established distributors or equipment rental agencies.

All prices shall be agreed to in writing before the equipment is used.”

FLAGGER AT SIDE ROADS AND ENTRANCES (BDE)

Effective: April 1, 2009

Revise the second paragraph of Article 701.13(a) of the Standard Specifications to read:

“The Engineer will determine when a side road or entrance shall be closed to traffic. A flagger will be required at each side road or entrance remaining open to traffic within the operation where two-way traffic is maintained on one lane of pavement. The flagger shall be positioned as shown on the plans or as directed by the Engineer.”

Revise the first and second paragraph of Article 701.20(i) of the Standard Specifications to read:

“Signs, barricades, or other traffic control devices required by the Engineer over and above those specified will be paid for according to Article 109.04. All flaggers required at side roads and entrances remaining open to traffic including those that are shown on the Highway Standards and/or additional barricades required by the Engineer to close side roads and entrances will be paid for according to Article 109.04.”

FRAMES AND GRATES (BDE)

Effective: January 1, 2010

Revise Article 609.02 of the Standard Specifications to read:

“**609.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Portland Cement Concrete	1020
(b) Gray Iron Castings	1006.14
(c) Ductile Iron Castings	1006.15
(d) Reinforcement Bars	1006.10
(e) Bedding Layer (Note 1)	1004.01
(f) Precast Concrete Bridge Approach Drains	1042

Note 1. Gradation CA 6, CA 10, or CA 12 of D quality or better.”

Revise Article 609.04 of the Standard Specifications to read:

“**609.04 Frames and Grates.** Cast iron frames and grates shall be used. Grates shall seat firmly in the frame.”

FRICTION AGGREGATE (BDE)

Effective: January 1, 2011

Revise Article 1004.01(a)(4) of the Standard Specifications to read:

“(4) Crushed Stone. Crushed stone shall be the angular fragments resulting from crushing undisturbed, consolidated deposits of rock by mechanical means. Crushed stone shall be divided into the following, when specified.

- a. Carbonate Crushed Stone. Carbonate crushed stone shall be either dolomite or limestone. Dolomite shall contain 11.0 percent or more magnesium oxide (MgO). Limestone shall contain less than 11.0 percent magnesium oxide (MgO).
- b. Crystalline Crushed Stone. Crystalline crushed stone shall be either metamorphic or igneous stone, including but is not limited to, quartzite, granite, rhyolite and diabase.”

Revise Article 1004.03(a) of the Standard Specifications to read:

“**1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA).** The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	<u>Allowed Alone or in Combination:</u> Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA All Other	Stabilized Subbase or Shoulders	<u>Allowed Alone or in Combination:</u> Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{1/} Crushed Concrete
HMA High ESAL Low ESAL	Binder IL-25.0, IL-19.0, or IL-19.0L SMA Binder	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete ^{3/}
HMA High ESAL Low ESAL	C Surface and Leveling Binder IL-12.5,IL-9.5, or IL-9.5L SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{4/} Crushed Concrete ^{3/}

Use	Mixture	Aggregates Allowed	
HMA High ESAL	D Surface and Leveling Binder IL-12.5 or IL-9.5 SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone (other than Limestone) ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{4/ 5/} Crushed Concrete ^{3/}	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>
		25% Limestone	Dolomite
		50% Limestone	Any Mixture D aggregate other than Dolomite
75% Limestone	Crushed Slag (ACBF) ^{5/} or Crushed Sandstone		
HMA High ESAL	E Surface IL-12.5 or IL-9.5 SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{5/} Crushed Concrete ^{3/}	
		No Limestone.	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>
		50% Dolomite ^{2/}	Any Mixture E aggregate
75% Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF) ^{5/} , Crushed Steel Slag ^{5/} , or Crystalline Crushed Stone		
75% Crushed Gravel or Crushed Concrete ^{3/}	Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF) ^{5/} , or Crushed Steel Slag ^{5/}		
HMA High ESAL	F Surface IL-12.5 or IL-9.5 SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination:</u> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{5/} No Limestone.	

		Other Combinations Allowed:	
		Up to...	With...
		50% Crushed Gravel, Concrete ^{3/} , or Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF) ^{5/} , Crushed Steel Slag ^{5/} , or Crystalline Crushed Stone

- 1/ Crushed steel slag allowed in shoulder surface only.
- 2/ Carbonate crushed stone shall not be used in SMA Ndesign 80. In SMA Ndesign 50, carbonate crushed stone shall not be blended with any of the other aggregates allowed alone in Ndesign 50 SMA binder or Ndesign 50 SMA surface.
- 3/ Crushed concrete will not be permitted in SMA mixes.
- 4/ Crushed steel slag shall not be used as leveling binder.
- 5/ When either slag is used, the blend percentages listed shall be by volume.”

HMA - HAULING ON PARTIALLY COMPLETED FULL-DEPTH PAVEMENT (BDE)

Effective: January 1, 2008

Revise Article 407.08 of the Standard Specifications to read:

“**407.08 Hauling on the Partially Completed Full-Depth Pavement.** Legally loaded trucks will be permitted on the partially completed full-depth HMA pavement only to deliver HMA mixture to the paver, provided the last lift has cooled a minimum of 12 hours. Hauling shall be limited to the distances shown in the following tables. The pavement surface temperature shall be measured using an infrared gun. The use of water to cool the pavement to permit hauling will not be allowed. The Contractor’s traffic pattern shall minimize hauling on the partially completed pavement and shall vary across the width of the pavement such that “tracking” of vehicles, one directly behind the other, does not occur.

MAXIMUM HAULING DISTANCE FOR PAVEMENT SURFACE TEMPERATURE BELOW 105 °F (40 °C)				
Total In-Place Thickness Being Hauled On, in. (mm)	Thickness of Lift Being Placed			
	3 in. (75 mm) or less		More than 3 in. (75 mm)	
	Modified Soil Subgrade	Granular Subbase	Modified Soil Subgrade	Granular Subbase
3.0 to 4.0 (75 to 100)	0.75 miles (1200 m)	1.0 mile (1600 m)	0.50 miles (800 m)	0.75 miles (1200 m)
4.1 to 5.0 (101 to 125)	1.0 mile (1600 m)	1.5 miles (2400 m)	0.75 miles (1200 m)	1.0 mile (1600 m)
5.1 to 6.0 (126 to 150)	2.0 miles (3200 m)	2.5 miles (4000 m)	1.5 miles (2400 m)	2.0 miles (3200 m)
6.1 to 8.0 (151 to 200)	2.5 miles (4000 m)	3.0 miles (4800 m)	2.0 miles (3200 m)	2.5 miles (4000 m)
Over 8.0 (200)	No Restrictions			

MAXIMUM HAULING DISTANCE FOR PAVEMENT SURFACE TEMPERATURE OF 105 °F (40 °C) AND ABOVE				
Total In-Place Thickness Being Hauled On, in. (mm)	Thickness of Lift Being Placed			
	3 in. (75 mm) or less		More than 3 in. (75 mm)	
	Modified Soil Subgrade	Granular Subbase	Modified Soil Subgrade	Granular Subbase
3.0 to 4.0 (75 to 100)	0.50 miles (800 m)	0.75 miles (1200 m)	0.25 miles (400 m)	0.50 miles (800 m)
4.1 to 5.0 (101 to 125)	0.75 miles (1200 m)	1.0 mile (1600 m)	0.50 miles (800 m)	0.75 miles (1200 m)
5.1 to 6.0 (126 to 150)	1.0 mile (1600 m)	1.5 miles (2400 m)	0.75 miles (1200 m)	1.0 mile (1600 m)
6.1 to 8.0 (151 to 200)	2.0 miles (3200 m)	2.5 miles (4000 m)	1.5 miles (2400 m)	2.0 miles (3200 m)
Over 8.0 (200)	No Restrictions			

Permissive hauling on the partially completed pavement shall not relieve the Contractor of his/her responsibility for damage to the pavement. Any portion of the full-depth HMA pavement that is damaged by hauling shall be removed and replaced, or otherwise repaired to the satisfaction of the Engineer.

Crossovers used to transfer haul trucks from one roadway to the other shall be at least 1000 ft (300 m) apart and shall be constructed of material that will prevent tracking of dust or mud on the completed HMA lifts. The Contractor shall construct, maintain, and remove all crossovers.”

HOT-MIX ASPHALT – ANTI-STRIPPING ADDITIVE (BDE)

Effective: November 1, 2009

Revise the first and second paragraphs of Article 1030.04(c) of the Standard Specifications to read:

“(c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283. To be considered acceptable by the Department as a mixture not susceptible to stripping, the conditioned to unconditioned split tensile strength ratio (TSR) shall be equal to or greater than 0.85 for 6 in. (150 mm) specimens. Mixtures, either with or without an additive, with TSRs less than 0.85 for 6 in. (150 mm) specimens will be considered unacceptable. Also, the conditioned tensile strength for mixtures containing an anti-strip additive shall not be lower than the original conditioned tensile strength determined for the same mixture without the anti-strip additive.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option.”

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

“Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 2 in. (50 mm), from each pavement edge. (i.e. for a 4 in. (100 mm) lift the near edge of the density gauge or core barrel shall be within 4 in. (100 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

- a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.
- b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced ten feet apart longitudinally along the unconfined pavement edge and centered at the random density test location.”

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

“Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-9.5, IL-12.5	Ndesign ≥ 90	92.0 – 96.0%	90.0%
IL-9.5,IL-9.5L, IL-12.5	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0, IL-25.0	Ndesign ≥ 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L, IL-25.0	Ndesign < 90	93.0 – 97.4%	90.0%
SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%
All Other	Ndesign = 30	93.0 - 97.4%	90.0%”

HOT-MIX ASPHALT – DROP-OFFS (BDE)

Effective: January 1, 2010

Revise the third paragraph of Article 701.07 of the Standard Specifications to read:

“At locations where construction operations result in a differential in elevation exceeding 3 in. (75 mm) between the edge of pavement or edge of shoulder within 3 ft (900 mm) of the edge of the pavement and the earth or aggregate shoulders, Type I or II barricades or vertical panels shall be placed at 100 ft (30 m) centers on roadways where the posted speed limit is 45 mph or greater and at 50 ft (15 m) centers on roadways where the posted speed limit is less than 45 mph.”

IMPACT ATTENUATORS, TEMPORARY (BDE)

Effective: November 1, 2003

Revised: January 1, 2007

Description. This work shall consist of furnishing, installing, maintaining, and removing temporary impact attenuators of the category and test level specified.

Materials. Materials shall meet the requirements of the impact attenuator manufacturer and the following:

Item	Article/Section
(a) Fine Aggregate (Note 1)	003.01
(b) Steel Posts, Structural Shapes, and Plates	1006.04
(c) Rail Elements, End Section Plates, and Splice Plates	1006.25
(d) Bolts, Nuts, Washers and Hardware	1006.25
(e) Hollow Structural Tubing	1006.27(b)
(f) Wood Posts and Wood Blockouts	1007.01, 1007.02, 1007.06
(g) Preservative Treatment	1007.12
(h) Packaged Rapid Hardening Mortar	1018.01

Note 1. Fine aggregate shall be FA 1 or FA 2, Class A quality. The sand shall be unbagged and shall have a maximum moisture content of five percent.

CONSTRUCTION REQUIREMENTS

General. Impact Attenuators shall meet the testing criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350 for the test level specified and shall be on the Department's approved list.

Installation. Regrading of slopes or approaches for the installation shall be as shown on the plans.

Attenuator bases, when required by the manufacturer, shall be constructed on a prepared subgrade according to the manufacturer's specifications. The surface of the base shall be slightly sloped or crowned to facilitate drainage.

Impact attenuators shall be installed according to the manufacturer's specifications and include all necessary transitions between the impact attenuator and the item to which it is attached.

When water filled attenuators are used between November 1 and April 15, they shall contain anti-freeze according to the manufacturer's recommendations.

Markings. Sand module impact attenuators shall be striped with alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes. There shall be at least two of each stripe on each module.

Other types of impact attenuators shall have a terminal marker applied to their nose and reflectors along their sides.

Maintenance. All maintenance of the impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer.

Relocate. When relocation of temporary impact attenuators is specified, they shall be removed, relocated and reinstalled at the new location. The reinstallation requirements shall be the same as those for a new installation.

Removal. When the Engineer determines the temporary impact attenuators are no longer required, the installation shall be dismantled with all hardware becoming the property of the Contractor.

Surplus material shall be disposed of according to Article 202.03. Anti-freeze, when present, shall be disposed of/recycled according to local ordinances.

When impact attenuators have been anchored to the pavement, the anchor holes shall be repaired with rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

Basis of Payment. This work will be paid for at the contract unit price per each for IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, WIDE); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, RESETTABLE); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, NARROW); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, WIDE); or IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) of the test level specified.

Relocation of the devices will be paid for at the contract unit price per each for IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE); IMPACT ATTENUATORS, RELOCATE (SEVERE USE); or IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE); of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

LIQUIDATED DAMAGES (BDE)

Effective: April 1, 2009

Revise the table in Article 108.09 of the Standard Specifications to read:

"Schedule of Deductions for Each Day of Overrun in Contract Time			
Original Contract Amount		Daily Charges	
From More Than	To and Including	Calendar Day	Work Day
\$ 0	\$ 100,000	\$ 375	\$ 500
100,000	500,000	625	875
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,125	1,550
3,000,000	5,000,000	1,425	1,950
5,000,000	10,000,000	1,700	2,350
10,000,000	And over	3,325	4,650"

METAL HARDWARE CAST INTO CONCRETE (BDE)

Effective: April 1, 2008

Revised: April 1, 2009

Add the following to Article 503.02 of the Standard Specifications:

"(g) Metal Hardware Cast into Concrete 1006.13"

Add the following to Article 504.02 of the Standard Specifications:

"(j) Metal Hardware Cast into Concrete 1006.13"

Revise Article 1006.13 of the Standard Specifications to read:

"1006.13 Metal Hardware Cast into Concrete. Unless otherwise noted, all steel hardware cast into concrete, such as inserts, brackets, cable clamps, metal casings for formed holes, and other miscellaneous items, shall be galvanized according to AASHTO M 232 or AASHTO M 111. Aluminum inserts will not be allowed. Zinc alloy inserts shall be according to ASTM B 86, Alloys 3, 5, or 7.

The inserts shall be UNC threaded type anchorages having the following minimum certified proof load.

Insert Diameter	Proof Load
5/8 in. (16 mm)	6600 lb (29.4 kN)
3/4 in. (19 mm)	6600 lb (29.4 kN)
1 in. (25 mm)	9240 lb (41.1 kN)"

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM / EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: April 1, 2007

Revised: November 1, 2009

Revise Article 105.03(a) of the Standard Specifications to read:

"(a) National Pollutant Discharge Elimination System (NPDES) / Erosion and Sediment Control Deficiency Deduction When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, or the Contractor's activities represents a violation of the Department's NPDES permits, the Engineer 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 1 week based on the urgency of the situation and the nature of the work effort required. The Engineer will be the sole judge.

A deficiency may be any lack of repair, maintenance, or implementation of erosion and/or sediment control devices included in the contract, or any failure to comply with the conditions of the Department's NPDES permits. A deficiency may also be applied to situations where corrective action is not an option such as the failure to participate in a jobsite inspection of the project, failure to install required measures prior to initiating earth moving operations, disregard of concrete washout requirements, or other disregard of the NPDES permit.

If the Contractor fails to correct a deficiency within the specified time, a daily monetary deduction will be imposed for each calendar day or portion of a calendar day until the deficiency is corrected to the satisfaction of the Engineer. The calendar day(s) will begin with notification to the Contractor and end with the Engineer's acceptance of the correction. The base value of the daily monetary deduction is \$1000.00 and will be applied to each location for which a deficiency exists. The value of the deficiency deduction assessed for each infraction will be determined by multiplying the base value by a Gravity Adjustment Factor provided in Table A. Except for failure to participate in a required jobsite inspection of the project prior to initiating earthmoving operations which will be based on the total acreage of planned disturbance at the following multipliers: <5 Acres: 1; 5-10 Acres: 2; >10-25 Acres: 3; >25 Acres: 5. For those deficiencies where corrective action was not an option, the monetary deduction will be immediate and will be valued at one calendar day multiplied by a Gravity Adjustment Factor.

Table A Deficiency Deduction Gravity Adjustment Factors				
Types of Violations	Soil Disturbed and Not Permanently Stabilized At Time of Violation			
	< 5 Acres	5 - 10 Acres	>10 - 25 Acres	> 25 Acres
Failure to Install or Properly Maintain BMP	0.1 - 0.5	0.2 - 1.0	0.5 - 2.5	1.0 - 5
Careless Destruction of BMP	0.2 - 1	0.5 - 2.5	1.0 - 5.	1.0 - 5
Intrusion into Protected Resource	1.0 - 5	1.0 - 5	2.0 - 10	2.0 - 10
Failure to properly manage Chemicals, Concrete Washouts or Residuals, Litter or other Wastes	0.2 - 1	0.2 - 1	0.5 - 2.5	1.0 - 5
Improper Vehicle and Equipment Maintenance, Fueling or Cleaning	0.1 - 0.5	0.2 - 1	0.2 - 1	0.5 - 2.5
Failure to Provide or Update Written or Graphic Plans Required by SWPPP	0.2 - 1	0.5 - 2.5	1.0 - 5	1.0 - 5
Failure to comply with Other Provisions of the NPDES Permit	0.1 - 0.5	0.2 - 1	0.2 - 1	0.5 - 2.5"

NIGHTTIME WORK ZONE LIGHTING (BDE)

Effective: November 1, 2008

Description. This work shall consist of furnishing, installing, maintaining, moving, and removing lighting for nighttime work zones. Nighttime shall be defined as occurring shortly before sunset until after sunrise.

Materials. The lighting shall consist of mobile and/or stationary lighting systems as required herein for the specific type of construction. Mobile lighting systems shall consist of luminaires attached to construction equipment or moveable carts. Stationary lighting systems shall consist of roadway luminaires mounted on temporary poles or trailer mounted light towers at fixed locations. Some lighting systems, such as balloon lights, may be adapted to both mobile and stationary applications.

Equipment. The Contractor shall furnish an illuminance meter for use by the Engineer. The meter shall have a digital display calibrated to NIST standards, shall be cosine and color corrected, and shall have an accuracy of \pm five percent. The sensor shall have a level indicator to ensure measurements are taken in a horizontal plane.

CONSTRUCTION REQUIREMENTS

General. At the preconstruction conference, the Contractor shall submit the type(s) of lighting system to be used and the locations of all devices.

Before nighttime construction may begin, the lighting system shall be demonstrated as being operational.

Nighttime Flagging. The requirements for nighttime flagging shall be according to Article 701.13 of the Standard Specifications and the glare control requirements contained herein.

Lighting System Design. The lighting system shall be designed to meet the following.

- (a) Lighting Levels. The lighting system shall provide a minimum of 5 foot candles (54 lux) throughout the work area. For mobile operations, the work area shall be defined as 25 ft (9 m) in front of and behind moving equipment. For stationary operations, the work area shall be defined as the entire area where work is being performed.

Lighting levels will be measured with an illuminance meter. Readings will be taken in a horizontal plane 3 ft (1 m) above the pavement or ground surface.

- (b) Glare Control. The lighting system shall be designed and operated so as to avoid glare that interferes with traffic, workers, or inspection personnel. Lighting systems with flood, spot, or stadium type luminaires shall be aimed downward at the work and rotated outward no greater than 30 degrees from nadir (straight down). Balloon lights shall be positioned at least 12 ft (3.6 m) above the roadway.

As a large component of glare, the headlights of construction vehicles and equipment shall not be operated within the work zone except as allowed for specific construction operations. Headlights shall never be used when facing oncoming traffic.

- (c) Light Trespass. The lighting system shall be designed to effectively light the work area without spilling over to adjoining property. When, in the opinion of the Engineer, the lighting is disturbing adjoining property, the Contractor shall modify the lighting arrangement or add hardware to shield the light trespass.

Construction Operations. The lighting design required above shall be provided at any location where construction equipment is operating or workers are present on foot. When multiple operations are being carried on simultaneously, lighting shall be provided at each separate work area.

The lighting requirements for specific construction operations shall be as follows.

- (a) Installation or Removal of Work Zone Traffic Control. The required lighting level shall be provided at each truck and piece of equipment used during the installation or removal of work zone traffic control. Headlights may be operated in the work zone.
- (b) Milling and Paving. The required lighting level shall be provided by mounting a minimum of one balloon light to each piece of mobile construction equipment used in the work zone. This would include milling machines, mechanical sweepers, material transfer devices, spreading and finishing machines, and rollers; but not include trucks used to transport materials and personnel or other vehicles that are continuously moving in and out of the work zone. The headlights of construction equipment shall not be operated within the work zone.
- (c) Patching. The required lighting level shall be provided at each patching location where work is being performed.
- (d) Pavement Marking and Raised Reflective Pavement Marker Removal/Installation. The striping truck and the attenuator/arrow board trucks may be operated by headlights alone; however, additional lighting may be necessary for the operator of the striping truck to perform the work.

For raised reflective pavement marker removal and installation and other pavement marking operations where workers are on foot, the required lighting level shall be provided at each truck and piece of equipment.

- (e) Layout, Testing, and Inspection. The required lighting level shall be provided for each active area of construction layout, material testing, and inspection. The work area shall be defined as 15 ft (7.6 m) in front and back of the individual(s) performing the tasks.

Basis of Payment. This work will be paid for at the contract lump sum price for NIGHTTIME WORK ZONE LIGHTING.

PAVEMENT MARKING REMOVAL (BDE)

Effective: April 1, 2009

Add the following to the end of the first paragraph of Article 783.03(a) of the Standard Specifications:

“The use of grinders will not be allowed on new surface courses.”

PAVEMENT PATCHING (BDE)

Effective: January 1, 2010

Revise the first sentence of the second paragraph of Article 701.17(e)(1) of the Standard Specifications to read:

“In addition to the traffic control and protection shown elsewhere in the contract for pavement, two devices shall be placed immediately in front of each open patch, open hole, and broken pavement where temporary concrete barriers are not used to separate traffic from the work area.”

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000

Revised: January 1, 2006

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

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

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

When progress payments are made to the Contractor according to Article 109.07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act.

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

POST MOUNTING OF SIGNS (BDE)

Effective: January 1, 2011

Revise the second paragraph of Article 701.14 of the Standard Specifications to read:

“Post mounted signs shall be a breakaway design. The sign shall be within five degrees of vertical. Two posts shall be used for signs greater than 16 sq ft (1.5 sq m) in area or where the height between the sign and the ground exceeds 7 ft (2.1 m).”

PRECAST CONCRETE HANDLING HOLES (BDE)

Effective: January 1, 2007

Add the following to Article 540.02 of the Standard Specifications:

“(g) Handling Hole Plugs 1042.16”

Add the following paragraph after the sixth paragraph of Article 540.06 of the Standard Specifications:

“Handling holes shall be filled with a precast concrete plug and sealed with mastic or mortar, or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation. When metal lifting inserts are used, their sockets shall be filled with mastic or mortar.”

Add the following to Article 542.02 of the Standard Specifications:

“(ee) Handling Hole Plugs 1042.16”

Revise the fifth paragraph of Article 542.04(d) of the Standard Specifications to read:

“Handling holes in concrete pipe shall be filled with a precast concrete plug and sealed with mastic or mortar; or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation.”

Add the following to Article 550.02 of the Standard Specifications:

“(o) Handling Hole Plugs 1042.16”

Replace the fourth sentence of the fifth paragraph of Article 550.06 of the Standard Specifications with the following:

“Handling holes in concrete pipe shall be filled with a precast concrete plug and sealed with mastic or mortar; or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation.”

Add the following to Article 602.02 of the Standard Specifications:

“(p) Handling Hole Plugs 1042.16(a)”

Replace the fifth sentence of the first paragraph of Article 602.07 of the Standard Specifications with the following:

“Handling holes shall be filled with a precast concrete plug and sealed with mastic or mortar. The plug shall not project beyond the inside surface after installation. When metal lifting inserts are used, their sockets shall be filled with mastic or mortar.”

Add the following to Section 1042 of the Standard Specifications:

“**1042.16 Handling Hole Plugs.** Plugs for handling holes in precast concrete products shall be as follows.

- (a) Precast Concrete Plug. The precast concrete plug shall have a tapered shape and shall have a minimum compressive strength of 3000 psi (20,700 kPa) at 28 days.
- (b) Polyethylene Plug. The polyethylene plug shall have a “mushroom” shape with a flat round top and a stem with three different size ribs. The plug shall fit snugly and cover the handling hole.

The plug shall be according to the following.

Mechanical Properties	Test Method	Value (min.)
Flexural Modulus	ASTM D 790	3300 psi (22,750 kPa)
Tensile Strength (Break)	ASTM D 638	1600 psi (11,030 kPa)
Tensile Strength (Yield)	ASTM D 638	1200 psi (8270 kPa)

Thermal Properties	Test Method	Value (min.)
Brittle Temperature	ASTM D 746	-49 °F (-45 °C)
Vicat Softening Point	ASTM D 1525	194 °F (90 °C)”

RAISED REFLECTIVE PAVEMENT MARKERS (BDE)

Effective: November 1, 2009

Revised: April 1, 2010

Revise the first sentence of the second paragraph of Article 781.03(a) of the Standard Specifications to read:

“The pavement shall be cut to match the bottom contour of the marker using a concrete saw fitted with 18 and 20 in. (450 and 500 mm) diameter blades.”

SEEDING (BDE)

Effective: July 1, 2004

Revised: July 1, 2010

Revise the following seeding mixtures shown in Table 1 of Article 250.07 of the Standard Specifications to read:

"Table 1 - SEEDING MIXTURES		
Class – Type	Seeds	lb/acre (kg/hectare)
1A Salt Tolerant Lawn Mixture 7/	Bluegrass Perennial Ryegrass Red Fescue (Audubon, Sea Link, or Epic) Hard Fescue (Rescue 911, Spartan II, or Reliant IV) Fults Salt Grass 1/ or Salty Alkaligrass	60 (70) 20 (20) 20 (20) 20 (20) 60 (70)
2 Roadside Mixture 7/	Tall Fescue (Inferno, Tarheel II, Quest, Blade Runner, or Falcon IV) Perennial Ryegrass Creeping Red Fescue Red Top	100 (110) 50 (55) 40 (50) 10 (10)
2A Salt Tolerant Roadside Mixture 7/	Tall Fescue (Inferno, Tarheel II, Quest, Blade Runner, or Falcon IV) Perennial Ryegrass Red Fescue (Audubon, Sea Link, or Epic) Hard Fescue (Rescue 911, Spartan II, or Reliant IV) Fults Salt Grass 1/ or Salty Alkaligrass	60 (70) 20 (20) 30 (20) 30 (20) 60 (70)
3 Northern Illinois Slope Mixture 7/	Elymus Canadensis (Canada Wild Rye) Perennial Ryegrass Alsike Cover 2/ Desmanthus Illinoensis (Illinois Bundleflower) 2/, 5/ Andropogon Scoparius (Little Bluestem) 5/ Bouteloua Curtipendula (Side-Oats Grama) Fults Salt Grass 1/ or Salty Alkaligrass Oats, Spring Slender Wheat Grass 5/ Buffalo Grass (Cody or Bowie) 4/, 5/, 9/	5 (5) 20 (20) 5 (5) 2 (2) 12 (12) 10 (10) 30 (35) 50 (55) 15 (15) 5 (5)
6A Salt Tolerant Conservation Mixture	Andropogon Scoparius (Little Bluestem) 5/ Elymus Canadensis (Canada Wild Rye) 5/ Buffalo Grass (Cody or Bowie) 4/, 5/, 9/ Vernal Alfalfa 2/ Oats, Spring Fults Salt Grass 1/ or Salty Alkaligrass	5 (5) 2 (2) 5 (5) 15 (15) 48 (55) 20 (20)"

Revise Note 7 of Table 1 – Seeding Mixtures of Article 250.07 of the Standard Specifications to read:

“7/ In Districts 1 through 6, the planting times shall be April 1 to June 15 and August 1 to November 1. In Districts 7 through 9, the planting times shall be March 1 to June 1 and August 1 to November 15. Seeding may be performed outside these dates provided the Contractor guarantees a minimum of 75 percent uniform growth over the entire seeded area(s) after a period of establishment. Inspection dates for the period of establishment will be as follows: Seeding conducted in Districts 1 through 6 between June 16 and July 31 will be inspected after April 15 and seeding conducted between November 2 and March 31 will be inspected after September 15. Seeding conducted in Districts 7 through 9 between June 2 and July 31 will be inspected after April 15 and seeding conducted between November 16 and February 28 will be inspected after September 15. The guarantee shall be submitted to the Engineer in writing prior to performing the work. After the period of establishment, areas not exhibiting 75 percent uniform growth shall be interseeded or reseeded, as determined by the Engineer, at no additional cost to the Department.”

Revise the first paragraph of Article 1081.04(a) of the Standard Specifications to read:

“(a) Sampling and Testing. Each lot of seed furnished shall be tested by a State Agriculture Department (including other States) or by land grant college or university agricultural sections or by a Registered Seed Technologist. Germination testing of seed shall be accomplished within the 12 months prior to the seed being installed on the project.”

Delete the last sentence of the first paragraph of Article 1081.04(c)(2) of the Standard Specifications.

Revise Table II of Article 1081.04(c)(6) of the Standard Specifications to read:

TABLE II						
Variety of Seeds	Hard Seed	Purity	Pure Live	Weed	Secondary *	Notes
	%	%	Seed %	%	Noxious Weeds	
	Max.	Min.	Min.	Max.	No. per oz (kg) Max. Permitted	
Alfalfa	20	92	89	0.50	6 (211)	1/
Clover, Alsike	15	92	87	0.30	6 (211)	2/
Red Fescue, Audubon	0	97	82	0.10	3 (105)	-
Red Fescue, Creeping	-	97	82	1.00	6 (211)	-
Red Fescue, Epic	-	98	83	0.05	1 (35)	-
Red Fescue, Sea Link	-	98	83	0.10	3 (105)	-
Tall Fescue, Blade Runner	-	98	83	0.10	2 (70)	-
Tall Fescue, Falcon IV	-	98	83	0.05	1 (35)	-
Tall Fescue, Inferno	0	98	83	0.10	2 (70)	-
Tall Fescue, Tarheel II	-	97	82	1.00	6 (211)	-
Tall Fescue, Quest	0	98	83	0.10	2 (70)	-
Fults Salt Grass	0	98	85	0.10	2 (70)	-
Salty Alkaligrass	0	98	85	0.10	2 (70)	-
Kentucky Bluegrass	-	97	80	0.30	7 (247)	4/
Oats	-	92	88	0.50	2 (70)	3/
Redtop	-	90	78	1.80	5 (175)	3/
Ryegrass, Perennial, Annual	-	97	85	0.30	5 (175)	3/
Rye, Grain, Winter	-	92	83	0.50	2 (70)	3/
Hard Fescue, Reliant IV	-	98	83	0.05	1 (35)	-
Hard Fescue, Rescue 911	0	97	82	0.10	3 (105)	-
Hard Fescue, Spartan II	-	98	83	0.10	3 (105)	-
Timothy	-	92	84	0.50	5 (175)	3/
Wheat, hard Red Winter	-	92	89	0.50	2 (70)	3/”

Revise the first sentence of the first paragraph of Article 1081.04(c)(7) of the Standard Specifications to read:

“The seed quantities indicated per acre (hectare) for Prairie Grass Seed in Classes 3, 3A, 4, 4A, 6, and 6A in Article 250.07 shall be the amounts of pure, live seed per acre (hectare) for each species listed.”

SELECTION OF LABOR (BDE)

Effective: July 2, 2010

Revise Section I of Check Sheet #5 of the Recurring Special Provisions to read:

I. SELECTION OF LABOR

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

EMPLOYMENT OF ILLINOIS WORKERS DURING PERIODS OF EXCESSIVE UNEMPLOYMENT

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

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

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

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)

Effective: July 1, 2004

Revised: July 1, 2010

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for precast concrete products.

Materials. Materials shall be according to Section 1021 of the Standard Specifications.

Mix Design Criteria. The mix design criteria shall be as follows:

- (a) The minimum cement factor shall be according to Article 1020.04 of the Standard Specifications. If the maximum cement factor is not specified, it shall not exceed 7.05 cwt/cu yd (418 kg/cu m).
- (b) The maximum allowable water/cement ratio shall be according to Article 1020.04 of the Standard Specifications or 0.44, whichever is lower.
- (c) The slump requirements of Article 1020.04 of the Standard Specifications shall not apply.
- (d) The coarse aggregate gradations shall be CA 13, CA 14, CA 16, or a blend of these gradations. CA 11 may be used when the Contractor provides satisfactory evidence to the Engineer that the mix will not segregate. The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used.
- (e) The slump flow range shall be ± 2 in. (± 50 mm) of the Contractor target value, and within the overall Department range of 20 in. (510 mm) minimum to 28 in. (710 mm) maximum.
- (f) The visual stability index shall be a maximum of 1.
- (g) The J-ring value shall be a maximum of 4 in. (100 mm). The Contractor may specify a lower maximum in the mix design.
- (h) The L-box blocking ratio shall be a minimum of 60 percent. The Contractor may specify a higher minimum in the mix design.
- (i) The hardened visual stability index shall be a maximum of 1.

Mixing Portland Cement Concrete. In addition to Article 1020.11 of the Standard Specifications, the mixing time for central-mixed concrete shall not be reduced as a result of a mixer performance test. Truck-mixed or shrink-mixed concrete shall be mixed in a truck mixer for a minimum of 100 revolutions.

Wash water, if used, shall be completely discharged from the drum or container before the succeeding batch is introduced.

The batch sequence, mixing speed, and mixing time shall be appropriate to prevent cement balls and mix foaming for central-mixed, truck-mixed, and shrink-mixed concrete.

Placing and Consolidating. The maximum distance of horizontal flow from the point of deposit shall be 25 ft (7.6 m), unless approved otherwise by the Engineer.

Concrete shall be rodded with a piece of lumber, conduit, or vibrator if the material has lost its fluidity prior to placement of additional concrete. The vibrator shall be the pencil head type with a maximum diameter or width of 1 in. (25 mm). Any other method for restoring the fluidity of the concrete shall be approved by the Engineer.

Mix Design Approval. The Contractor shall obtain mix design approval according to the Department's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products".

STORM SEWERS (BDE)

Effective: April 1, 2009

Revised: April 1, 2010

Add the following to Article 550.02 of the Standard Specifications:

- “(p) Polyvinyl Chloride (PVC) Profile Wall Pipe-304 1040.03
- “(q) Polyethylene (PE) Pipe with a Smooth Interior 1040.04
- “(r) Corrugated Polyethylene (PE) Pipe with a Smooth Interior 1040.04
- “(s) Polyethylene (PE) Profile Wall Pipe 1040.04”

Add the following to the list of flexible pipes under Class B storm sewers in the first table of Article 550.03 of the Standard Specifications:

- “Polyvinyl Chloride (PVC) Profile Wall Pipe-304
- Polyethylene (PE) Pipe with a Smooth Interior
- Corrugated Polyethylene (PE) Pipe with a Smooth Interior
- Polyethylene (PE) Profile Wall Pipe”

Revise the 2nd - 7th tables of Article 550.03 of the Standard Specifications to read:

"STORM SEWERS KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE																					
Nom. Dia. in.	Type 1 Fill Height: 3' and less with 1' minimum cover										Type 2 Fill Height: Greater than 3', not exceeding 10'										
	RCCP Class	CSP Class	ESCP	PVC	CPVC	PVCPW -794	PVCPW -304	PE	CPE	PEPW	RCCP Class	CSP Class	ESCP	PVC	CPVC	PVCPW -794	PVCPW -304	PE	CPE	PEPW	
10	NA	3	X	X	NA	NA	NA	X	NA	NA	NA	1	*X	X	**	NA	NA	X	NA	NA	
12	IV	NA	NA	X	X	X	X	X	X	NA	III	1	*X	X	X	X	X	X	X	NA	
15	IV	NA	NA	X	X	X	X	X	X	NA	III	2	X	X	X	X	X	X	X	NA	
18	IV	NA	NA	X	X	X	X	X	X	X	III	2	X	X	X	X	X	X	X	X	
21	IV	NA	NA	X	X	X	X	NA	NA	X	III	2	X	X	X	X	X	NA	NA	X	
24	IV	NA	NA	X	X	X	X	X	X	X	III	2	X	X	X	X	X	X	X	X	
27	IV	NA	NA	X	X	X	X	X	X	X	III	NA	X	X	X	X	X	X	X	X	
30	III	NA	X	X	X	X	X	X	X	X	III	NA	X	X	X	X	X	X	X	X	
33	III	NA	X	X	NA	X	X	X	X	X	III	NA	X	X	NA	X	X	X	X	X	
36	III	NA	X	X	X	X	X	X	X	X	III	NA	X	X	X	X	X	X	X	X	
42	II	NA	NA	NA	NA	X	X	X	X	X	III	NA	NA	NA	NA	X	X	X	X	X	
48	II	NA	NA	NA	NA	X	X	X	X	X	III	NA	NA	NA	NA	X	X	X	X	X	
54	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	III	NA	NA	NA	NA	NA	NA	NA	NA	NA	
60	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	
66	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	
72	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	
78	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	
84	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	
90	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	
96	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	
102	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	
108	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	

- RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
- CSP Concrete Sewer, Storm Drain, and Culvert Pipe
- ESCP Extra Strength Clay Pipe
- PVC Polyvinyl Chloride (PVC) Pipe
- CPVC Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
- PVCPW-794 Polyvinyl Chloride (PVC) Profile Wall Pipe-794
- PVCPW-304 Polyvinyl Chloride (PVC) Profile Wall Pipe-304
- PE Polyethylene (PE) Pipe with a Smooth Interior
- CPE Corrugated Polyethylene (PE) Pipe with a Smooth Interior
- PEPW Polyethylene (PE) Profile Wall Pipe
- X This material may be used for the given pipe diameter and fill height.
- NA This material is Not Acceptable for the given pipe diameter and fill height.
- * May also use standard strength Clay Sewer Pipe
- ** May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification.

STORM SEWERS KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE														
Nom. Dia. in.	Type 3 Fill Height: Greater than 10', not exceeding 15'									Type 4 Fill Height: Greater than 15', not exceeding 20'				
	RCCP Class	CSP Class	ESCP	PVC	CPVC	PVCPW -794	PVCPW -304	PE	PEPW	RCCP Class	PVC	CPVC	PVCPW -794	PVCPW -304
10	NA	3	X	X	**	NA	NA	X	NA	NA	X	**	NA	NA
12	IV	NA	X	X	X	X	X	X	NA	V	X	X	X	X
15	IV	NA	NA	X	X	X	X	X	NA	V	X	X	X	X
18	IV	NA	NA	X	X	X	X	X	X	V	X	X	X	X
21	IV	NA	NA	X	X	X	X	NA	X	V	X	X	X	X
24	IV	NA	NA	X	X	X	X	X	X	V	X	X	X	X
27	IV	NA	NA	X	X	X	X	X	X	V	X	X	X	X
30	IV	NA	NA	X	X	X	X	X	X	V	X	X	X	X
33	IV	NA	NA	X	NA	X	X	X	X	IV	X	NA	X	X
36	IV	NA	NA	X	X	X	X	X	X	IV	X	X	X	X
42	IV	NA	NA	NA	NA	X	X	X	X	IV	NA	NA	X	X
48	IV	NA	NA	NA	NA	X	X	X	X	IV	NA	NA	X	X
54	IV	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
60	IV	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
66	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
72	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
78	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
84	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
90	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
96	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
102	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
108	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA

- RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
- CSP Concrete Sewer, Storm Drain, and Culvert Pipe
- ESCP Extra Strength Clay Pipe
- PVC Polyvinyl Chloride (PVC) Pipe
- CPVC Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
- PVCPW-794 Polyvinyl Chloride (PVC) Profile Wall Pipe-794
- PVCPW-304 Polyvinyl Chloride (PVC) Profile Wall Pipe-304
- PE Polyethylene (PE) Pipe with a Smooth Interior
- PEPW Polyethylene (PE) Profile Wall Pipe
- X This material may be used for the given pipe diameter and fill height.
- NA This material is Not Acceptable for the given pipe diameter and fill height.
- ** May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification.

STORM SEWERS KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE												
Nom. Dia. in.	Type 5 Fill Height: Greater than 20', not exceeding 25'					Type 6 Fill Height: Greater than 25', not exceeding 30'					Type 7 Fill Height: Greater than 30', not exceeding 35'	
	RCCP Class	PVC	CPVC	PVCPW -794	PVCPW -304	RCCP Class	PVC	CPVC	PVCPW -794	PVCPW -304	RCCP Class	PVC
10	NA	X	**	NA	NA	NA	X	**	NA	NA	NA	X
12	V-3160D	X	X	X	X	V-3790D	X	X	X	X	V-4000D	X
15	V-3080D	X	X	X	X	V-3390D	X	NA	NA	NA	V-3575D	X
18	V	X	X	X	X	V-3115D	X	NA	NA	NA	V-3300D	X
21	V	X	X	X	X	V	X	NA	NA	NA	V-3110D	X
24	V	X	X	X	X	V	X	NA	NA	NA	V	X
27	V	X	NA	NA	NA	V	X	NA	NA	NA	V	X
30	V	X	NA	NA	NA	V	X	NA	NA	NA	V	X
33	V	X	NA	NA	NA	V	X	NA	NA	NA	V	X
36	V	X	NA	NA	NA	V	X	NA	NA	NA	V	X
42	V	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
48	V	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
54	V	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
60	V	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
66	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
72	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
78	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
84	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
90	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
96	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
102	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
108	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA

RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
PVC Polyvinyl Chloride (PVC) Pipe
CPVC Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
PVCPW-794 Polyvinyl Chloride (PVC) Profile Wall Pipe-794
PVCPW-304 Polyvinyl Chloride (PVC) Profile Wall Pipe-304
X This material may be used for the given pipe diameter and fill height.
NA This material is Not Acceptable for the given pipe diameter and fill height.
** May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification.
Note RCCP Class V - 3160D, etc. shall be furnished according to AASHTO M 170 Section 6.
These loads are D loads to produce a 0.01 in. crack.

STORM SEWERS (metric) KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE																				
Nom. Dia. mm	Type 1 Fill Height: 1 m and less with 0.3 m minimum cover										Type 2 Fill Height: Greater than 1 m, not exceeding 3 m									
	RCCP Class	CSP Class	ESCP	PVC	CPVC	PVCPW -794	PVCPW -304	PE	CPE	PEPW	RCCP Class	CSP Class	ESCP	PVC	CPVC	PVCPW -794	PVCPW -304	PE	CPE	PEPW
250	NA	3	X	X	NA	NA	NA	X	NA	NA	NA	1	*X	X	**	NA	NA	X	NA	NA
300	IV	NA	NA	X	X	X	X	X	X	NA	III	1	*X	X	X	X	X	X	X	NA
375	IV	NA	NA	X	X	X	X	X	X	NA	III	2	X	X	X	X	X	X	X	NA
450	IV	NA	NA	X	X	X	X	X	X	X	III	2	X	X	X	X	X	X	X	X
525	IV	NA	NA	X	X	X	X	NA	NA	X	III	2	X	X	X	X	X	NA	NA	X
600	IV	NA	NA	X	X	X	X	X	X	X	III	2	X	X	X	X	X	X	X	X
675	IV	NA	NA	X	X	X	X	X	X	X	III	NA	X	X	X	X	X	X	X	X
750	III	NA	X	X	X	X	X	X	X	X	III	NA	X	X	X	X	X	X	X	X
825	III	NA	X	X	NA	X	X	X	X	X	III	NA	X	X	NA	X	X	X	X	X
900	III	NA	X	X	X	X	X	X	X	X	III	NA	X	X	X	X	X	X	X	X
1050	II	NA	NA	NA	NA	X	X	X	X	X	III	NA	NA	NA	NA	X	X	X	X	X
1200	II	NA	NA	NA	NA	X	X	X	X	X	III	NA	NA	NA	NA	X	X	X	X	X
1350	II	NA	NA	NA	NA	NA	NA	NA	NA	NA	III	NA	NA	NA	NA	NA	NA	NA	NA	NA
1500	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA
1650	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA
1800	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA
1950	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA
2100	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA
2250	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA
2400	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA
2550	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA
2700	I	NA	NA	NA	NA	NA	NA	NA	NA	NA	II	NA	NA	NA	NA	NA	NA	NA	NA	NA

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- CPVC Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
- PVCPW-794 Polyvinyl Chloride (PVC) Profile Wall Pipe-794
- PVCPW-304 Polyvinyl Chloride (PVC) Profile Wall Pipe-304
- PE Polyethylene (PE) Pipe with a Smooth Interior
- CPE Corrugated Polyethylene (PE) Pipe with a Smooth Interior
- PEPW Polyethylene (PE) Profile Wall Pipe
- X This material may be used for the given pipe diameter and fill height.
- NA This material is Not Acceptable for the given pipe diameter and fill height.
- * May also use standard strength Clay Sewer Pipe
- ** May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification.

STORM SEWERS (metric) KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE														
Nom. Dia. mm	Type 3 Fill Height: Greater than 3 m, not exceeding 4.5 m									Type 4 Fill Height: Greater than 4.5 m, not exceeding 6 m				
	RCCP Class	CSP Class	ESCP	PVC	CPVC	PVCPW -794	PVCPW -304	PE	PEPW	RCCP Class	PVC	CPVC	PVCPW -794	PVCPW -304
250	NA	3	X	X	**	NA	NA	X	NA	NA	X	**	NA	NA
300	IV	NA	X	X	X	X	X	X	NA	V	X	X	X	X
375	IV	NA	NA	X	X	X	X	X	NA	V	X	X	X	X
450	IV	NA	NA	X	X	X	X	X	X	V	X	X	X	X
525	IV	NA	NA	X	X	X	X	NA	X	V	X	X	X	X
600	IV	NA	NA	X	X	X	X	X	X	V	X	X	X	X
675	IV	NA	NA	X	X	X	X	X	X	V	X	X	X	X
750	IV	NA	NA	X	X	X	X	X	X	V	X	X	X	X
825	IV	NA	NA	X	NA	X	X	X	X	IV	X	NA	X	X
900	IV	NA	NA	X	X	X	X	X	X	IV	X	X	X	X
1050	IV	NA	NA	NA	NA	X	X	X	X	IV	NA	NA	X	X
1200	IV	NA	NA	NA	NA	X	X	X	X	IV	NA	NA	X	X
1350	IV	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
1500	IV	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
1650	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
1800	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
1950	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
2100	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
2250	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
2400	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
2550	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA
2700	III	NA	NA	NA	NA	NA	NA	NA	NA	IV	NA	NA	NA	NA

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- CSP Concrete Sewer, Storm Drain, and Culvert Pipe
- ESCP Extra Strength Clay Pipe
- PVC Polyvinyl Chloride (PVC) Pipe
- CPVC Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
- PVCPW-794 Polyvinyl Chloride (PVC) Profile Wall Pipe-794
- PVCPW-304 Polyvinyl Chloride (PVC) Profile Wall Pipe-304
- PE Polyethylene (PE) Pipe with a Smooth Interior
- PEPW Polyethylene (PE) Profile Wall Pipe
- X This material may be used for the given pipe diameter and fill height.
- NA This material is Not Acceptable for the given pipe diameter and fill height.
- ** May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification.

STORM SEWERS (metric) KIND OF MATERIAL PERMITTED AND STRENGTH REQUIRED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE												
Nom. Dia. mm	Type 5 Fill Height: Greater than 6 m, not exceeding 7.5 m					Type 6 Fill Height: Greater than 7.5 m, not exceeding 9 m					Type 7 Fill Height: Greater than 9 m, not exceeding 10.5 m	
	RCCP Class	PVC	CPVC	PVCPW -794	PVCPW -304	RCCP Class	PVC	CPVC	PVCPW -794	PVCPW -304	RCCP Class	PVC
250	NA	X	**	NA	NA	NA	X	**	NA	NA	NA	X
300	V-150D	X	X	X	X	V-180D	X	X	X	X	V-190D	X
375	V-145D	X	X	X	X	V-160D	X	NA	NA	NA	V-170D	X
450	V	X	X	X	X	V-150D	X	NA	NA	NA	V-160D	X
525	V	X	X	X	X	V	X	NA	NA	NA	V-150D	X
600	V	X	X	X	X	V	X	NA	NA	NA	V	X
675	V	X	NA	NA	NA	V	X	NA	NA	NA	V	X
750	V	X	NA	NA	NA	V	X	NA	NA	NA	V	X
825	V	X	NA	NA	NA	V	X	NA	NA	NA	V	X
900	V	X	NA	NA	NA	V	X	NA	NA	NA	V	X
1050	V	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
1200	V	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
1350	V	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
1500	V	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
1650	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
1800	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
1950	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
2100	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
2250	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
2400	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
2550	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA
2700	IV	NA	NA	NA	NA	V	NA	NA	NA	NA	V	NA

RCCP Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
PVC Polyvinyl Chloride (PVC) Pipe
CPVC Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
PVCPW-794 Polyvinyl Chloride (PVC) Profile Wall Pipe-794
PVCPW-304 Polyvinyl Chloride (PVC) Profile Wall Pipe-304
X This material may be used for the given pipe diameter and fill height.
NA This material is Not Acceptable for the given pipe diameter and fill height.
** May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification.
Note RCCP Class V - 150D, etc. shall be furnished according to AASHTO M 170M Section 6.
These loads are D loads to produce a 0.3 mm crack."

Revise the last paragraph of Article 550.06 of the Standard Specifications to read:

"PVC and PE pipes shall be joined according to the manufacturer's specifications."

Revise the second paragraph of Article 550.07 of the Standard Specifications to read:

"When using flexible pipe, as listed in the first table of Article 550.03, the aggregate shall be continued to a height of at least 1 ft (300 mm) above the top of the pipe and compacted to a minimum of 95 percent of standard lab density by mechanical means."

Revise Article 550.08 of the Standard Specifications to read:

"550.08 Deflection Testing for Storm Sewers. All PVC and PE storm sewers shall be tested for deflection not less than 30 days after the pipe is installed and the backfill compacted. The testing shall be performed in the presence of the Engineer.

For PVC and PE storm sewers with diameters 24 in. (600 mm) or smaller, a mandrel drag shall be used for deflection testing. For PVC and PE storm sewers with diameters over 24 in. (600 mm), deflection measurements other than by a mandrel drag shall be used.

Where the mandrel is used, the mandrel shall be furnished by the Contractor and pulled by hand through the pipeline with a suitable rope or cable connected to each end.

Winching or other means of forcing the deflection gauge through the pipeline will not be allowed.

The mandrel shall be of a shape similar to that of a true circle enabling the gauge to pass through a satisfactory pipeline with little or no resistance. The mandrel shall be of a design to prevent it from tipping from side to side and to prevent debris build-up from occurring between the channels of the adjacent fins or legs during operation. Each end of the core of the mandrel shall have fasteners to which the pulling cables can be attached. The mandrel shall have nine, various sized fins or legs of appropriate dimension for various diameter pipes. Each fin or leg shall have a permanent marking that states its designated pipe size and percent of deflection allowable.

The outside diameter of the mandrel shall be 95 percent of the base inside diameter. For all PVC pipe and PE Profile Wall pipe, the base inside diameter shall be defined using ASTM D 3034 methodology. For all other PE pipe, the base inside diameter shall be defined as the average inside diameter based on the minimum and maximum tolerances specified in the corresponding ASTM or AASHTO material specifications.

If the pipe is found to have a deflection greater than that specified, that pipe section shall be removed, replaced, and retested.”

Revise Article 1040.04(b) of the Standard Specifications to read:

“(b) Corrugated PE Pipe with a Smooth Interior. The pipe shall be according to AASHTO M 294 (nominal size – 12 to 48 in. (300 to 1200 mm)). The pipe shall be Type S or D.”

Revised the first and second paragraphs of Article 1040.04(c) to read:

“(c) PE Profile Wall Pipe. The pipe shall be according to ASTM F 894 and shall have a minimum ring stiffness constant of 160. The pipe shall also have a minimum cell classification of PE 334433C as defined in ASTM D 3350.

(1) Pipe Culverts and Storm Sewers. When used for pipe culverts and storm sewers, the section properties shall be according to AASHTO's Section 17. The manufacturer shall submit written certification that the material meets AASHTO's Section 17 properties.”

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.

TEMPORARY EROSION CONTROL (BDE)

Effective: November 1, 2002

Revised: January 1, 2011

Add the following to Article 280.02 of the Standard Specifications to read:

- “(k) Filter Fabric 1080.03
- “(l) Urethane Foam/Geotextile 1081.15(i)”

Revise the third paragraph of Article 280.03 of the Standard Specifications to read:

“Erosion control systems shall be installed prior to beginning any activities which will potentially create erodible conditions. Erosion control systems for areas outside the limits of construction such as storage sites, plant sites, waste sites, haul roads, and Contractor furnished borrow sites shall be installed prior to beginning soil disturbing activities at each area. These offsite systems shall be designed by the Contractor and be subject to the approval of the Engineer.”

Add the following paragraph after the third paragraph of Article 280.03 of the Standard Specifications:

“The temporary erosion and sediment control systems shown on the plans represent the minimum systems anticipated for the project. Conditions created by the Contractor’s operations, or for the Contractor’s convenience, which are not covered by the plans, shall be protected as directed by the Engineer at no additional cost to the Department. Revisions or modifications of the erosion and sediment control systems shall have the Engineer’s written approval.”

Revise Article 280.04(a) of the Standard Specifications to read:

- “(a) Temporary Ditch Checks. This system consists of the construction of temporary ditch checks to prevent siltation, erosion, or scour of ditches and drainage ways. Temporary ditch checks shall be constructed with products from the Department’s approved list, rolled excelsior, or with aggregate placed on filter fabric when specified. Filter fabric shall be installed according to the requirements of Section 282. Riprap shall be placed according to Article 281.04. Manufactured ditch checks shall be installed according to the manufacturer’s specifications. Spacing of ditch checks shall be such that the low point in the center of one ditch check is at the same elevation as the base of the ditch check immediately upstream. Temporary ditch checks shall be sufficiently long enough that the top of the device in the middle of the ditch is 6 in. (150 mm) lower than the bottom of the terminating ends of the ditch side slopes.

When rolled excelsior is used, each ditch check shall be installed and maintained such that the device is no less than 10 in. (250 mm) high at the point of overflow. Units installed at a spacing requiring a height greater than 10 in. (250 mm) shall be maintained at the height for the spacing at which they were originally installed.”

Revise the last sentence of the first paragraph Article 280.04(b) of the Standard Specifications to read:

“The barrier shall be constructed with rolled excelsior, silt filter fence, or urethane foam/geotextiles.”

Revise the last sentence of the first paragraph of Article 280.04(g) of the Standard Specifications to read:

“The temporary mulch cover shall be installed according to Article 251.03 except for any reference to seeding.”

Add the following to Article 280.04 of the Standard Specifications:

(h) Temporary Erosion Control Blanket. This system consists of temporarily installing erosion control blanket or heavy duty erosion control blanket over areas that are to be reworked during a later construction phase. Work shall be according to Article 251.04 except references to seeding and fertilizer shall not apply. When an area is to be reworked more than once, the blanket shall be carefully removed, properly stored, and then reinstalled over the same area.”

Revise Article 280.07(b) of the Standard Specifications to read:

“(b) Temporary Ditch Checks. This work will be measured for payment along the long axis of the device in place in feet (meters) except for aggregate ditch checks which will be measured for payment in tons (metric tons). Payment will not be made for aggregate in excess of 108 percent of the amount specified by the Engineer.”

Revise Article 280.07(f) of the Standard Specifications to read:

“(f) Temporary Mulch. This work will be measured for payment according to Article 251.05(b).”

Add the following to Article 280.07 of the Standard Specifications:

“(g) Temporary Erosion Control Blanket. This work will be measured for payment in place in square yards (square meters) of actual surface covered.

Add the following paragraph after the ninth paragraph of Article 280.07 of the Standard Specifications:

“Temporary or permanent erosion control systems required for areas outside the limits of construction will not be measured for payment.”

Revise Article 280.08(b) of the Standard Specifications to read:

“(b) Temporary Ditch Checks. This work will be paid for at the contract unit price per foot (meter) for TEMPORARY DITCH CHECKS except for aggregate ditch checks which will be paid for at the contract unit price per ton (metric ton) for AGGREGATE DITCH CHECKS.”

Revise Article 280.08(f) of the Standard Specifications to read:

“(f) Temporary Mulch. Temporary Mulch will be paid for according to Article 251.06.”

Add the following to Article 280.08 of the Standard Specifications:

“(g) Temporary Erosion Control Blanket. Temporary Erosion Control Blanket will be paid for at the contract unit price per square yard (square meter) for TEMPORARY EROSION CONTROL BLANKET or TEMPORARY HEAVY DUTY EROSION CONTROL BLANKET.

The work of removing, storing, and reinstalling the blanket over areas to be reworked more than once will not be paid for separately but shall be included in the cost of the temporary erosion control blanket or temporary heavy duty erosion control blanket.”

Delete the tenth (last) paragraph of Article 280.08 of the Standard Specifications.

Revise the second sentence of the first paragraph of Article 1081.15(e) of the Standard Specifications to read:

“The upstream facing of the aggregate ditch check shall be constructed of gradation CA 3. The remainder of the ditch check shall be constructed of gradation RR 3.”

Revise Article 1081.15(f) of the Supplemental Specifications to read:

“(f) Rolled Excelsior. Rolled excelsior shall consist of an excelsior fiber filling totally encased inside netting and sealed with metal clips or knotted at the ends. The fiber density shall be a minimum of 1.24 lb/cu ft (20 kg/cu m) based on a moisture content of 22 percent at manufacturing. The netting shall be composed of a polyester or polypropylene material which retains 70 percent of its strength after 500 hours of exposure to sunlight. The maximum opening of the net shall be 1 x 1 in. (25 x 25 mm).”

Add the following to Article 1081.15 of the Standard Specifications:

“(i) Urethane Foam/Geotextile. Urethane foam/geotextile shall be triangular shaped having a minimum height of 10 in. (250 mm) in the center with equal sides and a minimum 20 in. (500 mm) base. The triangular shaped inner material shall be a low density urethane foam. The outer cover shall be a woven geotextile fabric placed around the inner material and allowed to extend beyond both sides of the triangle a minimum of 18 in. (450 mm).

(1) The geotextile shall meet the following properties:

Property	Value	Test Method
Grab Tensile Strength lb (N) (min.)	124 (550) min.	ASTM D 4632
Grab Elongation @ Brake (percent)	15 min.	ASTM D 4632
Burst Strength psi (kPa)	280 (1930) min.	ASTM D 3786
AOS (Sieve No.)	30 min.	ASTM D 4751
UV Resistance (500 hours) (percent)	80 min.	ASTM D 4355

(2) The urethane foam shall meet the following properties:

Property	Value	Test Method
Density lb/cu ft (kg/cu m)	1.0 ± 0.1 (16.0 ± 1.6)	ASTM D 3574
Tensile Strength psi (kPa)	10 (70) min.	ASTM D 3574
Elongation (percent)	125 min.	ASTM D 3574
Tear Resistance lb/in. (N/mm)	1.25 (0.22)	ASTM D 3574"

TRAFFIC CONTROL SURVEILLANCE (BDE)

Effective: January 1, 2011

Revise the first sentence of the first paragraph of Article 701.10 of the Standard Specifications to read:

“When open holes, broken pavement, trenches over 3 in. (75 mm) deep and 4 in. (100 mm) wide or other hazards are present within 8 ft (2.4 m) of the edge of an open lane, the Contractor shall furnish traffic control surveillance during all hours when the Contractor is not engaged in construction operations.”

TRUCK MOUNTED/TRAILER MOUNTED ATTENUATORS (BDE)

Effective: January 1, 2010

Revise Article 701.03(k) of the Standard Specifications to read:

“(k) Truck Mounted/Trailer Mounted Attenuators 1106.02”

Revise Article 701.15(h) of the Standard Specifications to read:

“(h) Truck Mounted/Trailer Mounted Attenuators (TMA). TMA units shall have a roll ahead distance in the event of an impact. The TMA shall be between 100 and 200 ft (30 and 60 m) behind the vehicle ahead or the workers. This distance may be extended by the Engineer.

TMA host vehicles shall have the parking brake engaged when stationary.

The driver and passengers of the TMA host vehicle should exit the vehicle if the TMA is to remain stationary for 15 minutes or more in duration.”

Revise Article 1106.02(g) of the Standard Specifications to read:

“(g) Truck Mounted/Trailer Mounted Attenuators. The attenuator shall be a NCHRP 350 approved unit for Test Level 3. Test Level 2 may be used as directed by the Engineer for normal posted speeds less than or equal to 45 mph.”

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)

Effective: November 2, 2006

Revised: April 1, 2009

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and pavement preservation type surface treatments. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, or joint filling/sealing.

The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$$

Where: CA = Cost Adjustment, \$.

BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, \$/ton (\$/metric ton).

BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting, \$/ton (\$/metric ton).

%AC_V = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.

Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: $Q, \text{ tons} = A \times D \times (G_{mb} \times 46.8) / 2000$. For HMA mixtures measured in square meters: $Q, \text{ metric tons} = A \times D \times (G_{mb} \times 24.99) / 1000$. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and % AC_V.

For bituminous materials measured in gallons: $Q, \text{ tons} = V \times 8.33 \text{ lb/gal} \times SG / 2000$

For bituminous materials measured in liters: $Q, \text{ metric tons} = V \times 1.0 \text{ kg/L} \times SG / 1000$

Where: A = Area of the HMA mixture, sq yd (sq m).
D = Depth of the HMA mixture, in. (mm).
G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
V = Volume of the bituminous material, gal (L).
SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(BPI_L - BPI_P) \div BPI_L\} \times 100$$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

RETURN WITH BID

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR BITUMINOUS MATERIALS COST ADJUSTMENTS

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. After award, this form, when submitted, shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract?

Yes No

Signature: _____ **Date:** _____

STORM WATER POLLUTION PREVENTION PLAN



Storm Water Pollution Prevention Plan

Route	<u>F.A.U. 3537</u>	Marked Rte.	<u>U.S. Route 20 (Lake St.)</u>
Section	<u>(4Y & 22-3) R-2</u>	Project No.	<u>C-91-533-00</u>
County	<u>DuPage</u>	Contract No.	<u>62093</u>

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Diane O'Keefe, P.E.
 Print Name
Deputy Director of Highways, Region One Engineer
 Title
Illinois Department of Transportation
 Agency

Signature
5-25-10
 Date

I. Site Description:

A. The following is a description of the project location:

The project is located along FAU Route 3537 (U.S. Rte 20) within the Village of Elmhurst, Elmhurst Township, in Dupage County, from approximately 400' east of the Lake St./ Walnut St. intersection (Sta. 355+65.00) to approximately 300' east of the Lake St./York Rd. intersection (Sta. 388+51.08).

B. The following is a description of the construction activity which is the subject of this plan:

The proposed project consists of the reconstruction of the U.S. Route 20 and FAI 290 interchange. The existing ramps "O" and "WB" will be removed and replaced by proposed Ramp F, which will connect directly to Lake St. Lake St. will be re-configured to allow 2-way traffic between Walnut St. and York St., thus eliminating the need for the existing Ramp "WB". Access to EB FAI 290 will be supplied by proposed Ramp F for both eastbound and westbound Lake St. traffic. Median/intersection reconstruction will take place at the existing York Rd. and Larch Ave. intersections. Major grading will take place in the infield areas between Lake St. and the proposed Ramps E and F as landscape berms will replace the existing ramps.

C. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading:

The following construction operations will result in soil being disturbed:

Pre-Stage

- Remove concrete medians and construct temporary pavement along portions of Lake Street.
- Construct temporary pavement along York Rd., Ramp WB, and Ramp O.

Stage I

- Reconstruction of EB and WB lanes along portions of Lake Street including grading and shaping ditches along the proposed westbound lanes.

- Construct the proposed Ramp F and Lake St. intersection along with grading and shaping ditches.
- Construct grading for portions of Ramp F from Lake St to I-290 on both sides of existing Ramp WB.
- Construct temporary pavement along northeast shoulder of existing Ramp O adjacent to I-290.

Stage IA

- Construct temporary pavement along north portion on existing Ramp WB from Sta. 8+50 to Sta. 12+00.
- Construct pavement for proposed Ramp F up to Sta. 5+20.
- Construct temporary pavement along south portions of existing Ramp WB from Sta. 8+50 to 12+25.

Stage IB

- Construct grading and pavement for proposed Ramp F from Sta. 5+20 Sta. 7+00.

Stage II

- Construct westbound lanes of Lake Street at the Ramp E/Lake Street terminal.
- Grade and shape infield and ditches between Ramp E and Lake Street.
- Reconstruct Ramp E from Sta. 0+00 to Sta. 10+50.
- Remove existing Ramps WB and O, grade and shape existing embankment into landscape berms.
- Construct guardrail and right shoulder for proposed Ramp F at the I-290 entrance terminal.
- Construct right turn lane, shoulder, and grading at the northwest quadrant of the Lake St./York Rd. intersection.

Stage III

- Remove temporary pavement and construct concrete raised median along Lake St. from Sta. 354+00 to Sta. 360+00, and from Sta. 381+00 to Sta. 384+60.

All Stages

- Tree and brush removal necessary to perform all interchange removal, grading, and construction activities.

D. The total area of the construction site is estimated to be 36.0 acres.

The total area of the site that is estimated will be disturbed by excavation, grading or other activities is 14.0 acres.

E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:

$$C = 0.56 \text{ (Prop.)} \quad C = 0.55 \text{ (Exist.)}$$

F. The following is a description of the soil types found at the project site followed by information regarding their erosivity:

Orthents (805B) – Moderately well-drained soils founded moraines and till plains. Typical slopes for this soil type range from 1 to 6 percent, and consists primarily of disturbed soil material. The surface layer is very dark gray, firm silty clay 6 inches thick. The underlying material extends to a depth of 60 inches or more, and consists of silty clay in the upper part, and firm silty clay loam in the lower parts. This soil has a seasonal high water table at a depth of more than four feet.

G. The following is a description of potentially erosive areas associated with this project:

(a) Proposed ditch grading within the project limits.

H. The following is a description of soil disturbing activities, their locations, and their erosive factors (e.g. steepness of slopes, length of slopes, etc):

Proposed roadway improvements at this site include proposed excavation and embankment, including earthwork operations for grading and shaping of proposed ditches, embankments, and roadways.

I. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking (to be added after contractor identifies locations), areas

of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) and locations where storm water is discharged to surface water including wetlands.

- J. The following is a list of receiving water(s) and the ultimate receiving water(s), and areal extent of wetland acreage at the site. The location of the receiving waters can be found on the erosion and sediment control plans:

Intermediate receiving water – I-290 drainage system. Storm water leaves the project limits through roadside ditches and a storm sewer system crossing FAI 290 to the north of Ramp F.

Ultimate receiving water – Addison Creek.

The site directly discharges to receiving waters that are not impaired for suspended solids, turbidity or siltation, and the receiving waters are not listed as Biologically Significant Streams. The majority of the storm water leaves the site as described above, however storm water from Ramp E and Lake St west of approximately Sta. 360+00 discharges to the northwest; and a small area discharges south into storm sewer along York Road.

The areal extent of wetland acreage at the site is 0.0 acres.

- K. The following pollutants of concern will be associated with this construction project:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Soil Sediment | <input checked="" type="checkbox"/> Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids) |
| <input checked="" type="checkbox"/> Concrete | <input checked="" type="checkbox"/> Antifreeze / Coolants |
| <input checked="" type="checkbox"/> Concrete Truck Waste | <input checked="" type="checkbox"/> Waste water from cleaning construction equipment |
| <input checked="" type="checkbox"/> Concrete Curing Compounds | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Solid Waste Debris | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Paints | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Solvents | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Fertilizers / Pesticides | <input type="checkbox"/> Other (specify) |

II. Controls:

This section of the plan addresses the controls that will be implemented for each of the major construction activities described in I.C. above and for all use areas, borrow sites, and waste sites. For each measure discussed, the contractor will be responsible for its implementation as indicated. The contractor shall provide to the resident engineer a plan for the implementation of the measures indicated. The contractor, and subcontractors, will notify the resident engineer of any proposed changes, maintenance, or modifications to keep construction activities compliant with the permit. Each such contractor has signed the required certification on forms which are attached to, and are a part of, this plan:

A. Erosion and Sediment Controls

1. **Stabilized Practices:** Provided below is a description of interim and permanent stabilization practices, including site specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include but are not limited to: temporary seeding, permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided below in II(A)(1)(a) and II(A)(3), stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceases on all disturbed portions of the site where construction will not occur for a period of 14 or more calendar days.

- a. Where the initiation of stabilization measures by the 7th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

The following Stabilization Practices will be used for this project:

- | | |
|--|--|
| <input type="checkbox"/> Preservation of Mature Vegetation | <input checked="" type="checkbox"/> Erosion Control Blanket / Mulching |
|--|--|

- | | |
|---|--|
| <input checked="" type="checkbox"/> Vegetated Buffer Strips | <input type="checkbox"/> Sodding |
| <input type="checkbox"/> Protection of Trees | <input type="checkbox"/> Geotextiles |
| <input checked="" type="checkbox"/> Temporary Erosion Control Seeding | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Temporary Turf (Seeding, Class 7) | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Temporary Mulching | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Permanent Seeding | <input type="checkbox"/> Other (specify) |

Describe how the Stabilization Practices listed above will be utilized:

Description of Stabilization Practices at the Beginning of Construction:

1. The area between the existing and proposed right-of-way/temporary easement boundaries and limit of the project will be improved and managed for the purpose of controlling erosion within the area, reducing water flow by temporary diversion and minimizing siltation into the construction zone, and establishing vegetative cover which will become permanent vegetation and act as an erosion barrier. Work at the beginning of construction will consist of the following:

(a) Areas of existing vegetation (woods and grasslands) outside the proposed construction slope limits shall be identified for preserving and shall be protected from mowing, brush cutting, tree removal and other activities which would be detrimental to their maintenance and development.

(b) Dead, diseased, or unsuitable vegetation within the site shall be removed as directed by the Engineer, along with required tree removal.

(c) As soon as reasonable access is available (such as trees cleared) to all locations where water drains away from the project, riprap ditch checks, temporary ditch checks, and/or perimeter erosion barrier shall be installed as called out in this plan and directed by the Engineer.

(d) Bare and sparsely vegetated ground in highly erodible areas as determined by the Engineer shall be temporarily seeded at the beginning of construction where no construction activities are immediately expected as stated in the special provision "Temporary Erosion Control Seeding".

(e) Immediately after tree removal is completed in certain areas which are highly erodible areas as determined by the Engineer, the areas shall be temporarily seeded where no construction activities are immediately expected as stated in the special provision "Temporary Erosion Control Seeding".

(f) At locations where a significant amount of water drains into the construction zone from outside areas (adjacent landowners), erosion control fence, temporary ditch checks; or riprap ditch checks will be utilized to locally divert water, reduce flow rates, and collect outside siltation inside the right-of-way line. Erosion control items will not be allowed to be installed to cause flooding to upstream private property which could cause crop damages or other undesirable conditions.

2. Establishment of these temporary erosion control measures will have additional benefits to the project. Desirable grass seed will become established in these areas and will spread seeds onto the construction site until permanent seeding/mowing and overseeding can be completed.

3. A third benefit of these filter areas is that they will begin to provide a screen and buffer. They will help protect the construction site from winds and excess sun and mitigate construction noise and dust.

Description of Stabilization Practices During Construction:

1. During roadway construction, areas outside the construction slope limits as outlined previous herein shall be protected from damaging effects of construction. The Contractor shall not use this area for staging (except as designated on the plans or directed by the Engineer), parking of vehicles or construction equipment, storage of materials, or other construction related activities.

(a) Within the construction zone, critical areas which have high flows of water as determined by the Engineer shall remain undisturbed until full scale construction is underway to prevent unnecessary soil erosion.

(b) Top soil and earth stockpiles shall be temporarily seeded if they are to remain unused for more than fourteen days.

(c) As the Contractor constructs a portion of roadway in a fill section, he/she shall follow the following steps as directed by the Engineer:

All culvert replacement work shall be performed under dry conditions.

(d) The Contractor shall immediately follow major earth moving operations with final grading equipment. After the major earth spread operation has moved to a new location, final grading shall be completed within fourteen days. If grading is not completed within fourteen days, all major earth moving operations will be stopped, as directed by the Engineer, until disturbed areas are final graded and seeded.

(e) Excavated areas and embankments shall be permanently seeded when final graded. If not, they shall be temporarily seeded in accordance with the Standard Specifications for Road and Bridge Construction.

(f) Construction equipment shall be stored and fueled only at designated locations. All necessary measures shall be taken to contain any fuel or pollution run-off in compliance with EPA water quality regulations. Leaking equipment or supplies shall be immediately repaired or removed from the site.

(g) The Resident Engineer shall inspect the project daily during activities and weekly or after large rains during the winter shutdown period. The project shall additionally be inspected by the Construction Field Engineer on a bi-weekly basis to determine that erosion control efforts are in place and effective and if other control work is necessary.

(h) Sediment collected during construction by the various temporary erosion control systems shall be disposed of on the site on a regular basis as directed by the Engineer. The cost of this maintenance will be paid for in accordance with Article 109.04 of the Standard Specifications.

(i) The temporary erosion control system shall be removed as directed by the Engineer after use is no longer needed or no longer functioning. The costs of this removal shall be included in the unit bid price for the temporary erosion control system. No additional compensation will be allowed.

- 2. Structural Practices:** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include but are not limited to: perimeter erosion barrier, earth dikes, drainage swales, sediment traps, ditch checks, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

The following Structural Practices will be used for this project:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Perimeter Erosion Barrier | <input checked="" type="checkbox"/> Rock Outlet Protection |
| <input checked="" type="checkbox"/> Temporary Ditch Check | <input checked="" type="checkbox"/> Riprap |
| <input checked="" type="checkbox"/> Storm Drain Inlet Protection | <input type="checkbox"/> Gabions |
| <input checked="" type="checkbox"/> Sediment Trap | <input type="checkbox"/> Slope Mattress |
| <input type="checkbox"/> Temporary Pipe Slope Drain | <input type="checkbox"/> Retaining Walls |
| <input type="checkbox"/> Temporary Sediment Basin | <input type="checkbox"/> Slope Walls |
| <input type="checkbox"/> Temporary Stream Crossing | <input type="checkbox"/> Concrete Revetment Mats |
| <input type="checkbox"/> Stabilized Construction Exits | <input type="checkbox"/> Level Spreaders |
| <input type="checkbox"/> Turf Reinforcement Mats | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Permanent Check Dams | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Permanent Sediment Basin | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Aggregate Ditch | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Paved Ditch | <input type="checkbox"/> Other (specify) |

Describe how the Structural Practices listed above will be utilized:

1. Temporary erosion control systems shall be left in place with proper maintenance until permanent erosion control is in place and working properly and all proposed turf areas seeded and established with a proper stand.
2. Once permanent erosion control systems as proposed in the plans are functional and established, temporary items shall be removed, cleaned up, and disturbed turf reseeded.
3. **Storm Water Management:** Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.
 - a. Such practices may include but are not limited to: storm water detention structures (including wet ponds), storm water retention structures, flow attenuation by use of open vegetated swales and natural depressions, infiltration of runoff on site, and sequential systems (which combine several practices).

The practices selected for implementation were determined on the basis of the technical guidance in Section 59-8 (Erosion and Sediment Control) in Chapter 59 (Landscape Design and Erosion Control) of the Illinois Department of Transportation Bureau of Design and Environment Manual. If practices other than those discussed in Section 59-8 are selected for implementation or if practices are applied to situations different from those covered in Section 59-8, the technical basis for such decisions will be explained below.
 - b. Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. maintenance of hydrologic conditions such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of Storm Water Management Controls.

1. Temporary storm water management controls shall be performed during construction as shown in the plans. This shall include perimeter erosion barrier, temporary erosion control seeding, inlet filters, and sediment traps. All disturbed areas shall be seeded with placement of erosion control blanket and as shown in the plans.
 2. Permanent storm water management features shall include vegetated ditch lines, permanent check dams, and aggregate ditch checks to be distributed as ditch lining after seeding is placed.
4. **Other Controls:**
- a. **Vehicle Entrances and Exits –** Stabilized construction entrances and exits must be constructed to prevent tracking of sediments onto roadways.

The contractor will provide the resident engineer with a written plan identifying the location of stabilized entrances and exits and the procedures (s)he will use to construct and maintain them.
 - b. **Material Delivery, Storage, and Use –** The following BMPs shall be implemented to help prevent discharges of construction materials during delivery, storage, and use:
 - All products delivered to the project site must be properly labeled.
 - Water tight shipping containers and/or semi trailers shall be used to store hand tools, small parts, and most construction materials that can be carried by hand, such as paint cans, solvents, and grease.
 - A storage/containment facility should be chosen for larger items such as drums and items shipped or stored on pallets. Such material is to be covered by a tin roof or large sheets of plastic to prevent precipitation from coming in contact with the products being stored.
 - Large items such as light stands, framing materials and lumber shall be stored in the open in a general storage area. Such material shall be elevated with wood blocks to minimize contact with storm water runoff.

- Spill clean-up materials, material safety data sheets, an inventory of materials, and emergency contact numbers shall be maintained and stored in one designated area and each Contractor is to inform his/her employees and the resident engineer of this location.
- c. Stockpile Management – BMPs shall be implemented to reduce or eliminate pollution of storm water from stockpiles of soil and paving materials such as but not limited to portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate sub base, and pre-mixed aggregate. The following BMPs may be considered:
 - Perimeter Erosion Barrier
 - Temporary Seeding
 - Temporary Mulch
 - Plastic Covers
 - Soil Binders
 - Storm Drain Inlet Protection

The contractor will provide the resident engineer with a written plan of the procedures (s)he will use on the project and how they will be maintained.

- d. Waste Disposal. No materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.
- e. The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.
- f. The contractor shall provide a written and graphic plan to the resident engineer identifying where each of the above areas will be located and how they are to be managed.

5. Approved State or Local Laws

The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans, site permits, storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI, to be authorized to discharge under permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

All management practices, controls, and other provisions provided in this plan are in accordance with "IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".

III. Maintenance:

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, the vegetation, erosion and sediment control measures and other protective measures identified in this plan. The resident engineer will provide maintenance guides to the contractor for the practices associated with this project.

1. Seeding - all erodible bare earth will be temporarily seeded on a weekly basis to minimize the amount of erodible surface within the contract limits.
2. Perimeter erosion barrier - sediment will be removed if the integrity of the fencing is in jeopardy and any fencing knocked down will be repaired immediately.
3. Erosion control blanket - any areas that fail will be repaired immediately.

4. Protection of trees/temporary tree protection - any protective measures which are knocked down will be repaired immediately.

5. Ditch checks - sediment will be removed if the integrity of the ditch check is in jeopardy. Any ditch checks which fail will be repaired or replaced immediately.

The Resident Engineer will provide maintenance guides to the contractor for these practices. All maintenance of erosion control systems will be the responsibility of the contractor until construction is complete and accepted by IDOT after final inspection. All locations where vehicles enter and exit the construction site and all other areas subject to erosion should also be inspected periodically.

Inspection of these areas shall be made at least once every seven days and within 24 hours of the end of each 0.5 inches or greater rainfall, or an equivalent snowfall. The project shall additionally be inspected by the construction field engineer on a bi-weekly basis to determine that erosion control efforts are in place and effective and if other erosion control work is necessary.

The temporary erosion control systems shall be removed as directed by the engineer after use is no longer needed. The cost of this removal shall be included in the unit bid price for the temporary erosion control system.

IV. Inspections:

Qualified personnel shall inspect disturbed areas of the construction site which have not yet been finally stabilized, structural control measures, and locations where vehicles and equipment enter and exit the site. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

- A. Disturbed areas, use areas (storage of materials, stockpiles, machine maintenance, fueling, etc.), borrow sites, and waste sites shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Discharge locations or points that are accessible, shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.
- B. Based on the results of the inspection, the description of potential pollutant sources identified in section I above and pollution prevention measures identified in section II above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspections shall be implemented within ½ hour to 1 week based on the urgency of the situation. The resident engineer will notify the contractor of the time required to implement such actions through the weekly inspection report.
- C. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section IV(B) shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.
- D. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the resident engineer shall notify the appropriate IEPA Field Operations Section office by email at: epa.swnoncomp@illinois.gov, telephone or fax within 24 hours of the incident. The resident Engineer shall then complete and submit an "Incidence of Noncompliance" (ION) report for the identified violation within 5 days of the incident. The resident engineer shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

The Incidence of Non-Compliance shall be mailed to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Compliance Assurance Section

1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

V. Non-Storm Water Discharges:

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge.

- A. Spill Prevention and Control – BMPs shall be implemented to contain and clean-up spills and prevent material discharges to the storm drain system. The contractor shall produce a written plan stating how his/her company will prevent, report, and clean up spills and provide a copy to all of his/her employees and the resident engineer. The contractor shall notify all of his/her employees on the proper protocol for reporting spills. The contractor shall notify the resident engineer of any spills immediately.
- B. Concrete Residuals and Washout Wastes – The following BMPs shall be implemented to control residual concrete, concrete sediments, and rinse water:
 - Temporary Concrete Washout Facilities shall be constructed for rinsing out concrete trucks. Signs shall be installed directing concrete truck drivers where designated washout facilities are located.
 - The contractor shall have the location of temporary concrete washout facilities approved by the resident engineer.
 - All temporary concrete washout facilities are to be inspected by the contractor after each use and all spills must be reported to the resident engineer and cleaned up immediately.
 - Concrete waste solids/liquids shall be disposed of properly.
- C. Litter Management – A proper number of dumpsters shall be provided on site to handle debris and litter associated with the project. The Contractor is responsible for ensuring his/her employees place all litter including marking paint cans, soda cans, food wrappers, wood lathe, marking ribbon, construction string, and all other construction related litter in the proper dumpsters.
- D. Vehicle and Equipment Cleaning – Vehicles and equipment are to be cleaned in designated areas only, preferably off site.
- E. Vehicle and Equipment Fueling – A variety of BMPs can be implemented during fueling of vehicles and equipment to prevent pollution. The contractor shall inform the resident engineer as to which BMPs will be used on the project. The contractor shall inform the resident engineer how (s)he will be informing his/her employees of these BMPs (i.e. signs, training, etc.). Below are a few examples of these BMPs:
 - Containment
 - Spill Prevention and Control
 - Use of Drip Pans and Absorbents
 - Automatic Shut-Off Nozzles
 - Topping Off Restrictions
 - Leak Inspection and Repair
- F. Vehicle and Equipment Maintenance – On site maintenance must be performed in accordance with all environmental laws such as proper storage and no dumping of old engine oil or other fluids on site.

VI. Failure to Comply:

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of a National Pollutant Discharge Elimination System/Erosion and Sediment Control Deficiency Deduction against the contractor and/or penalties under the NPDES permit which could be passed onto the contractor.



Contractor Certification Statement

The Resident Engineer is to make copies of this form and every contractor and sub-contractor will be required to complete their own separate form.

Route	<u>F.A.U. 3537</u>	Marked Rt.	<u>U.S. Route 20 (Lake St.)</u>
Section	<u>(4Y & 22-3)R-2</u>	Project No.	<u>C-91-533-00</u>
County	<u>DuPage</u>	Contract No.	<u>62093</u>

This certification statement is part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with General NPDES Permit No. ILR10 issued by the Illinois Environmental Protection Agency.

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

In addition, I have read and understand all of the information and requirements stated in the Storm Water Pollution Prevention Plan for the above mentioned project; I have provided all documentation required to be in compliance with the ILR10 and Storm Water Pollution Prevention Plan and will provide timely updates to these documents as necessary.

- Contractor
- Sub-Contractor

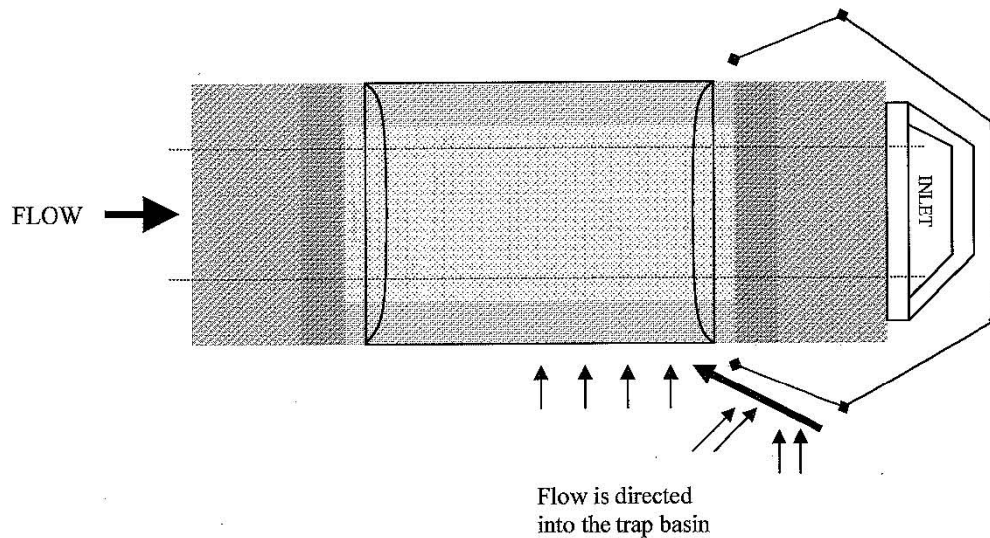
_____	_____
Print Name	Signature
_____	_____
Title	Date
_____	_____
Name of Firm	Telephone
_____	_____
Street Address	City/State/ZIP










**Construction of a Sediment Trap
A Best Management Practice
Used for Jobsite Outfall Protection**

This guide documents the implementation and use of the new preferred method of jobsite outfall protection. Silt fence is not an effective protection measure, because it is not permeable enough for a major outfall. A sediment trap is only effective with a suitable quantity of water in it. For this reason, it is encouraged that sediment traps be used to protect outfalls with a drainage area greater than 4,500 square feet (~.1 Acres) and less than 216,000 square feet (~5 Acres). Above 216,000 square feet, a sediment basin should be used to drain the area, or a diversion should be constructed to divert clean water from upstream around the construction site. On most IDOT projects, there isn't enough room on state right of way for a sediment basin, so a diversion is generally the solution for large drainage areas. In locations with drainage areas between .1 and 5 acres, sediment traps should be constructed on all current and new construction projects where practical, effective immediately. Remember, this is simply a new configuration of old pay items, so nothing should need to be added to the contract. For permanent sediment traps being constructed, contact Rick Wanner in the District One headquarters, Bureau of Maintenance office for evaluation and to ensure that maintenance is informed of the trap's existence.

Sediment Trap



LEGEND

-  Ditch Check (Stone, Triangular Silt Dike, Excelsior Roll)
-  Silt Fence
-  Water's path into the trap
-  Trap basin to allow sediment to settle
-  Erosion Control Blanket and seeding (on side slope)
-  Seeding only
-  Exterior flow protection (Protecting against shear stress)

PURPOSE:

A sediment trap is a containment area where sediment-laden runoff is temporarily detained under stagnant conditions, allowing sediment to settle out before the runoff is discharged. Sediment traps are formed by excavation of a small, shallow, long basin in a low drainage area, with a ditch check on the upstream and downstream side of the trap basin. The sediment trap is an effective ditch outfall or inlet/pipe protection system for drainage areas no greater than 216,000 sq. ft. (~5 acres) and no less than 4,500 square feet (~.1 acres).

IMPLEMENTATION:

- Construct prior to wet season and construction activities.
- Locate where sediment-laden runoff enters a storm drain or watercourse.
- Sediment traps are never to be located in live streams.
- Access to the sediment trap must be available for maintenance purposes.
- Consider whether the trap is needed as a long term or a temporary practice. Use permanent (stone) or temporary (excelsior rolls, triangular silt dikes) ditch checks accordingly.

DESIGN:

- Sediment traps generally release a slow flow that may be directed into a culvert, a sewer inlet or may simply be released to another sediment trap if there is a large drainage area.
- Sediment traps must have silt fence surrounding the acceptor to ensure water does not flow into the pipe unfiltered unless the acceptor is a ditch, in which case, no additional silt fence is needed. This silt fence should be positioned such that the water may still flow from the sides of the trap into the trap basin, and if possible, the silt fence should direct water into the trap basin, on the upstream side of the second ditch check.
- A ditch check must be located on both the upstream and downstream ends of the holding trap basin. These ditch checks may be triangular silt dikes or excelsior rolls for temporary sediment traps, or stone for permanent sediment traps. The ditch check on the downstream side of the trap must be contained within the silt fence if the acceptor is a culvert. Otherwise, for outlets, the ditch check must be located on the downstream side of the perimeter barrier.
- Temporary sediment traps should be built with the timeframe of the construction job in mind, or a single construction season. Temporary traps should be constructed using either triangular silt dikes or excelsior rolls.
- If the sediment trap is to remain functional as a permanent water quality feature, it should be constructed using stone ditch checks. Permanent sediment traps must be constructed in locations out of the sub-grade of the road, and out of the clear zone. Ditch checks in permanent sediment traps must have a 2:1 slope or flatter on both the upstream and the downstream side of the ditch check.
- A sediment trap can also be a semi-permanent feature. If the ditch checks are made of excelsior rolls, they will function for a while, but will eventually break down. This allows for the construction of a trap that will remain in place after construction, but will not permanently remain in place. This may allow for establishment of vegetation as the primary filtration method in place of the ditch check without blocking water unnaturally or permanently.
- The top of ditch checks are to be at least 1-½' higher than the bottom of the holding trap basin, and should be no less than 1' higher than the water's normal flowing height. Also, ditch checks should be spaced such that the bottom of the upstream ditch check is no higher than the top of the downstream ditch check. This will depend on the slope of the ditch.

- The holding trap basin should be excavated so that the cross-section looks like a 'U' (instead of a 'V'). This U-shaped ditch discourages erosion in the middle crook of the ditch and increases the capacity of the trap.
- The trap basin shall have a capacity of no less than 3600 cubic feet per acre of drainage area. This is enough space to hold 1 inch of water per acre. See Figure 1 for standard dimensions. If the drainage area is less than 4,500 sq. ft. (.1 acre), consider using an inlet filter or another BMP in place of the sediment trap.
- Under no circumstance shall a sediment trap or series of sediment traps cover a total drainage area of more than 5 acres. If this is the case, or an appropriate amount of land is available, a sediment basin should be constructed in place of a sediment trap.
- Stabilize any exposed soil in the sediment trap that could be subject to erosion from the flow of water, including the trap basin. A Turf Reinforcement Mat and permanent seeding works well for long term installations, but temporary seeding and/or an erosion control blanket will suffice as a temporary measure.
- An armored overflow must be constructed.
- Regardless of the type of acceptor (with the sole exception of a ditch), leave approximately 5 feet between the final ditch check and the acceptor. This allows the water flow to settle, which lowers the risk of disturbing sediment that may be in the acceptor. This gap should be protected against the effects of shear stress from the flowing water.
- On particularly steep slopes, it may be most effective to place multiple smaller sediment traps in rapid succession to cover the drainage area. In this case, it would be most cost-efficient to allow sediment traps to share ditch checks.
- Shear stress can cause sediment to be picked up by flowing water. Attention should be paid to the shear stress to ensure that the soil in the ditch before and after the sediment trap does not get eroded. These areas must be protected. See the Shear Stress page (6) for formulas and more information.

PLANS AND SPECIFICATIONS:

- The plans and specifications for sediment traps will show the following requirements:
 - Location of the sediment trap(s).
 - Size of the trap basin including width, length, and depth.
 - Minimum cross section of embankment.
 - Minimum profile through spillway.
 - Location of emergency spillway, if used.
 - Graduation and quality of stone.
 - The installation, inspection, and maintenance schedules with the responsible party identified.

INSPECTION/MAINTENANCE:

- Sediment traps are to be inspected by the resident engineer and contractor every 7 calendar days and after a storm event of ½" or greater (including snowfall) on a temporary basis. On a permanent basis, traps should be checked at least once every 2 years.
- The trap should be cleaned of silt when the trap becomes 50% filled. The material removed must be disposed of in accordance with good housekeeping practices, incorporated into the fill material, or disposed of in accordance with IEPA regulations.
- Inspect the outlet for erosion and any needed stabilization.
- Inspect the outlet for any sediment discharge and discolored water.
- If sediment is discharged or other pollutants are identified at the discharge point, other BMPs, such as sand filters, may be required to filter pollutants.
- Note that the first ditch check is primarily used to slow the water, while the second is primarily used to catch remaining sediment. Inspection of the first ditch check, therefore, is primarily a structural inspection, while the second is primarily a check for sediment clogging.

NOTES ON THE DIMENSIONS OF THE TRAP:

The volume of the trap may be calculated using the following formula (only applies on shallow slopes of 5% or less):

$$\text{Volume} = (\text{Depth of the trap}) * (\text{Length between ditch checks}) * (\text{Width of the ditch})$$

SEDIMENT TRAP DIMENSION MATRIX					
Depth	Length	Width	Capacity (cu. ft.)	Drainage Area Max. (sq. ft.)	Drainage Area Max. (acres)
1-1/2'	125'	10'	1,875	22,500	.52
1-1/2'	100'	10'	1,500	18,000	.417
1-1/2'	75'	10'	1,125	13,500	.3125
1-1/2'	50'	10'	750	9,000	.21
1-1/2'	25'	10'	375	4,500	.1
2'	100'	10'	2,000	24,000	.55
2'	80'	10'	1,600	19,000	.44
2'	60'	10'	1,200	14,500	.33
2'	40'	10'	800	9,600	.22
2'	30'	10'	600	7,250	.17
2'	25'	10'	500	6,000	.14

Figure 1

For reference, 1 Acre ~ 43200 sq. ft.

Shear Stress

STRAIGHT SECTIONS OF DITCHES

$$\tau_d = \gamma(dS)$$

where

τ_d = maximum shear stress, lb/ft² (Pa)

γ = unit weight of water, 62.4 lb/ft³ (9810 N/m³)

d = maximum depth of flow, ft (m)

S = average bed slope or energy slope, ft/ft (m/m)

BENDS IN DITCHES

Flow around a channel bend imposes higher shear stresses on the channel boundaries. The maximum shear stress in a bend is a function of the radius of curvature and the bottom width of the channel and is given by:

$$\tau_b = K_b \tau_d$$

where

τ_b = maximum shear stress in a bend, lb/ft² (Pa)

$$K_b = 2.38 - 0.206 \left(\frac{R_c}{B} \right) + 0.0073 \left(\frac{R_c}{B} \right)^2$$

where

K_b = bend coefficient - function of R_c/B

R_c = radius to centerline of channel, ft (m)

B = bottom width of channel, ft (m)

To determine which BMP to use to protect the ditch, calculate the Shear Stress and compare to the following values:

- < 3 psf (147 Pa) → Erosion Control Blanket and Seeding
- < 8 psf (392 Pa) → Turf Reinforcement Mat and Seeding
- > 8 psf (392 Pa) → Stone lining

RELEVANT PAY ITEMS:

- EARTH EXCAVATION
- PERIMETER EROSION BARRIER
- Stone size IDOT CA-1
- ROCKFILL
- TEMPORARY DITCH CHECKS
- TEMPORARY EROSION CONTROL SEEDING or SEEDING, CLASS 2A
- TEMPORARY EROSION CONTROL BLANKET

NOTICE OF INTENT

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
NOTICE OF INTENT (NOI)
GENERAL PERMIT TO DISCHARGE STORM WATER
CONSTRUCTION SITE ACTIVITIES**

OWNER INFORMATION

NAME:	LAST Illinois Department of	FIRST Transportation	MIDDLE	(OR COMPANY NAME)	OWNER TYPE:	State
MAILING ADDRESS:	201 West Center Court					
CITY:	Schaumburg			STATE:	IL	ZIP: 60196
CONTACT PERSON:	Diane M O'Keefe			TELEPHONE NUMBER:	AREA CODE 847	NUMBER 705-4110

CONTRACTOR INFORMATION

NAME:	LAST Illinois Department of	FIRST Transportation	MIDDLE	(OR COMPANY NAME)	TELEPHONE NUMBER:	AREA CODE 847	NUMBER 705-4110
MAILING ADDRESS:	201 West Center Court		CITY:	Schaumburg	STATE:	IL	ZIP: 60196

CONSTRUCTION SITE INFORMATION

SELECT ONE:	<input checked="" type="checkbox"/> New Site <input type="checkbox"/> CHANGE OF INFORMATION TO PERMIT NO. ILR10_____							
FACILITY NAME:	I-290/York Road Interchange Reconstruction			OTHER NPDES PERMIT NOS.:				
FACILITY LOCATION:	Route 20 (Lake St.) from Walnut St. to York St. & at I-290 Ramps				TELEPHONE NUMBER:	AREA CODE 847	NUMBER 705-4110	
CITY:	Elmhurst	ST:	IL	ZIP:	60126	LATITUDE:	41D 54M 29S LONGITUDE: 87D 55 34	
COUNTY:	DuPage County		SECTION:	35	TOWNSHIP:	40N	RANGE: 11E	
APPROX. CONST. START DATE:	06 / 01 / 10	APPROX. CONSTRUCTION END DATE:	12 / 01 / 10	TOTAL SIZE OF CONSTRUCTION SITE IN ACRES:				36.0
STORM WATER POLLUTION PREVENTION PLAN COMPLETED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (If no, separate notification required to Agency prior to construction.)								

TYPE OF CONSTRUCTION

TYPE BRIEF DESCRIPTION OF PROJECT:	Transportation	Entrance and exit ramps from Lake Street onto I-290 to be realigned and reconstructed.
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HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

HAS THIS PROJECT SATISFIED APPLICABLE REQUIREMENTS FOR COMPLIANCE WITH ILLINOIS LAW ON:		
HISTORIC PRESERVATION	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
ENDANGERED SPECIES	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	

RECEIVING WATER INFORMATION

DOES YOUR STORM WATER DISCHARGE DIRECTLY TO:	OWNER OF STORM SEWER SYSTEM:
<input checked="" type="checkbox"/> WATERS OF THE STATE OR <input type="checkbox"/> STORM SEWER	
NAME OF CLOSEST RECEIVING WATER:	Addison Creek

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

OWNER SIGNATURE: _____ DATE: _____

MAIL COMPLETED FORM TO: (DO NOT SUBMIT ADDITIONAL DOCUMENTATION UNLESS REQUESTED)	ILLINOIS ENVIRONMENTAL PROTECTION AGENCY DIVISION OF WATER POLLUTION CONTROL ATTN: PERMIT SECTION POST OFFICE BOX 19276 SPRINGFIELD, ILLINOIS 62794-9276 www.epa.state.il.us	FOR OFFICE USE ONLY
		LOG:
		PERMIT NO. ILR10
		DATE:

Information required by this form must be provided to comply with 415 ILCS 5/39 (1996). Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

IL 532 2104
WPC 623 Rev. 6/03

**INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI)
FORM**

Please adhere to the following instructions:

Submit original, photocopy or facsimile copies. Facsimile and/or photo copies should be followed-up with an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the lower right hand corner.

.... Submit completed forms to:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217)782-0610
www.epa.state.il.us

- Reports must be typed or printed legibly and signed.
- Any facility that is not presently covered by the ILR10 Construction Activity Storm Water Discharge General Permit is considered a new facility.
- If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line.
- **NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.**
- Use the formats given in the following examples for correct form completion.

	<u>Example</u>	<u>Format</u>
SECTION	12	1 or 2 numerical digits
TOWNSHIP	12N	1 or 2 numerical digits followed by "N" or "S"
RANGE	12W	1 or 2 numerical digits followed by "E" or "W"

- For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."
- Submit a fee of \$500 prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA

ILLINOIS DEPARTMENT OF LABOR

PREVAILING WAGES FOR DUPAGE COUNTY EFFECTIVE DECEMBER 2010

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.

Du Page County Prevailing Wage for December 2010

Trade Name	RG	TYP	C	Base	FRMAN	*M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
=====	==	===	=	=====	=====	=====	====	====	=====	=====	=====	=====
ASBESTOS ABT-GEN		ALL		35.200	35.700	1.5	1.5	2.0	9.130	8.370	0.000	0.400
ASBESTOS ABT-MEC		BLD		31.540	0.000	1.5	1.5	2.0	9.670	9.610	0.000	0.620
BOILERMAKER		BLD		43.020	46.890	2.0	2.0	2.0	6.720	9.890	0.000	0.350
BRICK MASON		BLD		39.030	42.930	1.5	1.5	2.0	8.800	10.67	0.000	0.740
CARPENTER		ALL		40.770	42.770	1.5	1.5	2.0	9.840	9.790	0.000	0.490
CEMENT MASON		ALL		38.000	40.000	2.0	1.5	2.0	8.700	14.95	0.000	0.380
CERAMIC TILE FNSHER		BLD		33.600	0.000	2.0	1.5	2.0	6.950	8.020	0.000	0.540
COMMUNICATION TECH		BLD		32.650	34.750	1.5	1.5	2.0	7.650	13.98	0.400	0.490
ELECTRIC PWR EQMT OP		ALL		33.140	42.570	1.5	1.5	2.0	4.750	10.27	0.000	0.250
ELECTRIC PWR GRNDMAN		ALL		25.680	42.570	1.5	1.5	2.0	4.750	7.960	0.000	0.190
ELECTRIC PWR LINEMAN		ALL		39.420	42.570	1.5	1.5	2.0	4.750	12.22	0.000	0.300
ELECTRIC PWR TRK DRV		ALL		26.520	42.570	1.5	1.5	2.0	4.750	8.230	0.000	0.200
ELECTRICIAN		BLD		36.200	39.820	1.5	1.5	2.0	8.650	15.87	3.880	0.580
ELEVATOR CONSTRUCTOR		BLD		46.160	51.930	2.0	2.0	2.0	10.03	9.460	2.770	0.000
FENCE ERECTOR	NE	ALL		32.660	34.660	1.5	1.5	2.0	10.67	10.00	0.000	0.500
FENCE ERECTOR	W	ALL		43.300	45.460	2.0	2.0	2.0	8.140	17.29	0.000	0.400
GLAZIER		BLD		38.000	39.500	1.5	2.0	2.0	10.19	13.64	0.000	0.790
HT/FROST INSULATOR		BLD		42.050	44.550	1.5	1.5	2.0	9.670	10.81	0.000	0.620
IRON WORKER	E	ALL		40.750	42.750	2.0	2.0	2.0	12.45	17.09	0.000	0.300
IRON WORKER	W	ALL		43.300	45.460	2.0	2.0	2.0	8.140	17.29	0.000	0.400
LABORER		ALL		35.200	35.950	1.5	1.5	2.0	9.130	8.370	0.000	0.400
LATHER		ALL		40.770	42.770	1.5	1.5	2.0	9.840	9.790	0.000	0.490
MACHINIST		BLD		43.160	45.160	1.5	1.5	2.0	7.640	8.700	0.000	0.000
MARBLE FINISHERS		ALL		29.100	0.000	1.5	1.5	2.0	8.800	10.67	0.000	0.740
MARBLE MASON		BLD		39.030	42.930	1.5	1.5	2.0	8.800	10.67	0.000	0.740
MATERIAL TESTER I		ALL		25.200	0.000	1.5	1.5	2.0	9.130	8.370	0.000	0.400
MATERIALS TESTER II		ALL		30.200	0.000	1.5	1.5	2.0	9.130	8.370	0.000	0.400
MILLWRIGHT		ALL		40.770	42.770	1.5	1.5	2.0	9.840	9.790	0.000	0.490
OPERATING ENGINEER		BLD	1	45.100	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD	2	43.800	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD	3	41.250	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD	4	39.500	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD	5	48.850	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD	6	46.100	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		BLD	7	48.100	49.100	2.0	2.0	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY	1	43.300	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY	2	42.750	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY	3	40.700	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY	4	39.300	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY	5	38.100	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY	6	46.300	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
OPERATING ENGINEER		HWY	7	44.300	47.300	1.5	1.5	2.0	11.70	8.050	1.900	1.150
ORNAMNTL IRON WORKER	E	ALL		40.200	42.450	2.0	2.0	2.0	10.67	14.81	0.000	0.500
ORNAMNTL IRON WORKER	W	ALL		43.300	45.460	2.0	2.0	2.0	8.140	17.29	0.000	0.400
PAINTER		ALL		39.680	41.680	1.5	1.5	1.5	8.100	8.200	0.000	1.000
PAINTER SIGNS		BLD		31.740	35.640	1.5	1.5	1.5	2.600	2.540	0.000	0.000
PILEDRIIVER		ALL		40.770	42.770	1.5	1.5	2.0	9.840	9.790	0.000	0.490
PIPEFITTER		BLD		39.500	41.500	1.5	1.5	2.0	9.900	13.24	0.000	1.360
PLASTERER		BLD		32.000	33.500	1.5	1.5	2.0	6.450	6.770	0.000	0.570
PLUMBER		BLD		39.500	41.500	1.5	1.5	2.0	9.900	13.24	0.000	1.360
ROOFER		BLD		37.650	40.650	1.5	1.5	2.0	7.750	6.570	0.000	0.430
SHEETMETAL WORKER		BLD		41.660	43.660	1.5	1.5	2.0	8.810	10.66	0.000	0.780
SPRINKLER FITTER		BLD		49.200	51.200	1.5	1.5	2.0	8.500	8.050	0.000	0.450
STEEL ERECTOR	E	ALL		40.750	42.750	2.0	2.0	2.0	10.95	15.99	0.000	0.300
STEEL ERECTOR	W	ALL		43.300	45.460	2.0	2.0	2.0	8.140	17.29	0.000	0.400
STONE MASON		BLD		39.030	42.930	1.5	1.5	2.0	8.800	10.67	0.000	0.740
TERRAZZO FINISHER		BLD		35.150	0.000	1.5	1.5	2.0	6.950	10.57	0.000	0.430
TERRAZZO MASON		BLD		39.010	42.010	1.5	1.5	2.0	6.950	11.91	0.000	0.510

TILE MASON	BLD	40.490	44.490	2.0	1.5	2.0	6.950	9.730	0.000	0.610
TRAFFIC SAFETY WRKR	HWY	24.300	25.900	1.5	1.5	2.0	3.780	1.875	0.000	0.000
TRUCK DRIVER	ALL 1	32.550	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.150
TRUCK DRIVER	ALL 2	32.700	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.150
TRUCK DRIVER	ALL 3	32.900	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.150
TRUCK DRIVER	ALL 4	33.100	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.150
TUCKPOINTER	BLD	39.200	40.200	1.5	1.5	2.0	7.830	10.25	0.000	0.770

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

DUPAGE COUNTY

IRON WORKERS AND FENCE ERECTOR (WEST) - West of Route 53.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. 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. 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.

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.

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 TECHNICIAN

Low voltage installation, maintenance and removal of telecommunication facilities (voice, sound, data and video) including telephone and data inside wire, interconnect, terminal equipment, central offices, PABX, fiber optic cable and equipment, micro waves, V-SAT, bypass, CATV, WAN (wide area networks), LAN (local area networks), and ISDN (integrated system digital network), pulling of wire in raceways, but not the installation of raceways.

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 are installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

OPERATING ENGINEER - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); 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 Conveyor (Truck Mounted); Concrete Paver Over 27E cu. ft; Concrete Paver 27E cu. ft. and Under; 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; Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes: Squeeze Cretes-Screw Type Pumps; Gypsum Bulker and Pump; 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. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Inside Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; 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; Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Low Boys; Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches; Bobcats (up to and including 3/4 cu yd.) .

Class 4. Bobcats and/or other Skid Steer Loaders (other than bobcats up to and including 3/4 cu yd.); Oilers; and Brick Forklift.

Class 5. Assistant Craft Foreman.

Class 6. Gradall .

Class 7. Mechanics.

OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. 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, Tower Cranes of all types: Creter Crane: Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dowell Machine with Air Compressor; Dredges; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Truck Mounted; Hoists, One, Two and Three Drum; Hydraulic Backhoes; Backhoes with shear attachments; Lubrication Technician; Manipulators; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; 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 5 ft. in diameter and over tunnel, etc; Underground Boring and/or Mining Machines under 5 ft. in diameter; 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; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; All Locomotives, Dinky; Off-Road Hauling Units (including articulating)/2 ton capacity or more; Non Self-Loading Ejection Dump; 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; Low Boys; 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.

Class 6. Field Mechanics and Field Welders

Class 7. Gradall and machines of like nature.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION

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.

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.

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 217-782-1710 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.