

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

PREQUALIFICATION

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

REQUESTS FOR AUTHORIZATION TO BID

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

WHO CAN BID ?

Bids will be accepted from only those companies that request and receive written **Authorization to Bid** from IDOT's Central Bureau of Construction.

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?: When a prospective prime bidder submits a "Request for Authorization to Bid/or Not For Bid Status" (BDE 124INT) he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial.

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

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

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

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

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

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

Technical Questions about downloading these files may be directed to Roseanne Nance (217)-785-5875 or nancer@dot.il.gov

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

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

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

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

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

Questions Regarding	Call
Prequalification and/or Authorization to Bid	217/782-3413
Preparation and submittal of bids	217/782-7806
Mailing of plans and proposals	217/782-7806
Electronic plans and proposals	217/785-5875

ADDENDUMS TO THE PROPOSAL FORMS

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

62

RETURN WITH BID

Proposal Submitted By
Name
Address
City

Letting March 11, 2005

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

NOTICE TO PROSPECTIVE BIDDERS

This proposal can be used for bidding purposes by only those companies that request and receive written AUTHORIZATION TO BID from IDOT's Central Bureau of Construction.

(SEE INSTRUCTIONS ON THE INSIDE OF COVER)

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



Illinois Department
of Transportation

Springfield, Illinois 62764

Contract No. 62389
WILL County
Section 2002-022K
Route FAI 55
Project IM-55-6(214)269
District 1 Construction Funds

PLEASE MARK THE APPROPRIATE BOX BELOW:

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

Prepared by

F

Checked by

(Printed by authority of the State of Illinois)

INSTRUCTIONS

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

WHO CAN BID?: Bids will be accepted from only those companies that request and receive written **Authorization to Bid** from IDOT's Central Bureau of Construction. To request authorization, a potential bidder must complete and submit Part B of the Request for Authorization to Bid/or Not For Bid Status form (BDE 124 INT) and submit an original Affidavit of Availability (BC 57).

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

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

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

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RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

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

**Contract No. 62389
WILL County
Section 2002-022K
Project IM-55-6(214)269
Route FAI 55
District 1 Construction Funds**

- 1.30 miles of interchange ramp improvements consisting of ramp pavement removal, widening, resurfacing, construction of retaining walls, traffic signal modernization and interconnection, installation of highway signs and lighting improvements located at the I-55/IL Route 53 interchange in Bolingbrook.**
2. The undersigned bidder will furnish all labor, material and equipment to complete the above described project in a good and workmanlike manner as provided in the contract documents provided by the Department of Transportation. This proposal will become part of the contract and the terms and conditions contained in the contract documents shall govern performance and payments.

RETURN WITH BID

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

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

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

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

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

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

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

Attach Cashier's Check or Certified Check Here

In the event that one proposal guaranty check is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guaranties which would be required for each individual proposal. If the guaranty check is placed in another proposal, state below where it may be found.

The proposal guaranty check will be found in the proposal for:

Item _____

Section No. _____

County _____

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

BD 354 (Rev. 11/2001)

RETURN WITH BID

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

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

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

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid	
		Dollars	Cents

7. **SCHEDULE OF PRICES.** The undersigned bidder submits herewith, in accordance with the rules and instructions, a schedule of prices for the items of work for which bids are sought. The unit prices bid are in U.S. dollars and cents, and all extensions and summations have been made. The bidder understands that the quantities appearing in the bid schedule are approximate and are provided for the purpose of obtaining a gross sum for the comparison of bids. If there is an error in the extension of the unit prices, the unit prices shall govern. Payment to the contractor awarded the contract will be made only for actual quantities of work performed and accepted or materials furnished according to the contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as provided elsewhere in the contract.
8. **CERTIFICATE OF AUTHORITY.** The undersigned bidder, if a business organized under the laws of another State, assures the Department that it will furnish a copy of its certificate of authority to do business in the State of Illinois with the return of the executed contract and bond. Failure to furnish the certificate within the time provided for execution of an awarded contract may be cause for cancellation of the award and forfeiture of the proposal guaranty to the State.

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 62389

State Job # - C-91-051-02
 PPS NBR - 1-75566-0200
 County Name - WILL - -
 Code - 197 - -
 District - 1 - -
 Section Number - 2002-022K

Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
A2007620	T-TAXODIUM DIS 2-1/2	EACH	8.000				
C2013024	S-VIBURN TRL CMP 2'	EACH	35.000				
K0029622	BROADLF WEED CON TURF	GALLON	1.500				
XX002856	RE-OPTIMIZE TR SIG SY	L SUM	1.000				
X0301023	CONFIRMATION BEACON	EACH	1.000				
X0301576	COAXIAL CABLE IN CON	FOOT	664.000				
X0301766	DRILL-GROUT #6 T-BAR	EACH	2,034.000				
X0320815	SLEEPER SLAB	FOOT	430.000				
X0322118	REM CON FLAR END SEC	EACH	5.000				
X0322300	ELCBL C 18 4C TW SH	FOOT	516.000				
X0322323	WEED CONTROL TEASEL	GALLON	1.000				
X0322440	DIG LOOP DET SEN U 2C	EACH	1.000				
X0322442	TONE EQ 3 FRE REC PRG	EACH	1.000				
X0322443	TONE EQ 3 FREQ TR PRG	EACH	1.000				
X0322696	MAST ARM STL ST LT 15	EACH	1.000				

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X0322925	ELCBL C TRACER 14 1C	FOOT	2,983.000				
X0323426	SED CONT DR ST INL CL	EACH	26.000				
X0323574	MAINTAIN LIGHTING SYS	CAL MO	12.000				
X0323670	PREFORM DETECT LOOP	FOOT	1,421.000				
X0323988	TEMP SOIL RETEN SYSTM	SQ FT	1,240.000				
X0324112	BARRIER BASE	FOOT	1,533.000				
X0324866	REM REIN SURV CAB	EACH	1.000				
X0324910	PREFORM INDUCT LOOP	FOOT	116.000				
X0324911	REPL DECAL W/NEW LM D	EACH	36.000				
X0324912	RADIO ANTENNA	EACH	1.000				
X0324913	GPS ANTENNA	EACH	1.000				
X0712400	TEMP PAVEMENT	SQ YD	442.000				
X4066450	BC SC SUPER "F" N105	TON	449.000				
X4066620	BCBC SUP IL-19.0 N105	TON	673.000				
X6370910	CONC BAR 1F 32HT	FOOT	76.000				

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X6370930	CONC BAR 2F 32HT	FOOT	916.000				
X7011015	TR C-PROT EXPRESSWAYS	L SUM	1.000				
X7013820	TR CONT SURVEIL EXPWY	CAL DA	270.000				
X7015050	PORT CHANGE MESS SIGN	CAL MO	24.000				
X7330105	OSS WALKWAY TY A	FOOT	89.000				
X8040100	ELECT CONN TO SIN STR	EACH	3.000				
X8050015	SERV INSTALL POLE MT	EACH	2.000				
X8160380	UD 3#2 #4G EPRRH1.25	FOOT	8,757.000				
X8210055	FLUOR LUM FOR SN LTNG	EACH	10.000				
X8410102	TEMP LIGHTING SYSTEM	L SUM	1.000				
X8440116	RELOC EX LT UNIT SPL	EACH	21.000				
X8710020	FOCC62.5/125 MM12SM12	FOOT	3,063.000				
X8730027	ELCBL C GROUND 6 1C	FOOT	3,655.000				
X8800020	SH LED 1F 3S MAM	EACH	22.000				
X8800035	SH LED 1F 3S BM	EACH	4.000				

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X8800045	SH LED 1F 5S MAM	EACH	2.000				
X8800060	SH LED 2F 3S BM	EACH	2.000				
X8805280	SH LED 2F 1-3 1-5 BM	EACH	2.000				
X8850102	INDUCTION LOOP	FOOT	67.000				
Z0000100	ABANDON EX CULVERT	EACH	1.000				
Z0001050	AGG SUBGRADE 12	SQ YD	15,429.000				
Z0018500	DRAINAGE STR CLEANED	EACH	8.000				
Z0030250	IMP ATTN TEMP NRD TL3	EACH	3.000				
Z0041700	PLUG EX STORM SEWERS	EACH	4.000				
Z0076600	TRAINEES	HOUR	1,000.000		0.800		800.000
20100700	TREE REMOV UNDER 6	IN DIA	25.000				
20101000	TEMPORARY FENCE	FOOT	2,287.000				
20101400	NITROGEN FERT NUTR	POUND	699.000				
20101500	PHOSPHORUS FERT NUTR	POUND	699.000				
20101600	POTASSIUM FERT NUTR	POUND	699.000				

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20101700	SUPPLE WATERING	UNIT	156.000				
20200100	EARTH EXCAVATION	CU YD	5,962.000				
20200300	EARTH EXC - EROS CONT	CU YD	100.000				
20201200	REM & DISP UNS MATL	CU YD	5,088.000				
20400800	FURNISHED EXCAV	CU YD	3,750.000				
20700220	POROUS GRAN EMBANK	CU YD	520.000				
20700420	POROUS GRAN EMB SUBGR	CU YD	231.000				
20800150	TRENCH BACKFILL	CU YD	2,259.000				
20900410	SAND BACKFILL	CU YD	44.000				
21101615	TOPSOIL F & P 4	SQ YD	7,874.000				
21101645	TOPSOIL F & P 12	SQ YD	1,553.000				
25000210	SEEDING CL 2A	ACRE	3.680				
25000750	MOWING	ACRE	3.210				
25000775	SELECT MOWING STAKES	EACH	12.000				
25003210	INTERSEED CL 2A	ACRE	0.230				

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25100105	MULCH METHOD 1	ACRE	0.230				
25100630	EROSION CONTR BLANKET	SQ YD	1,137.000				
25200100	SODDING	SQ YD	1,473.000				
25200110	SODDING SALT TOLERANT	SQ YD	17,636.000				
25300600	TRANSP SALV TREES	EACH	8.000				
28000250	TEMP EROS CONTR SEED	POUND	363.000				
28000300	TEMP DITCH CHECKS	EACH	10.000				
28000400	PERIMETER EROS BAR	FOOT	6,212.000				
28000500	INLET & PIPE PROTECT	EACH	26.000				
28000900	FENCE - EROS CONT	FOOT	5,217.000				
28001000	AGGREGATE - EROS CONT	TON	10.000				
31200100	STAB SUB-BASE 4	SQ YD	4,455.000				
35300500	PCC BSE CSE 10	SQ YD	5,343.000				
40600200	BIT MATLS PR CT	TON	3.050				
42000500	PCC PVT 10	SQ YD	2,659.000				

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42000501	PCC PVT 10 JOINTED	SQ YD	9,558.000				
42400100	PC CONC SIDEWALK 4	SQ FT	26.000				
44000100	PAVEMENT REM	SQ YD	5,291.000				
44000300	CURB REM	FOOT	105.000				
44000500	COMB CURB GUTTER REM	FOOT	5,354.000				
44002020	CONC MEDIAN SURF REM	SQ FT	14,963.000				
44002470	GUT INLET REM	EACH	11.000				
44002805	ISLAND REMOVAL	SQ FT	2,667.000				
44004250	PAVED SHLD REMOVAL	SQ YD	5,476.000				
44200126	PAVT PATCH T4 10	SQ YD	154.000				
48101620	AGGREGATE SHLDS B 10	SQ YD	305.000				
48202800	BIT SHLD SUPER 10	SQ YD	5,233.000				
50104400	CONC HDWL REM	EACH	2.000				
50104650	SLOPE WALL REMOV	SQ YD	319.000				
50200100	STRUCTURE EXCAVATION	CU YD	853.000				

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50300225	CONC STRUCT	CU YD	289.000				
50300300	PROTECTIVE COAT	SQ YD	322.000				
50300510	RUSTICATION FINISH	SQ FT	77.000				
50800105	REINFORCEMENT BARS	POUND	22,989.000				
51100300	SLOPE WALL 6	SQ YD	140.000				
54213669	PRC FLAR END SEC 24	EACH	1.000				
54213675	PRC FLAR END SEC 30	EACH	1.000				
54244405	FL INLT BX MED 542546	EACH	1.000				
54247130	GRATING-C FL END S 24	EACH	1.000				
550A0050	STORM SEW CL A 1 12	FOOT	773.000				
550A0090	STORM SEW CL A 1 18	FOOT	18.000				
550A0340	STORM SEW CL A 2 12	FOOT	313.000				
550A0360	STORM SEW CL A 2 15	FOOT	58.000				
550A0380	STORM SEW CL A 2 18	FOOT	13.000				
550A0430	STORM SEW CL A 2 30	FOOT	2,064.000				

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550A0500	STORM SEW CL A 2 60	FOOT	941.000				
55100500	STORM SEWER REM 12	FOOT	457.000				
55100700	STORM SEWER REM 15	FOOT	18.000				
55101200	STORM SEWER REM 24	FOOT	42.000				
55101400	STORM SEWER REM 30	FOOT	582.000				
55101900	STORM SEWER REM 48	FOOT	64.000				
60108200	PIPE UNDERDRAIN 6 SP	FOOT	52.000				
60108700	P UNDR PER COR S P 6	FOOT	889.000				
60200805	CB TA 4 DIA T8G	EACH	3.000				
60200905	CB TA 4 DIA T9F&G	EACH	3.000				
60201110	CB TA 4 DIA T11V F&G	EACH	1.000				
60201320	CB TA 4 DIA T21F&G	EACH	1.000				
60201340	CB TA 4 DIA T24F&G	EACH	15.000				
60208240	CB TC T24F&G	EACH	2.000				
60218400	MAN TA 4 DIA T1F CL	EACH	4.000				

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Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
60221100	MAN TA 5 DIA T1F CL	EACH	16.000				
60224446	MAN TA 7 DIA T1F CL	EACH	7.000				
60228600	MAN SPL T1F CL	EACH	1.000				
60236600	INLETS TA T9F&G	EACH	3.000				
60236825	INLETS TA T11V F&G	EACH	4.000				
60237420	INLETS TA T20F&G	EACH	1.000				
60237470	INLETS TA T24F&G	EACH	7.000				
60247180	DR STR T3 W/2 T21F&G	EACH	3.000				
60250200	CB ADJUST	EACH	8.000				
60250500	CB ADJ NEW T1F CL	EACH	4.000				
60255500	MAN ADJUST	EACH	8.000				
60265700	VV ADJUST	EACH	11.000				
60267155	FL INL BOX MED RECON	EACH	1.000				
60500040	REMOV MANHOLES	EACH	4.000				
60500050	REMOV CATCH BAS	EACH	15.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 62389

State Job # - C-91-051-02
 PPS NBR - 1-75566-0200
 County Name - WILL - -
 Code - 197 - -
 District - 1 - -
 Section Number - 2002-022K

Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
60600095	CLASS SI CONC OUTLET	CU YD	11.000				
60605000	COMB CC&G TB6.24	FOOT	3,490.000				
60606400	COMB CC&G TB9.12 VWGF	FOOT	1,614.000				
60614600	PAVED DITCH SPEC	FOOT	53.000				
60615400	PAVED DITCH TA-15	FOOT	186.000				
60618310	CONC MEDIAN SURF 4 SP	SQ FT	1,466.000				
63000000	SPBGR TY A	FOOT	680.000				
63100085	TRAF BAR TERM T6	EACH	5.000				
63100105	TRAF BAR TERM T10	EACH	1.000				
63100167	TR BAR TRM T1 SPL TAN	EACH	1.000				
63200310	GUARDRAIL REMOV	FOOT	870.000				
63700805	CONC BAR TRANS	FOOT	406.000				
64200105	SHOULDER RUMBLE STRIP	FOOT	228.000				
66400525	CH LK FENCE 4 ATT STR	FOOT	1,936.000				
66410300	CH LK FENCE REMOV	FOOT	995.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
66900200	NON SPL WASTE DISPOSL	CU YD	893.000				
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000				
66900530	SOIL DISPOSAL ANALY	EACH	1.000				
67000400	ENGR FIELD OFFICE A	CAL MO	12.000				
67100100	MOBILIZATION	L SUM	1.000				
70101800	TRAF CONT & PROT SPL	L SUM	1.000				
70300510	PAVT MARK TAPE T3 L&S	SQ FT	1,051.000				
70300520	PAVT MARK TAPE T3 4	FOOT	27,409.000				
70300530	PAVT MARK TAPE T3 5	FOOT	3,970.000				
70300540	PAVT MARK TAPE T3 6	FOOT	2,060.000				
70300550	PAVT MARK TAPE T3 8	FOOT	1,609.000				
70300560	PAVT MARK TAPE T3 12	FOOT	1,560.000				
70300570	PAVT MARK TAPE T3 24	FOOT	207.000				
70301000	WORK ZONE PAVT MK REM	SQ FT	37,866.000				
70400100	TEMP CONC BARRIER	FOOT	6,144.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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 Code - 197 - -
 District - 1 - -
 Section Number - 2002-022K

Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
70400200	REL TEMP CONC BARRIER	FOOT	4,132.000				
72000100	SIGN PANEL T1	SQ FT	50.000				
72000300	SIGN PANEL T3	SQ FT	1,104.000				
72400330	REMOV SIGN PANEL T3	SQ FT	672.000				
72400730	RELOC SIGN PANEL T3	SQ FT	460.000				
72700100	STR STL SIN SUP BA	POUND	3,046.000				
73000100	WOOD SIN SUPPORT	FOOT	86.000				
73300100	OVHD SIN STR-SPAN T1A	FOOT	80.000				
73302210	OSS CANT 3CA 3-0X7-0	FOOT	70.000				
73400100	CONC FOUNDATION	CU YD	45.000				
73400200	DRILL SHAFT CONC FDN	CU YD	33.600				
73600100	REMOV OH SIN STR-SPAN	EACH	1.000				
73600200	REMOV OH SIN STR-CANT	EACH	1.000				
73700100	REM GR-MT SIN SUPPORT	EACH	8.000				
73700200	REM CONC FDN-GR MT	EACH	8.000				

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Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
73700300	REM CONC FDN-OVHD	EACH	3.000				
78008200	POLYUREA PM T1 LTR-SY	SQ FT	1,302.000				
78008210	POLYUREA PM T1 LN 4	FOOT	12,751.000				
78008220	POLYUREA PM T1 LN 5	FOOT	5,133.000				
78008230	POLYUREA PM T1 LN 6	FOOT	4,140.000				
78008240	POLYUREA PM T1 LN 8	FOOT	6,475.000				
78008250	POLYUREA PM T1 LN 12	FOOT	1,145.000				
78008270	POLYUREA PM T1 LN 24	FOOT	396.000				
78100100	RAISED REFL PAVT MKR	EACH	398.000				
78200100	MONODIR PRIS BAR REFL	EACH	139.000				
78300200	RAISED REF PVT MK REM	EACH	284.000				
80700140	GROUND ROD 5/8 X 10	EACH	31.000				
81000600	CON T 2 GALVS	FOOT	2,423.000				
81000700	CON T 2 1/2 GALVS	FOOT	593.000				
81001000	CON T 4 GALVS	FOOT	118.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
81016400	CON T 1 1/4 HDP COIL	FOOT	65.000				
81016600	CON T 2 HDP COIL	FOOT	42.000				
81018500	CON P 2 GALVS	FOOT	694.000				
81018900	CON P 4 GALVS	FOOT	1,790.000				
81100300	CON AT ST 1 GALVS	FOOT	985.000				
81100800	CON AT ST 3 GALVS	FOOT	12.000				
81200250	CON EMB STR 3 PVC	FOOT	1,455.000				
81300100	JUN BX SS AS 4X4X3	EACH	16.000				
81300320	JUN BX SS AS 8X8X6	EACH	8.000				
81301200	JUN BX SS ES 12X10X6	EACH	3.000				
81400100	HANDHOLE	EACH	17.000				
81400200	HD HANDHOLE	EACH	7.000				
81400300	DBL HANDHOLE	EACH	2.000				
81500200	TR & BKFIL F ELECT WK	FOOT	9,507.000				
81700110	EC C EPR RHW 1C 10	FOOT	3,300.000				

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Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
82102400	LUM SV HOR MT 400W	EACH	18.000				
82107110	UP LUM 70W HPS SS HS	EACH	16.000				
83050810	LT P A 47.5MH 15MA	EACH	16.000				
83600200	LIGHT POLE FDN 24D	FOOT	252.000				
83800205	BKWY DEV TR B 15BC	EACH	10.000				
84200700	LIGHTING FDN REMOV	EACH	21.000				
85000200	MAIN EX TR SIG INSTAL	EACH	2.000				
85700305	FAC T5 CAB SPL	EACH	2.000				
86400100	TRANSCEIVER - FIB OPT	EACH	2.000				
87301225	ELCBL C SIGNAL 14 3C	FOOT	1,575.000				
87301245	ELCBL C SIGNAL 14 5C	FOOT	8,840.000				
87301255	ELCBL C SIGNAL 14 7C	FOOT	1,085.000				
87301305	ELCBL C LEAD 14 1PR	FOOT	8,205.000				
87301805	ELCBL C SERV 6 2C	FOOT	700.000				
87502480	TS POST GALVS 14	EACH	4.000				

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Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
87700210	S MAA & P 34	EACH	1.000				
87700220	S MAA & P 36	EACH	1.000				
87700240	S MAA & P 40	EACH	1.000				
87700250	S MAA & P 42	EACH	2.000				
87700280	S MAA & P 48	EACH	3.000				
87700300	S MAA & P 52	EACH	1.000				
87702930	STL COMB MAA&P 40	EACH	1.000				
87800100	CONC FDN TY A	FOOT	16.000				
87800200	CONC FDN TY D	FOOT	8.000				
87800400	CONC FDN TY E 30D	FOOT	30.000				
87800415	CONC FDN TY E 36D	FOOT	104.000				
87900200	DRILL EX HANDHOLE	EACH	2.000				
88200210	TS BACKPLATE LOU ALUM	EACH	24.000				
88500100	INDUCTIVE LOOP DETECT	EACH	26.000				
88600100	DET LOOP T1	FOOT	1,045.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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Project Number
 IM-055-6/214/269

Route
 FAI 55

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
89000100	TEMP TR SIG INSTALL	EACH	2.000				
89501400	REL EM VEH PR SYS D U	EACH	4.000				
89501410	REL EM VEH PR SYS P U	EACH	2.000				
89502300	REM ELCBL FR CON	FOOT	2,947.000				
89502350	REM & RE ELCBL FR CON	FOOT	334.000				
89502375	REMOV EX TS EQUIP	EACH	2.000				
89502380	REMOV EX HANDHOLE	EACH	24.000				
89502385	REMOV EX CONC FDN	EACH	16.000				

CONTRACT NUMBER

62389

THIS IS THE TOTAL BID

\$ _____

NOTES:

1. Each PAY ITEM should have a UNIT PRICE and a TOTAL PRICE.
2. The UNIT PRICE shall govern if no TOTAL PRICE is shown or if there is a discrepancy between the product of the UNIT PRICE multiplied by the QUANTITY.
3. If a UNIT PRICE is omitted, the TOTAL PRICE will be divided by the QUANTITY in order to establish a UNIT PRICE.
4. A bid may be declared UNACCEPTABLE if neither a unit price nor a total price is shown.

RETURN WITH BID

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

I. GENERAL

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

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

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

II. ASSURANCES

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

B. Felons

1. The Illinois Procurement Code provides:

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

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

C. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

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

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

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

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

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

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

RETURN WITH BID

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

D. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

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

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

E. Inducements

1. The Illinois Procurement Code provides:

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

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

F. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

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

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

G. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

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

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

H. Confidentiality

1. The Illinois Procurement Code provides:

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

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

RETURN WITH BID

I. Insider Information

1. The Illinois Procurement Act provides:

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

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

III. CERTIFICATIONS

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

B. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

C. Educational Loan

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

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

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

D. Bid-Rigging/Bid Rotating

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

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

RETURN WITH BID

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

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

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

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

E. International Anti-Boycott

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

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

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

F. Drug Free Workplace

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

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

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

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

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

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

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

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

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

G. Debt Delinquency

1. The Illinois Procurement Code provides:

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

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

H. Sarbanes-Oxley Act of 2002

1. The Illinois Procurement Code provides:

Section 50-60(c).

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

I. ADDENDA

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

J. Section 42 of the Environmental Protection Act

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

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

In accordance with the provisions of Section 30-22 (6) of the Illinois Procurement Code, the bidder certifies that it is a participant, either as an individual or as part of a group program, in the approved apprenticeship and training programs applicable to each type of work or craft that the bidder will perform with its own forces. The bidder further certifies for work that will be performed by subcontract that each of its subcontractors submitted for approval either (a) is, at the time of such bid, participating in an approved, applicable apprenticeship and training program; or (b) will, prior to commencement of performance of work pursuant to this contract, begin participation in an approved apprenticeship and training program applicable to the work of the subcontract. The Department, at any time before or after award, may require the production of a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and each of its subcontractors. Unless otherwise directed in writing by the Department, 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 may be indicated as to be subcontracted.

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.

IV. DISCLOSURES

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

B. Financial Interests and Conflicts of Interest

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

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

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

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

C. Disclosure Form Instructions

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

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

CERTIFICATION STATEMENT

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

(Bidding Company)

Name of Authorized Representative (type or print)

Title of Authorized Representative (type or print)

Signature of Authorized Representative

Date

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

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a bidder is not subject to Federal 10K reporting, the bidder must determine if any individuals are required by law to complete a financial disclosure form. To do this, the bidder should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on the second page of Form A must be signed and dated by a person that is authorized to execute contracts for the bidding company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO ___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than \$90,420.00? YES ___ NO ___
3. Does anyone in your organization receive more than \$90,420.00 of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES ___ NO ___
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than \$90,420.00? YES ___ NO ___
(Note: Only one set of forms needs to be completed per person per bid even if a specific individual would require a yes answer to more than one question.)

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

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

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

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

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

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

D. Bidders Submitting More Than One Bid

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

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

RETURN WITH BID/OFFER

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A Financial Information & Potential Conflicts of Interest Disclosure

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

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

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the BIDDER (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than \$90,420.00 (60% of the Governor's salary as of 7/1/01). (Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)

FOR INDIVIDUAL (type or print information)

NAME:

ADDRESS

Type of ownership/distributable income share:

stock sole proprietorship Partnership other: (explain on separate sheet):
% or \$ value of ownership/distributable income share:

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

(a) State employment, currently or in the previous 3 years, including contractual employment of services.

Yes ___ No ___

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

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

RETURN WITH BID/OFFER

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

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

Yes ___ No ___

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

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

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government. Yes ___ No ___

RETURN WITH BID/OFFER

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No ___

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes ___ No ___

APPLICABLE STATEMENT

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

Completed by: _____
Name of Authorized Representative (type or print)

Completed by: _____
Title of Authorized Representative (type or print)

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

NOT APPLICABLE STATEMENT

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

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

Name of Authorized Representative (type or print)

Title of Authorized Representative (type or print)

Signature of Authorized Representative Date _____

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B Other Contracts & Procurement Related Information Disclosure

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

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

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

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

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

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

THE FOLLOWING STATEMENT MUST BE SIGNED

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

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

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

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

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



**Contract No. 62389
WILL County
Section 2002-022K
Project IM-55-6(214)269
Route FAI 55
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
APPRENTICES							
ON THE JOB TRAINEES							

FOR DEPARTMENT USE ONLY

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

RETURN WITH BID

**Contract No. 62389
WILL County
Section 2002-022K
Project IM-55-6(214)269
Route FAI 55
District 1 Construction Funds**

PART II. WORKFORCE PROJECTION - continued

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

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

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

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

PART III. AFFIRMATIVE ACTION PLAN

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

Company _____ Telephone Number _____

Address _____

NOTICE REGARDING SIGNATURE

The Bidder's signature on the Proposal Signature Sheet will constitute the signing of this form. The following signature block needs to be completed only if revisions are required.

Signature: _____ Title: _____ Date: _____

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

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

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

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

RETURN WITH BID

ADDITIONAL FEDERAL REQUIREMENTS

In addition to the Required Contract Provisions for Federal-Aid Construction Contracts (FHWA 1273), all bidders make the following certifications.

- A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.
- B. CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY:
1. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause. YES _____ NO _____
 2. If answer to #1 is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations? YES _____ NO _____

RETURN WITH BID

**Contract No. 62389
WILL County
Section 2002-022K
Project IM-55-6(214)269
Route FAI 55
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) Corporate Name _____
By _____
Signature of Authorized Representative _____
Typed or printed name and title of Authorized Representative _____

(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW) 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)
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 below the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the State of Illinois under the conditions of the bid bond as shown above.

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

PROPOSAL ENVELOPE



PROPOSALS

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

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

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

Engineer of Design and Environment - Room 323
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. 62389
WILL County
Section 2002-022K
Project IM-55-6(214)269
Route FAI 55
District 1 Construction Funds**



Illinois Department of Transportation



NOTICE TO BIDDERS

- 1. TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway, in Springfield, Illinois until 10:00 o'clock a.m., March 11, 2005. All bids will be gathered, sorted, publicly opened and read in the auditorium at the Department of Transportation's Harry R. Hanley Building shortly after the 10:00 a.m. cut off time.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 62389
WILL County
Section 2002-022K
Project IM-55-6(214)269
Route FAI 55
District 1 Construction Funds**

1.30 miles of interchange ramp improvements consisting of ramp pavement removal, widening, resurfacing, construction of retaining walls, traffic signal modernization and interconnection, installation of highway signs and lighting improvements located at the I-55/IL Route 53 interchange in Bolingbrook.

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Timothy W. Martin, Secretary

BD 351 (Rev. 01/2003)

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted March 1, 2005

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

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

SUPPLEMENTAL SPECIFICATIONS

<u>Std. Spec. Sec.</u>	<u>Page No.</u>
101	1
105	2
205	3
251	4
281	5
282	8
285	10
311	14
351	15
440	16
442	17
449	18
481	19
501	20
503	21
505	22
506	25
508	26
512	27
540	28
589	30
602	31
603	32
610	33
665	34
669	35
671	36
702	37
1003	38
1004	39
1005	42
1006	46
1007	49
1012	50
1020	51
1021	58
1022	59
1024	61
1041	63
1043	64
1056	66
1059	67
1060	68
1069	69
1070	70
1077	72
1080	73
1081	76
1083	77
1094	78
1103	79

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 X State Required Contract Provisions All Federal-aid Construction Contracts (Eff. 2-1-69) (Rev. 10-1-83)	80
2 X Subletting of Contracts (Federal-aid Contracts) (Eff. 1-1-88) (Rev. 5-1-93).....	82
3 X EEO (Eff. 7-21-78) (Rev. 11-18-80).....	83
4 Specific Equal Employment Opportunity Responsibilities NonFederal-aid Contracts (Eff. 3-20-69) (Rev. 1-1-94).....	94
5 Required Provisions - State Contracts (Eff. 4-1-65) (Rev. 4-1-93).....	100
6 Reserved	105
7 X Asphalt Quantities and Cost Reviews (Eff. 7-1-88).....	106
8 X National Pollutant Discharge Elimination System Permit (Eff. 7-1-94) (Rev. 1-1-03).....	107
9 Haul Road Stream Crossings, Other Temporary Stream Crossings and In-Stream Work Pads (Eff. 1-2-92) (Rev. 1-1-98)	108
10 Construction Layout Stakes Except for Bridges (Eff. 1-1-99) (Rev. 1-1-02).....	109
11 X Construction Layout Stakes (Eff. 5-1-93) (Rev. 1-1-02).....	112
12 Use of Geotextile Fabric for Railroad Crossing (Eff. 1-1-95) (Rev. 1-1-97).....	115
13 Asphaltic Emulsion Slurry Seal and Fibrated Asphaltic Emulsion Slurry Seal (Eff. 8-1-89) (Rev. 2-1-97)	117
14 Bituminous Surface Treatments Half-Smart (Eff. 7-1-93) (Rev. 1-1-97)	123
15 X Quality Control/Quality Assurance of Bituminous Concrete Mixtures (Eff. 1-1-00) (Rev. 3-1-05)	129
16 Subsealing of Concrete Pavements (Eff. 11-1-84) (Rev. 2-1-95).....	148
17 Bituminous Surface Removal (Cold Milling) (Eff. 11-1-87) (Rev. 10-15-97).....	152
18 X Resurfacing of Milled Surfaces (Eff. 10-1-95).....	154
19 PCC Partial Depth Bituminous Patching (Eff. 1-1-98).....	155
20 Patching with Bituminous Overlay Removal (Eff. 10-1-95) (Rev. 7-1-99)	157
21 Reserved	159
22 Protective Shield System (Eff. 4-1-95) (Rev. 1-1-03).....	160
23 Polymer Concrete (Eff. 8-1-95) (Rev. 3-1-05).....	162
24 Controlled Low-Strength Material (CLSM) (Eff. 1-1-90) (Rev. 3-1-05)	164
25 X Pipe Underdrains (Eff. 9-9-87) (Rev. 1-1-98).....	169
26 X Guardrail and Barrier Wall Delineation (Eff. 12-15-93) (Rev. 1-1-97)	170
27 Bicycle Racks (Eff. 4-1-94) (Rev. 1-1-97)	175
28 Reserved	177
29 Reserved	178
30 Reserved	179
31 X Night Time Inspection of Roadway Lighting (Eff. 5-1-96).....	180
32 Reserved	181
33 English Substitution of Metric Bolts (Eff. 7-1-96).....	182
34 English Substitution of Metric Reinforcement Bars (Eff. 4-1-96) (Rev. 1-1-03)	183
35 Polymer Modified Emulsified Asphalt (Eff. 5-15-89) (Rev. 1-1-04).....	185
36 Corrosion Inhibitor (Eff. 3-1-80) (Rev. 7-1-99)	187
37 Quality Control of Concrete Mixtures at the Plant-Single A (Eff. 8-1-00) (Rev. 1-1-04)	188
38 Quality Control of Concrete Mixtures at the Plant-Double A (Eff. 8-1-00) (Rev. 1-1-04)	194
39 X Quality Control/Quality Assurance of Concrete Mixtures (Eff. 4-1-92) (Rev. 3-1-05)	202
40 X Traffic Barrier Terminal Type 1, Special (Eff. 8-1-94) (Rev. 1-1-03)	215
41 Reserved	216
42 X Segregation Control of Bituminous Concrete (Eff. 7-15-97).....	217
43 Reserved	220

Table of Contents

LOCATION OF PROJECT 1
 DESCRIPTION OF PROJECT 1
 MAINTENANCE OF ROADWAYS 1
 STATUS OF UTILITIES TO BE ADJUSTED 2
 START OF WORK 2
 COMPLETION DATE PLUS GUARANTEED WORKING DAYS 2
 RESTRICTION ON GUARANTEED WORKING DAYS 3
 REMOVAL AND DISPOSAL OF UNSUITABLE MATERIALS 3
 SELECTIVE CLEARING 3
 CLEARING, TREE REMOVAL AND PROTECTION, CARE AND REPAIR OF EXISTING PLANT
 MATERIAL 4
 TREE PROTECTION 4
 COMPOST FURNISH AND PLACE 5
 SEEDING, CLASS 4B MODIFIED 5
 MOWING 6
 GENERAL REQUIREMENTS FOR WEED CONTROL SPRAYING 7
 WEED CONTROL, TEASEL 9
 BROADLEAF WEED CONTROL IN TURF 10
 SUPPLEMENTAL WATERING 12
 SELECTIVE MOWING STAKES 13
 TRANSPLANTED SALVAGED TREES 13
 SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING 14
 TEMPORARY DITCH CHECKS 15
 POROUS GRANULAR EMBANKMENT, SUBGRADE 15
 AGGREGATE SUBGRADE, 300MM (12") 16
 RECLAIMED ASPHALT PAVEMENT FOR NON-POROUS EMBANKMENT AND BACKFILL 18
 RECLAIMED ASPHALT PAVEMENT (RAP) FOR TEMPORARY ACCESS ENTRANCES AND/OR
 AGGREGATE SHOULDERS, TYPE B 18
 AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS 19
 STRUCTURE EXCAVATION 20
 SLEEPER SLAB 21
 RUSTICATION FINISH FOR RETAINING WALLS 21
 TEMPORARY SOIL RETENTION SYSTEM 23
 TEXTURIZED CONCRETE WALL 24
 BACKFILLING STORM SEWER UNDER ROADWAY 24
 STORM SEWER ADJACENT TO OR CROSSING WATER MAIN 25

CLEANING EXISTING DRAINAGE STRUCTURES 25
 CONCRETE MEDIAN SURFACE, 4" (MODIFIED) 26
 CHAIN LINK FENCE AND GATE REMOVAL..... 26
 CHAIN LINK FENCE, 4 FOOT (1.2 M) ATTACHED TO STRUCTURE 27
 NON-SPECIAL WASTE WORKING CONDITIONS..... 27
 TRAFFIC CONTROL PLAN 28
 WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT) 30
 TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)..... 30
 KEEPING THE EXPRESSWAY OPEN TO TRAFFIC: 33
 FAILURE TO OPEN TRAFFIC LANES TO TRAFFIC: 35
 TRAFFIC CONTROL SURVEILLANCE (EXPRESSWAYS)..... 35
 TEMPORARY INFORMATION SIGNING 36
 CHANGEABLE MESSAGE SIGNS 37
 TRAFFIC CONTROL FOR WORK ZONE AREAS 37
 GENERAL ELECTRICAL REQUIREMENTS..... 38
 GROUND ROD 42
 UNDERGROUND RACEWAYS..... 43
 EXPOSED RACEWAYS 44
 TRENCH AND BACKFILL FOR ELECTRICAL WORK 47
 WIRE AND CABLE 47
 LUMINAIRE..... 49
 LAMPS 54
 LIGHT POLES..... 54
 STAINLESS STEEL JUNCTION BOX..... 55
 UNIT DUCT..... 55
 MAINTENANCE OF LIGHTING SYSTEM..... 56
 PROTECTION AND MAINTENANCE OF EXISTING UNDERPASS LUMINAIRES 59
 MAST ARM, STEEL, STREET LIGHTING, 15 FT..... 61
 RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM,DETECTOR UNIT 61
 RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT 62
 FULL-ACTUATED CONTROLLER AND CABINET (SPECIAL)..... 62
 REPLACE EXISTING DECAL WITH NEW LUMINAIRE NUMBERING DECAL..... 63
 ELECTRIC CONNECTION TO SIGN STRUCTURE..... 63
 TRAFFIC SIGNAL SPECIFICATIONS..... 64
 MAST ARM SIGN PANELS. 64
 INSPECTION OF ELECTRICAL SYSTEMS..... 64
 DAMAGE TO TRAFFIC SIGNAL SYSTEM. 64
 RESTORATION OF WORK AREA. 65

TRAFFIC SIGNAL INSPECTION (TURN-ON)..... 67
 LOCATING UNDERGROUND FACILITIES..... 68
 ELECTRIC SERVICE INSTALLATION..... 69
 GROUNDING OF TRAFFIC SIGNAL SYSTEMS..... 71
 HANDHOLES..... 72
 FIBER OPTIC TRACER CABLE..... 72
 GROUNDING CABLE..... 73
 RAILROAD INTERCONNECT CABLE..... 73
 MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION..... 74
 TRAFFIC ACTUATED CONTROLLER..... 75
 MASTER CONTROLLER..... 75
 FIBER OPTIC CABLE..... 77
 CONCRETE FOUNDATIONS..... 77
 DETECTOR LOOP..... 78
 EMERGENCY VEHICLE PRIORITY SYSTEM..... 80
 TEMPORARY TRAFFIC SIGNAL INSTALLATION..... 80
 REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT..... 82
 SIGNAL HEAD, BACKPLATE..... 86
 INDUCTIVE LOOP DETECTOR..... 86
 ILLUMINATED SIGN, LIGHT EMITTING DIODE..... 86
 GROUNDING EXISTING HANDHOLE FRAME AND COVER..... 87
 RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM..... 88
 UNIT DUCT..... 89
 SIGNAL HEAD, LIGHT EMITTING DIODE..... 89
 TRAFFIC SURVEILLANCE..... 97
 TRAFFIC SURVEILLANCE. - GENERAL..... 97
 INDUCTION LOOP..... 103
 PREFORMED INDUCTION LOOP EMBEDDED IN NEW CONCRETE PAVEMENT..... 108
 GALVANIZED STEEL CONDUIT..... 112
 POLYETHYLENE DUCT..... 117
 HANDHOLE..... 120
 TRENCH AND BACKFILL..... 122
 TONE EQUIPMENT - PROGRAMMABLE..... 124
 TONE EQUIPMENT - 3 FREQUENCY PROGRAMMABLE RECEIVER..... 125
 TONE EQUIPMENT - 3 FREQUENCY PROGRAMMABLE TRANSMITTER..... 126
 CONTROL OF TRAFFIC SURVEILLANCE MATERIALS..... 127
 REMOVE AND REINSTALL SURVEILLANCE CABINET..... 129
 DIGITAL LOOP DETECTOR SENSOR UNIT..... 130

OVERHEAD SIGN WALKWAY GRATINGS.....	133
FLUORESCENT LUMINAIRE FOR SIGN LIGHTING.....	133
TEMPORARY LIGHTING SYSTEM.....	135
BITUMINOUS BASE COURSE / WIDENING SUPERPAVE.....	136
BITUMINOUS CONCRETE SURFACE COURSE (BDE).....	141
BITUMINOUS EQUIPMENT, SPREADING AND FINISHING MACHINE (BDE).....	142
BUTT JOINTS (BDE).....	142
COARSE AGGREGATE FOR TRENCH BACKFILL, BACKFILL AND BEDDING (BDE).....	143
CONCRETE ADMIXTURES (BDE).....	149
CONCRETE BARRIER (BDE).....	153
CURING AND PROTECTION OF CONCRETE CONSTRUCTION (BDE).....	155
DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE).....	162
EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE).....	169
EXPANSION JOINTS (BDE).....	169
FLAGGER VESTS (BDE).....	169
FREEZE-THAW RATING (BDE).....	170
FURNISHED EXCAVATION (BDE).....	170
HAND VIBRATOR (BDE).....	171
IMPACT ATTENUATORS, TEMPORARY (BDE).....	171
INLET FILTERS (BDE).....	173
MINIMUM LANE WIDTH WITH LANE CLOSURE (BDE).....	175
MULCHING SEEDED AREAS (BDE).....	175
MULTILANE PAVEMENT PATCHING (BDE).....	176
NOTCHED WEDGE LONGITUDINAL JOINT (BDE).....	176
PARTIAL PAYMENTS (BDE).....	177
PAVEMENT AND SHOULDER RESURFACING (BDE).....	178
PAVEMENT THICKNESS DETERMINATION FOR PAYMENT (BDE).....	179
PAYMENTS TO SUBCONTRACTORS (BDE).....	186
PERSONAL PROTECTIVE EQUIPMENT (BDE).....	187
PLASTIC BLOCKOUTS FOR GUARDRAIL (BDE).....	187
POLYUREA PAVEMENT MARKING (BDE).....	187
PORTABLE CHANGEABLE MESSAGE SIGNS (BDE).....	193
PORTLAND CEMENT (BDE).....	194
PORTLAND CEMENT CONCRETE PATCHING (BDE).....	194
PRECAST CONCRETE PRODUCTS (BDE).....	197
PREFORMED RECYCLED RUBBER JOINT FILLER (BDE).....	198
RAP FOR USE IN BITUMINOUS CONCRETE MIXTURES (BDE).....	199
SEEDING AND SODDING (BDE).....	202

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)..... 204
SHOULDER RUMBLE STRIPS (BDE) 206
SHOULDER STABILIZATION AT GUARDRAIL (BDE)..... 207
STABILIZED SUBBASE AND BITUMINOUS SHOULDERS SUPERPAVE (BDE)..... 207
SUBGRADE PREPARATION (BDE) 213
SUPERPAVE BITUMINOUS CONCRETE MIXTURES (BDE)..... 213
SURFACE TESTING OF PAVEMENTS (BDE) 219
TEMPORARY CONCRETE BARRIER (BDE) 225
TRAFFIC BARRIER TERMINALS (BDE) 227
TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)..... 228
TRAINING SPECIAL PROVISIONS 229
TRANSIENT VOLTAGE SURGE SUPPRESSION (BDE)..... 231
TRUCK BED RELEASE AGENT (BDE) 232
UNDERDRAIN OPERATIONS (BDE)..... 233
WEIGHT CONTROL DEFICIENCY DEDUCTION..... 233
WORK ZONE PUBLIC INFORMATION SIGNS (BDE) 234
WORK ZONE SPEED LIMIT SIGNS (BDE) 235
WORK ZONE TRAFFIC CONTROL DEVICES (BDE) 235
STEEL COST ADJUSTMENT (BDE)..... 237

STATE OF ILLINOIS
SPECIAL PROVISIONS

The following Special Provisions supplement the Standard Specifications for Road and Bridge Construction, adopted January 1, 2002, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAI 55, Section 2002-022 K, Project IM-055-6(214)269 County: Will and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

This project begins on a point on the centerline of Interstate 55 approximately 3,911 feet northeast of IL 53 in the Village of Bolingbrook in Will County and extends in a southwesterly direction for a distance of approximately 3,596 feet. The improvement to IL 53 begins on a point on the centerline of IL 53 approximately 620 feet north of the centerline of Interstate 55 and extends in a southerly direction for an approximate distance of 1,276 feet.

DESCRIPTION OF PROJECT

This is a roadway widening project and the work to be performed under this contract consists of earth excavation, ramp reconstruction, pavement widening, pavement resurfacing, installation of storm sewers and drainage structures, retaining wall construction, traffic signal modernization and interconnection, installation of highway signs and sign structures, lighting improvements, traffic surveillance replacement, placement of pavement marking and all incidental and collateral work necessary to complete the project as shown on the plans and as described herein.

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 of Relocation or Adjustments</u>	
Illinois Water	American	Watermain relocation	Ramp B, Sta 218+00 to Sta 228+00	11/1/04	4/1/05
Illinois Water	American	Sewer protection under II Rte 53	Rte 53	TBD	

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.

START OF WORK

The Contractor will not be allowed to proceed with any operations on Interstate 55 and IL 53 which may require overnight lane closures prior to April 29, 2005. Daytime lane and shoulder closures, on IL Route 53 only, can be allowed with the written permission from the District's Bureau of Traffic.

COMPLETION DATE PLUS GUARANTEED WORKING DAYS

The Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on September 30, 2005, 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.

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.

RESTRICTION ON GUARANTEED WORKING DAYS

Effective: January 21, 2003

All temporary lane closures 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.

REMOVAL AND DISPOSAL OF UNSUITABLE MATERIALS

This work must consist of removing and disposing of unsuitable materials encountered during construction. This work will include but not be limited to the removal and disposal of the top 12 in. of topsoil encountered within the construction limits of this contract as shown on the plans or directed by the engineer.

This work must be performed, measured and paid for in accordance with Article 202 of the Standard Specification.

SELECTIVE CLEARING

Description: This work shall consist of extensive removal and disposal of shrubs, brush, debris (including rocks, bottles, etc.) and selected trees up to six (6) inches (150 mm) in diameter. All trees and shrubs to be saved shall be carefully protected as provided by Article 201.05 of the Standard Specifications. Locations for Selective Clearing and vegetation to be cleared or saved shall be as designated by the Engineer.

The undesirable trees and brush (Siberian Elm, European Buckhorn, Mulberry, etc.) shall be cut flush with the ground and all stubs or stumps shall be treated with a resprout herbicide approved by the Engineer to prevent regrowth from the stumps. Branches on remaining trees shall be pruned off up to 6 feet (2 meters) from the ground. Trees of Tree of Heaven shall not be cut off as specified above, but shall be pulled or grubbed in such a manner as to insure complete removal.

All cleared areas shall be graded, trimmed, smoothed, and finished uniformly to the satisfaction of the Engineer with equipment approved by the Engineer. Disposal of material shall be done in accordance with Article 202.03.

Method of Measurement: Selective Clearing will be measured in units of 1,000 square feet (90 square meters). Areas not meeting the satisfaction of the Engineer shall not be measured for payment. Plan quantities are estimates only. Actual quantities will be measured in place. Agreement to plan quantities will not be allowed.

Basis of Payment: This work will be paid for at the contract unit price per unit for SELECTIVE CLEARING. Payment for Selective Clearing shall include the cost of all minor grading, debris removal and disposal, trimming, pruning, smoothing, finishing, labor, materials, tools and equipment required to complete the work as specified herein and to the satisfaction of the Engineer.

CLEARING, TREE REMOVAL AND PROTECTION, CARE AND REPAIR OF EXISTING PLANT MATERIAL

Revise Section 201.01 (a) to read:

(a) Clearing. Clearing shall consist of the removal and disposal of all obstructions such as fences, walls, foundations, buildings, accumulations of rubbish of whatever nature and existing structures, the removal of which is not otherwise provided for in Article 501.05; all logs, shrubs, bushes, grass, weeds, other vegetation and stumps.

TREE PROTECTION

Description: This work shall consist of protecting existing trees as specified in Section 201 of the Standard Specifications with the following revisions:

Add the following to Article 201.05, Protection of Existing Plant Material:

“Work under these items will include construction and maintenance of temporary fencing to protect existing plantings, construction and maintenance of tree trunk protection.”

Delete sentences 2 and 3 of Article 201.05, Protection of Existing Plant Material, and substitute the following:

“No parking or maneuvering of machinery, stockpiling of materials or any other use will be allowed upon unpaved areas within 10 feet (3 m) of the root zone (the drip line) of trees or plants designated to be protected.”

“The Contractor will stake or otherwise mark these protection limits for approval by the Engineer prior to erecting the fence.”

Add the following to Article 201.10 (c) (1), Method of Measurement:

“Temporary Fencing shall include furnishing, installing, maintaining and removing this item. Tree Trunk Protection shall include furnishing, installing, maintaining and removing this item.”

COMPOST FURNISH AND PLACE

Description: This work shall consist of furnishing, transporting, and spreading compost to the depth specified according to Section 2 11 of the Standard Specifications in areas as shown in the plans or as directed by the Engineer.

Method: All areas to receive compost shall be graded, smoothed and finished uniformly to the satisfaction of the Engineer with equipment approved by the Engineer prior to placement.

The contractor shall remove all litter (including plastic bags, bottles, rocks, etc.) and plant debris before placing compost. Disposal of materials shall be done in accordance with Article 202.03.

All irregularities or depressions in the surface due to weathering or other causes shall be filled or smoothed out before the compost is placed.

The Engineer will verify that the proper compost depth has been applied. After verification of proper depth, the Contractor shall completely incorporate the placed compost into the existing surface to a minimum depth of 6 in.(150 mm) below finished grade by disking or tilling.

Finishing: The surface of the compost shall be free from clods, stones, sticks and debris and shall be left smooth and level to maintain a uniform surface and appearance.

After the compost placement, all areas shall be immediately cleared of equipment, debris, and excess material. Surplus or waste material shall be disposed of by the Contractor according to Article 202.03.

Method of Measurement: Compost will be measured in place to the depth specified in square yards (square meters). Areas not meeting the depth specified shall not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per square yard (square meter) for COMPOST FURNISH AND PLACE, of the thickness specified. Payment shall include all costs for materials, equipment and labor required to complete the work specified herein, including the cost of removing and disposing of any debris.

SEEDING, CLASS 4B MODIFIED

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

The Class 4B (Modified) seed mix shall be supplied in pounds of Pure Live Seed. All native species will be local genotype and will be from a radius of 150 miles from the site. The Class 4B (Modified) seed mix shall be supplied with the appropriate inoculants. Fertilizer is not required.

Article 250.07 Seeding Mixtures – Add the following to Table 1:

Class 4B (Modified) – Wetland Grass and Forb Mixture

<u>Seeds</u>	<u>Kg/Hectare</u>	<u>Lb/Acre</u>
Panicum virgatum (Switch Grass)	0.5	(0.5)
Scirpus fluviatilis (River Bulrush)	1.0	(1.0)
Scirpus acutus (Hardstemmed Bulrush)	1.0	(1.0)
Asclepias incarnata (Swamp Milkweed)	0.5	(0.5)
Helenium autumnale (Autumn Sneezeweed)	0.5	(0.5)
Vernonia fasciculata (Ironweed)	0.5	(0.5)
Vernonia altissima (Tall Ironweed)	0.5	(0.5)
Verbena hastata (Blue Vervain)	0.5	(0.5)
Silphium perfoliatum (Cup Plant)	0.5	(0.5)
Oats, Spring (Temporary Cover)	30.0	(25.0)
Redtop (Temporary Cover)	30.0	(25.0)

Notes:

1. Temporary cover seed shall be kept separate from the woodland type mixture. It shall be mixed on site under the direction of the Engineer.
2. Purity and germination tests no older than twelve months old must be submitted for all seed supplied to verify quantities of bulk seed required to achieve KG PLS (LB PLS) specified.

If specified seed material is unavailable, the Engineer shall approve the substitutes. 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 4B (Modified)

Article 250.10 – Add Seeding, Class 4B (Modified)

MOWING

Description: This work will include mowing turf grass areas to a height not more than 3 inches (75 mm).

Schedule: Mowing to take place not less often than twice monthly.

Equipment: The Contractor shall keep all mowing equipment sharp and properly equipped for operation along an urban arterial route. The equipment used shall be capable of completely severing all growth at the cutting height and distributing it evenly over the mowed area. Special equipment may be required on steep slopes, in narrow areas, and for trimming around posts, poles, fences, trees, shrubs, seedlings, etc.

Method: All mowing and trimming operations are to proceed in the direction of traffic flow. The cut material shall not be windrowed or left in a lumpy or bunched condition. Additional mowing or trimming may be required to obtain the height specified or to disperse mowed material.

Debris encountered during the mowing operations which hampers the operation or is visible from the roadway shall be removed and disposed of according to Article 202.03. All trimmings, windrowed material, and debris removal must be complete to the satisfaction of the Engineer. Damage to the turf, such as ruts or wheel tracks more than 2 inches (50 MM) in depth, or other plantings or highway appurtenances caused by the mowing or trimming operation shall be repaired at the Contractor's expense.

Method of Measurement: Mowing and trimming will be measured in acres (hectares) of surface area mowed at the completion of each mowing cycle.

Plan quantities are estimates only. Actual quantities will be measured in place. Agreement to plan quantities will not be allowed. Shrub beds or perennial beds within the mowed area that are less than 1000 square feet (90 square meters) will not be subtracted from the area mowed.

Basis of Payment: This work will be paid for at the contract unit price per acres (hectares) for MOWING. Any additional mowing or trimming required to obtain the height specified or to disperse mowed material will be considered as included in the cost of the initial mowing. Payment for mowing and trimming shall include the cost of all material, equipment, labor, removal, disposal and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer.

GENERAL REQUIREMENTS FOR WEED CONTROL SPRAYING

Experience:

The Contractor shall have previous experience with the use of weed control chemicals. He/she shall have had at least one (1) season's experience in the use of their chemicals in spraying highway right-of-way or at least three (3) season's experience in their use in farm or custom spraying. The Contractor shall observe and comply with all sections of the Illinois Custom Spray Law, including licensing.

Equipment:

The equipment used shall consist of a vehicle-mounted tank, pump, spray bar and handgun, plus any other accessories needed to complete the specified work. Spraying shall be done through multiple low-pressure flooding or broad jet nozzles mounted on spray bars operated not more than 36" above the ground. If different sizes or types of nozzles are used to make up the spray pattern, the pressure, sizes and capacities shall be adjusted to provide a uniform rate of application for each segment of the spray pattern. Hand spray guns may be used for spraying areas around traffic control devices, lighting standard and similar inaccessible areas. Maximum speed of the spray vehicle during application of chemical shall be five (5) miles per hour.

Pumps used shall have a volume and pressure capacity range sufficient to deliver the mixture at a pressure to provide the required coverage and to keep the spray pattern full and steady without pulsation or excessive pressure as to cause fogging. Maximum pressure for application shall be 15 PSI. Quick acting shut-off valves and spring-loaded ball check valves shall be provided to stop the spray pattern with a minimum of nozzle drip. In areas where the spray vehicle must traverse the right-of-way, a four-wheel drive vehicle with flotation tires will be required to minimize damage to the ground surface.

Prior to beginning work, the Contractor shall obtain approval from the Engineer of the spraying equipment proposed for completing this work. The proposed equipment shall be in an operational condition and available for inspection by the Engineer at least two (2) weeks prior to the proposed starting time. If requested by the Engineer, the Contractor shall demonstrate the calibration of the equipment.

The equipment must provide consistently uniform coverage and keep the spray mixture sufficiently agitated or the work will be suspended until the equipment is repaired or replaced.

Spraying Areas:

This work includes roadsides and other types of right-of-way of various widths and gradients. Spray areas often extend more than thirty (30) feet from the edge of the roadway, requiring both spray bar and hand gun applications.

When the description of work requires weed control of a stated species, such as teasel, the chemical shall be applied only to locations where the stated species is present. When the description of work requires general weed control within a bed or area, such as broadleaf weed control in turf, then the chemical shall be applied to the entire bed or area.

Exclusion of Spraying Areas:

Areas where weed control spraying is inappropriate or detrimental to the environment, desirable planting, or private property shall be excluded from the spray area.

Spraying will not be permitted over any drainage swales or waterways, or other areas where the chemical label prohibits application. Spraying within 150 feet of a natural area or site where endangered or threatened species occur.

Responsibility for Prevention of Damage to Private Property:

The Contractor shall, at all times, exercise extreme caution to prevent damage to residential plantings, flower or vegetable gardens, vegetable crops, farm crops, orchard or desirable plants adjacent to the roadside.

The Contractor or Department receives a complaint, the Contractor shall contact a complaint within ten (10) days after receiving a claim for damages, either in person or by letter. The Contractor, or his authorized representative, shall make a personal contact with the complainant within twenty (20) days. The Engineer shall also be notified by the Contractor of all claims for damage he received and shall keep the Engineer informed as to the progress in arriving at a settlement for such claims.

Communication with the Engineer:

The Contractor is required to communicate with the Engineer to receive all required approvals in a timely way and to assure that the Engineer can accurately document the work performed.

It shall be the Contractor's responsibility to assure that all chemical containers are opened and added to the spray mixture in the presence of the Engineer.

The Contractor shall obtain approval from the Engineer to proceed with spraying at each location 24 hours prior to the proposed spray operations.

WEED CONTROL, TEASEL

Description: This work shall consist of the application of a broadleaf herbicide (Transline or equal) along highway roadsides for control of teasel and thistle.

Materials: The broadleaf herbicide (Transline or equal) shall have the following formulation:

A. Active Ingredient	
Clopyralid: 3,6-dichloro-2-pyridinecarboxylic acid, monoethanolamine salt	40.9%
B. Inert Ingredients	<u>59.1%</u>
TOTAL	100.00%

The Contractor shall submit a certificate, including the following, prior to starting work:

1. The chemical names of the compound and the percentage by weight of the ingredients which must match the above specified formulation.
2. A statement that the material is in a solution which will form a satisfactory emulsion for use when diluted with water for normal spraying conditions.
3. A statement that the Transline or equal, when mixed with water, will be completely soluble and dispersible and remain in suspension with continuous agitation.

4. A statement describing the products proposed for use when the manufacturer of Transline or equal requires that surfactants, drift control agents, or other additives be used with the product. These tank mix additives shall be used as specified by the manufacture. Required additives will not be paid for separately.

All material shall be brought to the spray area in the original, unopened containers supplied by the manufacturer.

Schedule: Spraying will not be allowed when temperatures exceed 90° F or under 45° F, when wind velocities exceed fifteen (15) miles per hour, when foliage is wet or rain is eminent, when visibility is poor or during legal holiday periods.

Application Rate: The Transline or equal broadleaf herbicide shall be applied at the rate of one (1) pint per acre (1.2 liters per hectare).

One (1) gallon (one-half (0.5) liter) of Transline or equal formulation shall be diluted with a minimum of forty (40) gallons (one hundred fifty (150) liters) of water and applied as a mixture. Water for dilution of the mixture will not be paid for separately.

Method of Measurement: Weed Control, Teasel will be measured for payment in gallons (liters) of undiluted Transline or equal applied as specified. The gallons (liters) for payment will be determined based on the gallons (liters) specified on the label attached to the original container supplied by the manufacturer.

Basis of Payment: Weed Control, Teasel will be paid for at the contract unit price per gallon (liters) for WEED CONTROL, TEASEL. Water for dilution of the mixture and additives required for application will not be paid for as separate items, but the costs shall be considered as included in the contract unit price for Weed Control, Teasel, and no additional compensation will be allowed.

BROADLEAF WEED CONTROL IN TURF

Description: This work shall consist of the application of a broadleaf herbicide (HI-DEP IVM or equal) along highway roadsides for control of broadleaf weeds in turf areas.

Materials: The broadleaf herbicide (HI-DEP IVM or equal) shall have the following formulation:

A. Active Ingredient	
1. Dimethylamine Salt of 2,4-Dichlorophenoxyacetic acid,	33.2%
2. Diethanolamine Salt of 2,4-Dichlorophenoxyacetic acid	16.3%
B. Inert Ingredients	<u>50.5%</u>
TOTAL	100.00%

The Contractor shall submit a certificate, including the following, prior to starting work:

1. The chemical names of the compound and the percentage by weight of the ingredients which must match the above specified formulation.
2. A statement that the material is in a solution which will form a satisfactory emulsion for use when diluted with water for normal spraying conditions.
3. A statement that the HI-DEP IVM or equal, when mixed with water, will be completely soluble and dispersible and remain in suspension with continuous agitation.
4. A statement describing the products proposed for use when the manufacturer of HI-DEP IVM or equal requires that surfactants, drift control agents, or other additives be used with the product. These tank mix additives shall be used as specified by the manufacture. Required additives will not be paid for separately.

All material shall be brought to the spray area in the original, unopened containers supplied by the manufacturer.

Schedule: Spraying will not be allowed when temperatures exceed 90° F or under 45° F, when wind velocities exceed fifteen (15) miles per hour, when foliage is wet or rain is eminent, when visibility is poor or during legal holiday periods.

Application Rate: The HI-DEP IVM or equal broadleaf herbicide shall be applied at the rate of two (2) quarts per acre.

Two (2) quarts of HI-DEP IVM or equal formulation shall be diluted with a minimum of forty (40) gallons of water and applied as a mixture. Water for dilution of the mixture will not be paid for separately.

Method of Measurement: Weed Control, Broadleaf in Turf will be measured for payment in gallons of undiluted HI-DEP IVM or equal applied as specified. The gallons for payment will be determined based on the gallons specified on the label attached to the original container supplied by the manufacturer.

Basis of Payment: Weed Control, Broadleaf in Turf will be paid for at the contract unit price per gallon for BROADLEAF WEED CONTROL IN TURF. Water for dilution of the mixture and additives required for application will not be paid for as separate items, but the costs shall be considered as included in the contract unit price for Broadleaf Weed Control in Turf, and no additional compensation will be allowed.

SUPPLEMENTAL WATERING

Scope This work will include watering turf, trees, shrubs, and perennial plants at the rates specified and as directed by the Engineer.

Schedule: Watering will only begin after the successful completion of all period of establishment requirements. Supplemental watering should be used at anytime after installation watering to keep turf, trees, shrubs and perennials in a live healthy condition while it is establishing.

Watering must be completed in a timely manner. When the Engineer directs the Contractor to do supplemental watering, the Contractor must begin the watering operation within 24 hours of notice. A minimum of 10 units of water per day must be applied until the work is complete. Damage to material that is a result of the Contractor's failure to water in a timely way must be repaired or replaced at the Contractor's expense.

Source of Water: The Contractor shall notify the Engineer of the source of water used and provide written certification that the water does not contain chemicals harmful to plant growth.

Rate of Application: The normal rates of application for watering are as follows. The Engineer will adjust these and frequency rates as needed depending upon weather conditions.

Turf and Perennial Plants: 3 gallons per square foot

Trees: 10 gallons per tree

Shrubs: 3 gallons per shrub

Seedlings: 3 gallons per seedling

Ornamental Grasses: 3 gal per square foot

Groundcovers and Vines: 2 gal per square foot

Method of Application: A spray nozzle that does not damage small plants must be used when watering perennial plants or turf. Water shall be applied at the base of the plant to keep as much water as possible off plant eaves. An open hose may be used to water trees, shrubs, and seedlings if mulch and soil are not displaced by watering. The water shall be applied to individual plants in such a manner that the plant hole shall be saturated without allowing the water to overflow beyond the earthen saucer. Watering of plants in beds shall be applied in such a manner that all plant holes are uniformly saturated without allowing the water flow beyond the periphery of the bed. Water shall trickle slowly into soil and completely soak the root zone. The Contractor must supply metering equipment as needed to assure the specified application rate of water.

Method of Measurement: Supplemental watering will be measured in units of 1000 gallons of water applied as directed.

Basis of Payment: This work will be paid for at the contract unit price per unit of SUPPLEMENTAL WATERING, measured as specified. Payment includes the cost of all water, equipment and labor needed to complete the work specified herein and to the satisfaction of the Engineer.

(District 1 04/01104)

SELECTIVE MOWING STAKES

This work shall be done in accordance with Article 250.08 of the Standard Specifications with the following addition:

On 20% of the selective mowing stakes, as shown on the plans and as directed by the Engineer, the Contractor shall furnish materials, labor and equipment to attach a 10" x 18" (250 mm x 450 mm) aluminum sign with one of the following texts:

1. Wetland
2. Prairie Plants
3. Wildflowers
4. Seedlings

The text of the sign should be appropriate to the area being delineated with selective mowing stakes. The signs shall be permanently attached to the stakes by a method approved by the Engineer. The signs will be provided by the Department and shall be picked up by the Contractor from the District One Roadside Development Architect in Schaumburg, Illinois.

Scheduling the pickup of the signs can be arranged by contacting the District One Roadside Development Unit at (847)705-4171. The cost of picking up and attaching the signs to the selective mowing stakes will not be paid for separately, but shall be included in the contract unit price for **SELECTIVE MOWING STAKES**.

TRANSPLANTED SALVAGED TREES

This work consists of digging, transporting and planting various sizes of trees.

The trees designated by the Engineer to be salvaged shall be removed and immediately replanted as directed by the Engineer. Mechanically dug plants must be replanted immediately in their permanent locations and not stored. These trees will be placed within five miles of the extraction site at locations staked by the Village Engineer of the Village of Bolingbrook within the Village right-of-way.

All work methods, transplanting of salvaged plant material and all other related landscape work shall be done in accordance with Section 253 of the Standard Specifications except as follows:

Article 253.03 - add the following:

Digging and planting times for transplanted trees shall be as required by the Engineer and shall not cause delay of the project.

Planting times for replacement plants shall be as required in Article 253.03.

Article 253.04 - add the following:

Trees to be transplanted shall not be dug more than 24 hours prior to the time the Contractor is ready to transport these materials from their original locations. All trees shall be balled and burlapped or mechanically dug to the sizes specified in Table I of Article 781.01 of the Standard Specifications. Earth balls of balled and burlapped plant material shall be watered and shall be protected against drying out. Balled plants shall not be left in open holes overnight.

Article 253.09(a) - add the following:

All tree pruning shall be done prior to installation.

Article 253.14 - add to paragraph three the following:

Any transplanted tree which is not acceptable at the time of final inspection shall be replaced with a 5' - 6' balled and burlapped tree of the same type as that which is unacceptable.

Method of Measurement:

Trees to be transplanted shall be measured for payment as each in place at the planting location. A root ball with multiple stems shall be measured as one tree.

Basis of Payment:

This work will be paid for at the contract unit price each for TRANSPLANTED SALVAGED TREES, which price shall include all labor, equipment and materials.

SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING

Description: This work shall consist of cleaning sediment out of a drainage structure inlet filter when directed by the Engineer. This cleaning work is to be periodically performed as directed by the Engineer, for the duration of the use of each drainage structure inlet filter assembly. The Engineer will be the sole judge of the need for cleaning, based on the rate that debris and silt is collected at each inlet filter location.

Cleaning of the inlet filter shall consist of inspecting, cleaning (includes removal and proper disposal of debris and silt that has accumulated in the filter fabric bag), by vactoring, removing and dumping or any other method approved by the Engineer.

Method of Measurement: Cleaning of the drainage structure inlet filter shall be measured for payment each time that the cleaning work is performed at each of the drainage structure inlet filter locations.

Basis of Payment: The work will be paid for at the contract unit price per each for SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING, which price shall include all costs for labor, materials, equipment, and incidentals necessary to perform the work.

TEMPORARY DITCH CHECKS

This Special Provision revises Section 280 of the Standard Specifications for Road and Bridge Construction to eliminate the use of Aggregate Ditch Checks and Hay or Straw Bales for Temporary Ditch Checks.

Delete Paragraphs 2 and 3 of Article 280.04(a) Temporary Ditch Checks.

Add to Article 280.04 (a), Temporary Ditch Checks: Temporary Ditch Checks shall be at least 3.66 meters (12 feet) or longer in length.

POROUS GRANULAR EMBANKMENT, SUBGRADE

Effective: September 30, 1985 Revised: November 1, 1996

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 1004.06 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>
*150 mm (6 inches)	97 ± 3
*100 mm (4 inches)	90±10
50 mm (2 inches)	45±25
4.75 mm (#4)	45±20
75 um (#200)	5±5

2. Gravel, Crushed Gravel and Pit Run Gravel

<u>Sieve Size</u>	<u>Percent Passing</u>
*150 mm (6 inches)	97 ± 3
*100 mm (4 inches)	90±10
50 mm (2 inches)	55±25
4.75 mm (#4)	30±20
75 um (#200)	5±5

*For undercut greater than 450 mm (18 inches) the percent passing the 150 mm (6 inches) sieve may be 90+10 and the 100 mm (4 inches) sieve requirements eliminated.

The porous granular material shall be placed in one lift when the total thickness to be placed is 600 mm (2 feet) 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 of the Standard Specifications to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

A 75 mm (3 inches) 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 300 mm (1 foot) longitudinal per 25 mm (1 inch) depth below the proposed subgrade or bottom of the proposed aggregate subgrade when included in the contract.

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.

This work shall be paid for at the contract unit price per cubic meter (cubic yard) for POROUS GRANULAR EMBANKMENT, SUBGRADE which price shall include the capping aggregate, when required.

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.

AGGREGATE SUBGRADE, 300MM (12")

Effective: May 1, 1990 Revised: July 1, 1999

This work shall be done in accordance with the applicable portions of Section 207 of the Standard Specifications. The material shall conform with Article 1004.06 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>
150 mm (6 inches)	<u>97±3</u>
100 mm (4 inches)	90±10
50 mm (2 inches)	45±25
75 um (#200)	5±5

2. Gravel, Crushed Gravel, and Pit Run Gravel

<u>Sieve Size</u>	<u>Percent Passing</u>
150 mm (6 inches)	<u>97±3</u>
100 mm (4 inches)	90±10
50 mm (2 inches)	55±25
4.75mm(#4)	30±20
75 um (#200)	5±5

3. Crushed Concrete with Bituminous Materials**

<u>Sieve Size</u>	<u>Percent Passing</u>
150 mm (6 inches)	<u>97±3</u>
100 mm (4 inches)	90±10
50 mm (2 inches)	45±25
4.75mm(#4)	20±20
75 um (#200)	5±5

**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 product. The top size of the bituminous material in the final product shall be less than 100 mm (4 inches) and shall not contain steel slag or any material that is considered expansive by the Department.

The Aggregate subgrade shall be placed in two lifts consisting of a 225 mm (9 inches) and variable nominal thickness lower lift and a 75 mm (3 inches) nominal thickness top lift of capping aggregate having a gradation of CA 6. Reclaimed Asphalt Pavement (RAP) meeting Article 1004.07 of the Standard Specifications and having 100% passing the 75 mm (3 inches) sieve and well-graded down through fines may also be used as capping aggregate. RAP shall not contain steel slag or other expansive material. The results of the Department's tests on the RAP material will be the determining factor for consideration as expansive. A vibratory roller meeting the requirements of Article 1101.01 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 600 mm (2 feet) or less.

Method of Measurement.

- a) Contract Quantities. Contract quantities shall be in accordance with Article 202.07
- b) Measured Quantities. Aggregate subgrade will be measured in place and the area computed in square meters (square yards).

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

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.

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. 1 0 of the Standard Specifications to read:

"402.10 For Temporary Access. The contractor shall construct and maintain 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 shall 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."

4020211

STRUCTURE EXCAVATION

Description: This work shall consist of the excavation required for the construction of all new structures including all bailing, draining, and pumping; and the disposal of all material obtained from such excavation in accordance with Section 502 of the Standard Specifications, and as directed by the Engineer, except as amended herein.

Backfill is not included with this work. Backfilling will be completed as a separate pay item in accordance with Section 205, Embankment or Section 207, Porous Granular Embankment of the Standard Specifications.

Structure Excavation shall also include removal and disposal of miscellaneous items appurtenant to the excavation including but not limited to drainage system components and other conduits buried in the soil. Existing asbestos cement conduits, meta conduits, electrical wires, hand holes, etc. to be abandoned shall be removed as part of this work item. Electrical conduits shall be do-energized prior to removal.

The Contractor shall take all necessary precautions in removing, handling, transporting and subsequent disposal of all materials removed containing asbestos. All such work shall be performed in conformance with all governing laws, codes, ordinances r other regulations.

Microfilm prints of drawings may also be requested by the Contractor by sending his/her written request to the Chief of Bureau of Maintenance, Illinois Department of Transportation - District One, 201 West Center Court, Schaumburg, Illinois 60196. The Contractor shall make an appointment with at least 48 hours notice to view or retrieve available microfilm drawings of the existing roadways and structures. The corn of these plans is not guaranteed and no responsibility is assumed by the Department for their accuracy. Information is furnished for whatever value may be derived by the Contractor, and is to be used solely at the Contractor's risk.

Construction Requirements

Where new structures are to be constructed at the same location as existing structures, the porous granular embankment backfill shall be placed after construction of new structure or as necessary to sequence the construction of work as shown by the plans

All removed materials containing asbestos shall be stockpiled separately from other removed materials. All stockpiled materials containing asbestos shall be hauled to an approved landfill disposal site. These materials shall be wetted down and covered with an approved wetting material while stockpiled and being hauled away in trucks to prevent debris or dust from entering into the atmosphere.

Method of Measurement Structure Excavation will be measured for payment in cubic yards according to Article 502.14 of the Standard Specifications.

Basis of Payment: This item will be paid for at a contract unit price per cubic yard for STRUCTURE EXCAVATION according to Article 502.15 and as detailed in the plans, described herein and as directed by the Engineer.

Backfilling will be paid for separately in accordance with Section 207 of the Standard Specifications for POROUS GRANULAR EMBANKMENT.

(CTE — 02/20/2004)

SLEEPER SLAB

Description: This work consists of constructing a sleeper slab (reinforced concrete grade beam) at the locations shown on the plans or as directed by the Engineer. This work shall be performed in accordance with the applicable portions of Section 420 of the Standard Specifications, the details in the plans and as herein specified.

Materials: Concrete shall be Class SI meeting the requirements of Section 1020.

Reinforcement bars shall be Grade 60 meeting the requirements of Section 1006.10.

Method of Measurement: This work will be measured in feet along the expansion joint. Reinforcement bars, polyethylene bond breaker and preformed joint filler will not be paid for separately, but will be included in the unit price for the sleeper slab. Excavation, except excavation in rock, will be paid as Earth Excavation.

Basis of Payment: This work will be paid for at the contract unit price per foot for SLEEPER SLAB, which price will be payment in full for all materials, labor, tools, equipment and incidentals necessary to complete the work as specified.

RUSTICATION FINISH FOR RETAINING WALLS

Effective: May 1, 1990 Revised: February 19, 2034

Description: This work consists of providing the forms, materials and rusticated finish on retaining walls, in accordance with the details shown in the plans and the Special Provisions

Materials: Materials shall conform to Article 503.02; of the Standard Specification and includes the following:

The coarse aggregate to be used in the concrete for the rustication finish shall conform to the requirements for coarse aggregate in concrete superstructure.

Construction Requirements

Forms shall be constructed so that the completed concrete structures conform to the shape, lines and dimensions of the members as shown on the plans. Forms shall be properly braced or tied together to maintain position and shape. Forms shall be made sufficiently tight to prevent leakage of mortar.

Formliners shall be used to obtain the rustication finish on the retaining walls. Formwork shall have the strength and stability to ensure finished concrete dimensions within the tolerances specified herein. The quality of the formwork shall be maintained throughout the entire project.

Variations in dimensions for the wall sections with a rustication finish shall be within the following tolerances: the width and depth of rustication joints shall be within 3 mm (1/8 inch) \pm , the location of the rustication joints shall be within 13mm (1/2 inch)-i-, the maximum variation of a joint from a straight line shall be 6mm (1/4 inch) \pm in 3 meters (10 feet)

The Contractor shall submit proposed construction procedures for the rustication finish on the outside face of retaining walls. The Contractors method of obtaining the surface texture spec on the plans shall be subject to approval by the Engineer.

Upon approval of the construction procedures by the Engineer, the Contractor shall pour a 9 m (30 feet) long test section of retaining wall at a location directed by the Engineer. After removal of the formwork, the Engineer will examine the test section of tie wall and instruct the Contractor if the rustication finish is acceptable or if future wall sections need further modifications. If necessary, the Contractor shall pour additional test sections of wall at locations designated by the Engineer until a wall section meets with the Engineers approval. The rustication finish of all subsequently installed wall sections shall match the approved test section. The Contractor shall repair all deviations from the approved rustication finish to the satisfaction of the Engineer at no additional cost to the contract.

The Contractor shall notify the Engineer at least 40 hours prior to placing concrete. Concrete shall not be placed until the Engineer has inspected the formwork and the placement of reinforcing bars for compliance with the plans.

Method of Measurement: Rustication finish will be measured in plan and the area computed in square meters (square feet). The dimensions used to compute the area of rustication will be the dimensions indicated on the plans or directed by the Engineer of the outline of the plane area. Measurement will not be made on the actual surface area of rustication finish.

Basis of Payment: This work will be paid for at the contract unit price per square meter (square foot) for RUSTICATION FINISH, which price includes all work as specified herein.

TEMPORARY SOIL RETENTION SYSTEM

Effective: December 30, 2002

Description This work shall consist of designing, furnishing, installing, adjusting for stage construction when required and subsequent removal of the temporary soil retention system according to the dimensions and details shown on the plans and in the approved design submittal.

General The temporary soil retention system shall be designed by the Contractor as a minimum, to retain the exposed surface area specified in the plans or as directed by the Engineer.

The design calculations and details for the temporary soil retention system proposed by the Contractor shall be submitted to the Engineer for approval. The calculations shall be prepared and sealed by an Illinois Licensed Structural Engineer. This approval will not relieve the Contractor of responsibility for the safety of the excavation. Approval shall be contingent upon acceptance by all involved utilities and/or railroads.

Construction The Contractor shall verify locations of all underground utilities before installing any of the soil retention system components or commencing any excavation. Any disturbance or damage to existing structures, utilities or other property, caused by the Contractor's operation, shall be repaired by the Contractor in a manner satisfactory to the Engineer at no additional cost to the Department. The soil retention system shall be installed according to the Contractor's approved design, or as directed by the Engineer, prior to commencing any related excavation. If unable to install the temporary soil retention system as specified in the approved design, the Contractor shall have the adequacy of the design re-evaluated. Any reevaluation shall be submitted to the Engineer for approval prior to commencing The excavation adjacent to the area in question. The Contractor shall not excavate below the maximum excavation line shown in the approved design without the prior permission of the Engineer. The temporary soil retention system shall remain in place until the Engineer determines it is no longer required.

The temporary soil retention system shall be removed and disposed of by the Contractor when directed by the Engineer. When allowed, the Contractor may elect to cut off a portion of the temporary soil retention system leaving the remainder in place. The remaining temporary soil retention system shall be removed to a depth which will not interfere with the new construction, and as a minimum, to a depth of 300mm (12 in.) below the finished grade, or as directed by the Engineer. Removed system components shall become the property of the Contractor.

When an obstruction is encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to break up, push aside, or remove the obstruction. An obstruction shall be defined as any object (such as but not limited to, boulders, logs, old foundations etc.) where its presence was not obvious or specifically noted on the plans prior to bidding, that cannot be driven or installed through or around, with normal driving or installation procedures, but requires additional excavation or other procedures to remove or miss the obstruction.

Method of Measurement The temporary soil retention system furnished and installed according to the Contractor's approved design or as directed by the Engineer will be measured for payment in place in square meters (square feet). The area measured shall be the vertical exposed surface area envelope of the excavation supported by temporary soil retention system.

Any temporary soil retention system cut off, left in place, or installed beyond those dimensions shown on the contract plans or the approved contractors design without the written permission of the Engineer, shall not be measured for payment but shall be done at the contractor's own expense.

Basis of Payment This work will be paid for at the contract unit price per square meter (square foot) for TEMPORARY SOIL RETENTION SYSTEM.

Payment for any excavation, related solely to the installation and removal of the temporary soil retention system and/or its components, shall not be paid for separately but shall be included in the unit bid price for TEMPORARY SOIL RETENTION SYSTEM. Other excavation, performed in conjunction with this work, will not be included in this item but shall be paid for as specified elsewhere n this contract.

Obstruction mitigation shall be paid for according to Article - 09.04 of the Standard Specifications.

TEXTURIZED CONCRETE WALL

Description: This work shall consist of constructing a cast in place texturized concrete wall in accordance with the plan details, at the location shown on the plans, in accordance with Sections 503 and 508 of the Standard Specifications, except as modified herein. This item shall apply to both single faced and double faced texturized concrete wall.

The wall shall be constructed of Class SI concrete. The dimensions of the wall, texturizing specifications, and reinforcement requirements are indicated in the plan details.

Method of Measurement: TEXTURIZED CONCRETE WALL will be measured for payment in place in meters along the top of the wall.

Basis of Payment: This work will paid for at the contract unit price per meter for TEXTURIZED CONCRETE WALL, which price shall include payment for excavation, formwork, reinforcement bars, concrete, furnishing and installing all required joints, and backfill as required to perform the work as specified herein.

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.

STORM SEWER ADJACENT TO OR CROSSING WATER MAIN

Effective: February 1, 1996 Revised: March 31, 1998

This work consists of constructing storm sewer of the specified diameter adjacent to or crossing water main, at the locations shown on the plans, meeting the material and installation requirements of the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the applicable portions of Section 550 of the Standard Specifications.

Pipe materials shall meet the requirements of Sections 40 and 41-2.01 of the "Standard Specifications for Water and Sewer Main Construction in Illinois", except PVC pipe will not be allowed. Ductile-Iron pipe shall meet the minimum requirements for Thickness Class 50.

Encasing of standard type storm sewer, in accordance with the details for "Water and Sewer Separation Requirements (Vertical Separation)", (DIV. V/STANDARD DRAWINGS) in the "Standard Specifications for Water and Sewer Main Construction in Illinois", may be used for storm sewers crossing water mains.

Basis of Payment: This work will be paid for in accordance with Article 550.09 of the Standard Specifications, except the pay item shall be STORM SEWER (WATER MAIN REQUIREMENTS), of the diameter specified, and shall include all materials, labor, equipment, concrete collars and encasing pipe with seals.

CLEANING EXISTING DRAINAGE STRUCTURES

Effective: September 30, 1985 November 1, 1996

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 602.14 of the Standard Specifications. This work will be paid for in accordance with Article 602.15 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 602.14 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.

CONCRETE MEDIAN SURFACE, 4" (MODIFIED)

Description: This work shall consist of the construction of concrete median as specified in Section 606 of the Standard Specifications with the following revisions:

606.10 Finishing. Revise the first sentence of the first paragraph to read:

All exposed surfaces shall be finished with a California Trowel Finish as shown in the details in the plans.

Basis of Payment: Concrete median as specified herein will be paid for at the contract unit price per square foot for CONCRETE MEDIAN SURFACE, 4" (MODIFIED).

CHAIN LINK FENCE AND GATE REMOVAL

Description: This work shall consist of the complete removal and disposal of existing fence fabric, posts, hardware, and gates as shown on the plans and as directed by the Engineer. The Contractor shall completely remove and dispose of all footings. Care shall be taken to protect from damage the existing fence to remain. The holes that remain after the removal is complete shall be backfilled and tamped with crushed stone screenings. Spoil materials resulting from this operation shall be disposed of as specified in Article 202.03. All salvageable material shall become the property of the Contractor and the value of all salvageable material shall be reflected in the unit bid.

Method of Measurement: CHAIN LINK FENCE REMOVAL will be measured for payment in feet along the line of the fence from center to center of end posts including the length occupied by gates. Variations in chain link fence heights and types will not be measured or paid for separately.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per meter for CHAIN LINK FENCE REMOVAL which price shall include payment in full for all labor, tools, equipment, disposal and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer.

CHAIN LINK FENCE, 4 FOOT (1.2 M) ATTACHED TO STRUCTURE

Description: This work shall consist of all labor, materials and equipment necessary for the mounting of a 4 foot (1.2 M) high chain link fence on texturized concrete walls, existing concrete walls, and retaining walls, in accordance with the details and locations shown on the plans and the requirements of Section 664 of the Standard Specifications.

Construction Requirements: All posts shall be vertical when erected; the base plate must be welded to the post at the proper angle to account for any slope along the top of the wall.

The fence fabric shall be Type I, Class D and shall be in accordance with Article 1006.27 of the Standard Specifications.

The steel base plate and fence posts shall be galvanized in accordance with the requirements of AASHTO M111.

The steel base plate shall meet the requirements of AASHTO M183.

Method of Measurement: Measurement shall be made along the top of the fence center to center of the end posts, in feet (meters), completed in place.

Basis of Payment: The work under this item will be paid at the contract unit price per foot for CHAIN LINK FENCE, 4 FOOT ATTACHED TO STRUCTURE, measured in place, which price shall be payment for all work necessary to complete the work as herein specified, as shown on the plans or as directed by the Engineer.

NON-SPECIAL WASTE WORKING CONDITIONS

This work shall be according to Article 669 of the Standard Specifications for Road and Bridge Construction adopted January 1, 2002 and the following:

Qualifications. The term environmental firm shall mean an environmental firm with at least five (5) documented leaking underground storage tank (LUST) cleanups or that is prequalified in hazardous waste by the Department. Documentation includes but not limited to verifying remediation and special waste operations for sites contaminated with gasoline, diesel, or waste oil in accordance with all Federal, State, or local regulatory requirements and shall be provided to the Engineer for approval.

General. Implementation of this Special Provision will likely require the Contractor to subcontract for the execution of certain activities. It will be the Contractor's responsibility to assess the working conditions and adjust anticipated production rates accordingly.

The Contractor shall manage all contaminated materials as non-special waste as previously identified. This work shall include monitoring and potential sampling, analytical testing, and management of petroleum contaminated material.

The Contractor shall excavate and dispose of any soil classified as a non-special waste as directed by this project or the Engineer. Any excavation or disposal beyond what is required by this project or the Engineer shall be at the Contractor's expense. The preliminary site investigation (PSI) report, available through the District's Environmental Studies Unit, estimated the excavation quantity of non-special waste at the following location. The information available at the time of plan preparation determined the limits of the contamination and the quantities estimated were based on soil excavation for construction purposes only. The lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit which ever is less. The Environmental Firm shall continuously monitor for worker protection and the Contractor shall manage and dispose of all soils excavated within the following areas as classified below. Any soil samples or analysis without the approval of the Engineer shall be at the Contractor's expense.

1. Station 12+20 to Station 15+55, along the Auxiliary Lane Baseline, 0 to 30 feet RT (Century Tile and Carpet - 374 Bolingbrook Comments). Contaminants of concern sampling parameters: PNAs and thallium.

Some of the soils identified above requiring management as a non-special waste can be managed on-site as fill. Although the soil concentrations exceed a residential property's Tier 1 soil remediation objective for the ingestion exposure pathway, they can be utilized on-site as fill because the roadway is not considered a residential property. All storm sewer excavated soils can be placed back into the excavated trench as backfill unless trench backfill is specified. If the soils cannot be utilized on-site as fill then they must be managed off-site as a non-special waste. The following areas can be managed on-site as fill.

1. Station 12+20 to Station 15+55, along the Auxiliary Lane Baseline, 0 to 30 feet RT (Century Tile and Carpet - 374 Bolingbrook Comments). Contaminants of concern sampling

TRAFFIC CONTROL PLAN

Effective: September 30, 1985 Revised: October 1, 1995

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

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

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

HIGHWAY STANDARDS:

701101	Off-Road Operations, Multilane, Less Than 4.5 m (15') Away, For Speeds > or = 45 MPH
701106	Off-Road Operations, Multilane, More Than 4.5 m (15') Away, For Speeds > or = 45 MPH
701400	Approach to Lane Closure, Freeway/Expressway
701401	Lane Closure, Freeway/Expressway
701402	Lane Closure, Freeway/Expressway
701406	Lane Closure, Freeway/Expressway, Day Operations Only
701411	Lane Closure, Multilane, At Entrance Or Exit Ramp, For Speeds > or = 45 MPH
701422	Lane Closure, Multilane, for Speeds > or = 45 MPH to 55 MPH
701423	Lane Closure, Multilane, for Speeds > or = 45 MPH to 55 MPH
701701	Lane Closure, Multilane, Intersection, For Speeds < 45 MPH
702001	Traffic Control Devices
704001	Temporary Concrete Barrier

PLANS AND DETAILS:

- General Notes
- Traffic Control General Notes and Summary
- Suggested Stages of Construction and Traffic Control
- Dist 1 Freeway Single and Multi Lane Weave
- Dist 1 Multi-Lane Freeway Pavement Marking
- Dist 1 Traffic Control for Shoulder Closures and Partial Ramp Closures

RECURRING SPECIAL PROVISIONS AND SPECIAL PROVISIONS

- Changeable Message Signs
- Failure To Open Traffic Lanes To Traffic
- Keeping The Expressway Open To Traffic
- Temporary Information Signing
- Traffic Control And Protection (Expressways)
- Traffic Control For Work Zone Areas
- Traffic Control Plan
- Traffic Control Surveillance (Expressways)
- Work Zone Public Information Signs
- Work Zone Speed Limit Signs
- Work Zone Traffic Control Devices
- Work Zone Traffic Control (Lump Sum Payment)

WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT)

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

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

Method of Measurement: All traffic control (except traffic control pavement marking and Traffic Control and Protection (Expressways)) indicated on the traffic control plan details and specified in the Special Provisions will be measured for payment on a lump sum basis. Traffic control pavement markings will be measured per meter (foot).

Basis of Payment: All traffic control and protection 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 AND PROTECTION (EXPRESSWAYS)

Effective: 3/8/96 Revised: 08/19/03

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

GENERAL

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

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

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

Signs

Prior to the beginning of construction operations, the Contractor will be provided a sign log of all existing signs within the limits of the construction zone. The Contractor is responsible for verifying the accuracy of the sign log. Throughout the duration of this project, all existing traffic signs shall be maintained by the Contractor. All provisions of Article 107.25 of the Standard Specifications shall apply except the third paragraph shall be revised to read: "The Contractor shall maintain, furnish, and replace at his own expense, any traffic sign or post which has been damaged or lost by the Contractor or a third party. The Contractor will not be held liable for third party damage to large freeway guide signs".

Exit Gore Signs

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

Rough Grooved Surface Signs

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

Drums/Barricades

Check barricades shall be placed in work areas perpendicular to traffic every 300m (1000'), one per lane and per shoulder, to prevent motorists from using work areas as a traveled way. Check barricades shall also be placed in advance of each open patch, or excavation, or any other hazard in the work area, the first at the edge of the open traffic lane and the second centered in the closed lane. Check barricades, either Type I or 11, or drums shall be equipped with the flashing light.

To provide sufficient lane widths (3m [10'] minimum) for traffic and also working room, the Contractor shall furnish and install vertical barricades with steady bum lights, in lieu of Type 11 or drums, along the cold milling and asphalt paving operations. The vertical barricades shall be placed at the same spacing as the drums.

Vertical Barricades

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

Temporary Concrete Barrier Wall

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

Method of Measurement: This item of work will be measured on a lump sum basis for furnishing, installing, maintaining, replacing, relocating, and removing traffic control devices required in the plans and these Special Provisions. Traffic control and protection required under Standards 701101, 701400, 701401, 701402, 701406, 701411 and 701426 will be included with this item.

Basis of Payment:

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

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

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

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

Difference between original and final sum total value of all work items for which traffic

Where "X" = control and protection is required.

Original sum total value of all work items for which traffic control and protection is required.

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

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

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

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

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

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

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

KEEPING THE EXPRESSWAY OPEN TO TRAFFIC:

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 Lane Closure Standards and details. All Contractor's personnel shall be limited to these barricaded work zones and shall not cross the expressway.

The Contractor shall request and gain approval from the Illinois Department of Transportation's Expressway Traffic Operations Engineer (847-705-4151 or 4155) 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:

WEEK NIGHT	TYPE OF CLOSURE	ALLOWABLE LANE CLOSURE HOURS	
		INBOUND	OUTBOUND
Sunday Thru Thursday	One Lane	7:00 p.m. – 5:00 a.m.	8:00 p.m. – 6:00 a.m.
	Two Lanes	10:00 p.m. – 5:00 a.m.	11:00 p.m. – 6:00 a.m.
Friday	One Lane	8:00 p.m.(Fri) – noon (Sat.)	9:00 p.m.(Fri) – noon (Sat.)
	Two Lanes	11:00 p.m.(Fri) – 7:00 a.m. (Sat.)	12:01 a.m. – 7:00 a.m.(Sat.)
Saturday	One Lane	8:00 p.m.(Sat) – noon (Sun)	8:00 p.m.(Sat.) – noon (Sun.)
	Two Lanes	11:00 p.m.(Sat) – 9:00 a.m. (Sun)	11:00 p.m.(Sat) – 9:00 a.m. (Sun)

In addition to the hours noted above, temporary shoulder and partial ramp closures are allowed weekdays between the hours of 9:00 a.m. and 3:00 p.m.

Narrower 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 am to 7:00 a.m.** on Sunday. During Full Expressway Closures, the Contractor will be required to close off all lanes except one. 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 work, including stage changes, which requires 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 per the terms of paragraph two above.

Should the Contractor fail to completely open, and keep open, the ramps to traffic in accordance with the above limitations, the Contractor shall be liable to the Department for liquidated damages as noted under the Special Provision, “failure to Open Traffic Lanes to Traffic”.

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 within one (1) mile of each other in one direction of the expressway shall be on the same side of the pavement and any lane closure within a half (1/2) mile of each other 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 vehicle on State right-of-way will only be permitted at the locations approved by the Engineer.

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 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 Blocked = \$ 3,000

Two Lanes Blocked = \$ 5,000

Not as a penalty but as liquidated and ascertained damages for each and every IS 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 SURVEILLANCE (EXPRESSWAYS)

The contractor shall provide a person with a vehicle to survey, inspect and maintain all temporary traffic control devices when a lane is closed to traffic and when hazards are present adjacent to or within 10 foot of the edge of pavement for more than 24 hours.

The surveillance person is required to drive through the project, to inspect all temporary traffic control devices, to correct all traffic control deficiencies, if possible, or immediately contact someone else to make corrections and to assist with directing traffic until such corrections are made, at intervals not to exceed 4 hours. This person shall list every inspection on an inspection form, furnished by the Engineer, and shall return a completed form on the first working day after the inspections are made.

The Contractor shall supply a telephone staffed on a 24-hour-a-day basis to receive any notification of any deficiencies regarding traffic control and protection or receive any request for improving, correcting or modifying traffic control, installations or devices, including pavement markings. The Contractor shall dispatch additional men, materials and equipment as necessary to begin to correct, improve or modify the traffic control as directed, within one hour of notification by this surveillance person or by the Department. Upon completion of such corrections and/or revisions, the Contractor shall notify the Department's Communication Center at (847) 705-4612.

Method Of Measurement: Traffic Control Surveillance will be measured on calendar day basis. One calendar day is equal to a minimum of six (6) inspections. The inspections shall start within 4 hours after the lane is closed to traffic or a hazard exists within 10 foot from the edge of pavement and shall end when the lane closure or hazard is removed.

Basis Of Payment: Surveillance will be paid for at the contract unit price per calendar day or fraction thereof for TRAFFIC CONTROL SURVEILLANCE (EXPRESSWAYS). The price shall include all labor and equipment necessary to provide the required inspection and maintenance on the expressway and on all cross streets which are included in the project. The cost of the materials for the maintenance of traffic control devices shall be included in the traffic control pay items.

TEMPORARY INFORMATION SIGNING

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, signs on temporary stands, 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:

Item Article/Section

a) Sign Base (Notes I & 2)	1090
b) Sign Face (Note 3)	1091
c) Sign Legends	1092
d) Sign Supports	1093
e) Overlay Panels (Note 4)	1090.01

Note 1. The Contractor may use 16mm (5/8 inch) instead of 19mm (3/4 inch) 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 1084.02(b).

Note 4. The overlay panels shall be 2mm (0.08 inch) 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 702.05 and Article 720.04. The signs shall be 2.1m (7') above the near edge of the pavement and shall be a minimum of 600mm (2') beyond the edge of the paved shoulder. A minimum of 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 meters (square feet) edge to edge (horizontally and vertically).

All hardware, posts, 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 meter (square feet) for TEMPORARY INFORMATION SIGNING, which price shall be full compensation for all labor, equipment and materials required for performing the work as herein specified.

CHANGEABLE MESSAGE SIGNS

This item shall be as contained in the Special Provisions for "Portable Changeable Message Signs" except as follows:

4 signs will be required for this contract

TRAFFIC CONTROL FOR WORK ZONE AREAS

Effective: 9/14/95 Revised: 1/30/03

Work zone entry and exit openings shall be established daily by the Contractor with the approval of the Engineer. All vehicles including cars and pickup trucks shall exit the work zone at the exit openings. All trucks shall enter the work zone at the entry openings. These openings shall be signed in accordance with the details shown elsewhere in the plans and shall be under flagger control during working hours.

The Contractor shall plan his trucking operations into and out of the work zone as well as on to and off the expressway to maintain adequate merging distance. Merging distances to cross all lanes of traffic shall be no less than 1/2 mile. This distance is the length from where the trucks enter the expressway to where the trucks enter the work zone. It is also the length from where the trucks exit the work zone to where the trucks exit the expressway. The stopping of expressway traffic to allow trucks to change lanes and/or cross the expressway is prohibited.

Failure to comply with the above requirements will result in a Traffic Control Deficiency charge. The deficiency charge will be calculated as outlined in the special provision for **"TRAFFIC CONTROL DEFICIENCY DEDUCTION"**. The Contractor will be assessed this daily charge for each day a deficiency is documented by the Engineer.

GENERAL ELECTRICAL REQUIREMENTS

Effective: March 1, 2003

Add the following to Article 801 of the Standard Specifications:

“Maintenance Transfer and Preconstruction Inspection:

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

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

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

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

Condition of Existing Systems. The Contractor shall conduct an inventory of all existing electrical system equipment within the project limits, which may be affected by the work, making note of any parts, which are found broken or missing, defective or malfunctioning. Megger and load readings shall be taken for all existing circuits, which will remain in place or be modified. If a circuit is to be taken out in its entirety, then readings do not have to be taken. The inventory and test data shall be reviewed with and approved by the Engineer and a record of the inventory shall be submitted to the Engineer for the record. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition."

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

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

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

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

Revise Article 801.12 of the Standard Specifications to read:

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

Add the following to Section 801.12 of the Standard Specifications:

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

Add the following to Section 801 of the Standard Specifications:

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

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

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

Grounding of Lighting Systems. All electrical systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC, even though every detail of the requirements is not specified or shown. Good ground continuity throughout the electrical system shall be assured. All electrical circuit runs shall have a continuous equipment-grounding conductor. **IN NO CASE SHALL THE EARTH BE CONSIDERED AS AN ADEQUATE EQUIPMENT GROUNDING PATH.** Where connections are made to painted surfaces, the paint shall be scraped to fully expose metal at the connection point and serrated connectors or washers shall be used. Where metallic conduit is utilized as the equipment-grounding conductor, extreme care shall be exercised to assure continuity at joints and termination points. No wiring run shall be installed without a suitable equipment ground conductor. Where no equipment ground conductor is provided for in the plans and associated specified pay item, the Contractor is obligated to bring the case to the attention of the Engineer who will direct the Contractor accordingly. Work, which is extra to the contract, will be paid extra. All connections to ground rods, structural steel, reinforcing steel or fencing shall be made with exothermic welds care shall be taken not to weaken load carrying members. Where such connections are made to insulated conductors, the connection shall be wrapped with at least 4 layers of electrical tape extended 152.4 mm (six inches) onto the conductor insulation. Where a ground field of "made" electrodes is provided, the exact locations of the rods shall be documented by dimensioned drawings as part of the Record Drawings. Equipment ground wires shall be bonded, using a splice and pigtail connection, to all boxes and other metallic enclosures throughout the wiring system.

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

GROUND ROD

Effective: January 1, 2002

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

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

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

CONSTRUCTION REQUIREMENTS

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

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

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

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

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

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

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

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

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

UNDERGROUND RACEWAYS

Effective: January 1, 2002

Revise Article 810.03 of the Standard Specifications to read:

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

Add the following to Article 810.03 of the Standard Specifications:

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

EXPOSED RACEWAYS

Effective: March 1, 2003

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

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

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

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

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

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

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

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

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

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

- “a. PVC Coated Steel Conduit. The PVC coated rigid metal conduit shall be UL Listed (UL 6). The PVC coating must have been investigated by UL as providing the primary corrosion protection for the rigid metal conduit. Ferrous fittings for general service locations shall be UL Listed with PVC as the primary corrosion protection. Hazardous location fittings, prior to plastic coating shall be UL listed.
- b. The PVC coating shall have the following characteristics:
- | | |
|----------------------|---|
| Hardness: | 85+ Shore A Durometer |
| Dielectric Strength: | 400V/mil @ 60 Hz |
| Aging: | 1,000 Hours Atlas Weatherometer |
| Temperature | The PVC compound shall conform at 0 °F. to Federal Specifications PL-406b, Method 2051, Amendment 1 of 25 September 1952 (ASTM D 746) |
| Elongation: | 200% |
- c. The exterior and interior galvanized conduit surface shall be chemically treated to enhance PVC coating adhesion and shall also be coated with a primer before the PVC coating to ensure a bond between the zinc substrate and the PVC coating. The bond strength created shall be greater than the tensile strength of the plastic coating.
- d. The nominal thickness of the PVC coating shall be 1 mm (40 mils). The PVC exterior and urethane interior coatings applied to the conduit shall afford sufficient flexibility to permit field bending without cracking or flaking at temperatures above -1°C (30°F).
- e. An interior urethane coating shall be uniformly and consistently applied to the interior of all conduit and fittings. This internal coating shall be a nominal 2 mil thickness. The interior coating shall be applied in a manner so there are no runs, drips, or pinholes at any point. The coating shall not peel, flake, or chip off after a cut is made in the conduit or a scratch is made in the coating.

- f. The PVC conduit shall pass the following tests:

Exterior PVC Bond test RN1:

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

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

Boil Test:

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

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

Interior Adhesion. In accordance with ASTM D3359, a 6" conduit test specimen shall be cut in half longitudinally and placed in boiling water or directly above boiling water with the urethane surface facing down. The specimen shall be periodically removed, cooled to ambient temperature and tested in accordance with the Standard Method of Adhesion by Tape Test (ASTM D3359). When the coating disbonds, the time to failure in hours shall be recorded.

Heat/Humidity Test:

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

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

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

TRENCH AND BACKFILL FOR ELECTRICAL WORK

Effective: January 1, 2002

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

“Trench. Trenches shall have a minimum depth of 912 mm (36 in.) or as otherwise indicated on the plans, and shall not exceed 300 mm (12 in.) in width without prior approval of the Engineer.”

Revise Article 1066.05 of the Standard Specifications to read:

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

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

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

WIRE AND CABLE

Effective: January 1, 2002

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

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

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

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

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

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

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

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

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

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

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

Aerial Electric Cable Properties

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

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

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

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

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

Revise Article 1066.04 to read:

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

Revise the second paragraph of Article 1066.05 to read:

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

Revise Article 1066.08 to read:

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

LUMINAIRE

Effective: March 1, 2003

Add the following to first paragraph of Article 1067.01(a)(3) of the Standard Specifications:

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

Add the following to Article 1067.01(a)(5) a. of the Standard Specifications:

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

Revise the second sentence of the second paragraph of Article 1067.01(a)(5)c. of the Standard Specifications:

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

Nominal Ballast Wattage	Maximum Ballast Regulation
750	25%
400	25%
310	26%
250	22%
150	22%

For this measure, regulation shall be defined as the following:

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

where:

W_{LampH} = lamp watts at +10% line voltage (264v)

W_{LampL} = lamp watts at - 10% line voltage (216v)

W_{LampN} = lamp watts at 240v”

Revise the third sentence of the second paragraph of Article 1067.01(a)(5)c. of the Standard Specifications to read:

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

Nominal Ballast Wattage	Maximum Ballast Losses
750	16.0%
400	16.0%
310	19.0%
250	17.5%
150	26.0%

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 240v

W_{lamp} = lamp watts at 240v

Add the following to Article 1067.01(a)(5)c. of the Standard Specifications:

“Ballast output to lamp. At nominal system voltage and a lamp voltage of 100v, the ballast shall deliver a lamp wattage within $\pm 2\%$ of the nominal lamp wattage. Example: *For a 400w luminaire, the ballast shall deliver 400 watts $\pm 2\%$ at a lamp voltage of 100v for the nominal system voltage of 240v.*”

Add the following to Article 1067.01(a)(5)c. of the Standard Specifications:

“Ballast output over lamp life. Over the life of the lamp the ballast shall produce an average output wattage of the nominal lamp rating $\pm 3\%$. Lamp wattage readings shall be taken at 5-volt increments throughout the ballast trapezoid. The lamp wattage values shall then be averaged within the trapezoid and shall be within $\pm 3\%$ 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 388 to 412 watts*”

Revise the first paragraph of Article 1067.01(a)(7) of the Standard Specifications to read:

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

Add the following to Article 1067.01(a)(7) of the Standard Specifications:

“The Contractor shall be responsible for all costs associated with the specified testing, including but not limited to shipping, travel and lodging costs as well as the costs of the tests themselves, all as part of the bid unit price for this item. Travel, lodging and other associated costs for travel by the Engineer shall be direct-billed to or shall be pre-paid by the Contractor, requiring no direct reimbursement to the Engineer or the independent witness, as applicable”

Add the following to Article 1067.01(a)(7) of the Standard Specifications:

- “d. Engineer Factory Selection and Witness of Manufacturer Testing: At the Manufacturer’s facility, the Engineer shall select the luminaires to be tested and shall be present during the testing process. The Contractor shall schedule travel by the Engineer to and from the Manufacturer’s laboratory to witness the performance of the required tests.”

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

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

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

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width	12 (ft)
	Number of Lanes	4
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	49 (ft)
	Mast Arm Length	15 (ft)
	Pole Set-Back From Edge of Pavement	6 (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 3
	Total Light Loss Factor	0.7
LAYOUT DATA	Spacing	90 (ft)
	Configuration	Opposite
	Luminaire Overhang over edge of pavement	9 (ft)

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

PERFORMANCE REQUIREMENTS

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

ILLUMINATION	Average Horizontal Illumination, E_{AVE}	17 Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	3
LUMINANCE	Average Luminance, L_{AVE}	1.2 Cd/m ²
	Uniformity Ratio, L_{AVE}/L_{MIN}	3
	Uniformity Ratio, L_{MAX}/L_{MIN}	5
	Max. Veiling Luminance Ratio, L_V/L_{AVE}	.3

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

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE

GIVEN CONDITIONS

ROADWAY DATA	Pavement Width	12 (ft)
	Number of Lanes	4
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	16(ft)
	Mast Arm Length	NA
	Pole Set-Back From Edge of Pavement	
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	5800
	I.E.S. Vertical Distribution	NA
	I.E.S. Control Of Distribution	NA
	I.E.S. Lateral Distribution	Type 3
	Total Light Loss Factor	0.7
LAYOUT DATA	Spacing	38 (ft)
	Configuration	Opposite
	Luminaire Overhang over edge of pavement	0(ft)

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

PERFORMANCE REQUIREMENTS

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

ILLUMINATION	Average Horizontal Illumination, E_{AVE}	17 Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	3
LUMINANCE	Average Luminance, L_{AVE}	1.2 Cd/m ²
	Uniformity Ratio, L_{AVE}/L_{MIN}	3
	Uniformity Ratio, L_{MAX}/L_{MIN}	5
	Max. Veiling Luminance Ratio, L_V/L_{AVE}	.3

LAMPS

Effective: January 1, 2002

Revise Article 1067.02(a)(1) of the Standard Specifications to read:
 “The lamps shall be of the clear type and shall have a color of 2050° to 2100° Kelvin.”

LIGHT POLES

Effective: March 1, 2003

Revise the fifth sentence of Article 1069.01(b)(2)d of the Standard Specifications to read:

“A 9.525 mm (3/8 in.) – 16 tapped hole shall be provided in the frame for attaching a mechanical grounding connector.”

Revise the third sentence of Article 1069.01(c)(2)b5 of the Standard Specifications to read:

“A 9.525 mm (3/8 in.) – 16 tapped hole shall be provided in the frame for attaching a mechanical grounding connector.”

STAINLESS STEEL JUNCTION BOX

Effective: January 1, 2002

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

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

UNIT DUCT

Effective: October 1, 2002

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

“The unit duct shall be installed at a minimum depth of 912 mm (36-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, and 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

MAINTENANCE OF LIGHTING SYSTEM

Effective: March 1, 2003

Replace Article 801.12 of the Standard Specifications with the following:

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

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

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

Maintenance of Existing Lighting Systems

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

Extent of Maintenance.

Partial Maintenance. Unless otherwise indicated, if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in a given controller and the controller is not part of the contract work, the Contractor needs only to maintain the affected circuits. The affected circuits shall be isolated by means of in-line waterproof fuse holders as specified elsewhere and as approved by the Engineer.

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

Maintenance of Proposed Lighting Systems

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

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

Lighting System Maintenance Operations

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

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

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

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

- **Service Response Time** -- amount of time from the initial notification to the Contractor until a patrolman physically arrives at the location.
- **Service Restoration Time** – amount of time from the initial notification to the Contractor until the time the system is fully operational again (In cases of motorist caused damage the undamaged portions of the system are operational.)

- **Permanent Repair Time** – amount of time from initial notification to the Contractor until the time permanent repairs are made if the Contractor was required to make temporary repairs to meet the service restoration requirement.

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

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

Operation of Lighting

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

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

PROTECTION AND MAINTENANCE OF EXISTING UNDERPASS LUMINAIRES

Effective: November 11, 2002

Description: This item shall consist of providing protection, temporary support, removal and reattachment as required, of the existing underpass lighting system. The system consists of, but not limited to, luminaires, junction boxes, raceways, support equipment and conductors. Any wiring required to maintain the operation of the underpass or other circuits feed through the underpass lighting system shall be included in this item.

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

Item	Article/Section
(a) Electric Raceway Material.....	1088
(b) Conductors.....	1066.02
(c) Insulation.....	1066.03(b)

CONSTRUCTION REQUIREMENTS

General. Before performing any work, an inventory of all missing hardware of the existing lighting system shall be taken jointly by the Contractor and the Engineer.

Protection During Deck Reconstruction: Luminaires and conduit hangers attached to the bridge deck shall be removed prior to the removal of the existing bridge deck. The luminaires and the conduits shall be temporarily supported during bridge deck reconstruction. The method of support shall be structurally equivalent to the existing system and shall be approved by the Engineer. Existing vertical clearances shall be maintained at all times.

The underpass luminaires and hardware shall be protected from overhead debris during the removal and reconstruction of the bridge deck. The underpass luminaire protection shall be coordinated with the protective shield as described elsewhere in these Special Provisions.

The underpass lighting system shall be protected from spills and over-spray during any painting operations. The Contractor at no additional expense to the State shall remove spills and over-spray. If spills or over-spray occur on the luminaire lens, the luminaire lens shall be replaced with new lens from the luminaire manufacturer at no additional cost to the State.

Prior to bridge deck removal the Contractor shall measure and log the location of all existing conduit and luminaire hangers for reattachment purposes. Upon completion of the bridge deck reconstruction, the existing underpass lighting system shall be permanently reattached at these locations. New heavy duty expansion anchors, as approved by the Engineer, shall be used. New hangers may be installed at the option of the Contractor. The new hangers shall be equivalent to the existing hangers or as approved by the Engineer. The cost of the new expansion anchors and hangers shall be included in this pay item.

Damage to Underpass Lighting System: Should the lighting system be damaged through the Contractor's operations, repairs shall be made by the Contractor at no additional cost to the State.

All repairs shall be performed expeditiously and shall be approved by the Engineer. The Contractor shall conduct his work in a manner as not to keep out of service any of the lighting between 4:00 PM and 8:00 AM. All lights shall be tested daily and any necessary repairs shall be made immediately without delay.

Damaged cable shall be replaced in complete spans, no underground splices will be allowed. Temporary aerial quadruplex cable may be used to maintain luminaires operational provided it does not interfere with traffic or other operations as determined by the Engineer.

Grounding of Existing Lighting System: As indicated on the plans, the Contractor shall furnish and install a grounding conductor for the underpass lighting system in all existing conduits, junction boxes and luminaires. The ground conductor shall be a 1/C #10 AWG EPR (Type-RHW) green insulated conductor. The new ground conductor shall be connected to the existing ground conductor in the main junction box. The cost of this work shall be included in this pay item.

The continuity and continued operation of the adjacent lighting system shall be the responsibility of the Contractor. Any temporary wiring required to comply with this requirement shall be included in this item.

Basis of Payment: This work shall be paid for at the contract lump sum price for **PROTECT AND MAINTAIN EXISTING UNDERPASS LUMINAIRE**, which shall be payment for the work as described herein and as indicated in the plans.

MAST ARM, STEEL, STREET LIGHTING, 15 FT.

Description: This item shall consist of furnishing and installing a steel mast arm on a combination traffic signal/light pole to support a street light luminaire, complete with all required hardware and accessories.

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

Item	Article/Section
(a) Mast Arm	1069.01(c)

Installation: The mast arm shall be installed on the combination traffic signal/light pole in accordance with the manufacturer's instructions.

Basis of Payment. This work shall be paid for at the contract unit price each for **MAST ARM, STEEL, STREET LIGHTING, 15 FT.**, which shall be payment in full for furnishing and installing the mast arm complete in place.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT
Effective: January 1, 2002

This item shall consist of relocating the existing emergency vehicle priority system, detector unit (single channel or dual channel) from its existing location to a new traffic signal post or mast arm assembly and pole, and connecting it to an emergency vehicle priority system, phasing unit. If the existing Emergency Vehicle Priority System, Detector Unit Assembly includes a Confirmation Beacon, the Confirmation Beacon shall also be relocated and connected to the Emergency Vehicle Priority System, Detector Unit.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment.

Basis of Payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT, which price shall be payment in full for disconnecting the existing emergency vehicle priority system, detector unit and reinstalling it at a location shown on the plan or as directed by the Engineer along with its connection to an emergency vehicle priority system, phasing unit. The relocation and connection of an existing Confirmation Beacon shall be incidental to this pay item.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT

Effective: January 1, 2002

This item shall consist of relocating the existing emergency vehicle priority system phasing unit from an existing traffic signal controller cabinet to a new traffic signal controller cabinet, as indicated in the plans or as directed by the Engineer.

The work shall include disconnecting the emergency vehicle priority system phasing unit(s) and reconnecting it to a new wiring harness which is to be factory wired into the new traffic signal controller cabinet.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment.

Basis of Payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT, which price shall be payment in full for disconnecting the existing emergency vehicle priority system phasing unit, relocating and connecting the emergency vehicle priority system phasing unit to the new wiring harness at its new location complete and operating to the satisfaction of the Engineer.

FULL-ACTUATED CONTROLLER AND CABINET (SPECIAL)

Effective: January 1, 2002

This work shall consist of furnishing and installing a(n) "Econolite" brand traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of the current District One Traffic Signal Special Provisions.

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).

TSC T400#1

SPECIAL PROVISION

REPLACE EXISTING DECAL WITH NEW LUMINAIRE NUMBERING DECAL

Description: This item shall consist of replacing existing decal with new stainless steel luminaire numbering decal for lighting units as indicated in the contract plans.

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

Item	Article/Section
(a) Pole/Unit identification	1069.02

Installation: The luminaire numbering decal shall be installed for each light pole and underpass light as indicated in the plans to correspond to actual circuiting designated by the Engineer. The installation will be in accordance with Article/Section 1069.02

Basis of Payment. This work shall be paid for at the contract unit price each for **REPLACE EXISTING DECAL WITH NEW LUMINAIRE NUMBERING DECAL**, which shall be payment in full for furnishing and installing the luminaire numbering decal complete in place.

ELECTRIC CONNECTION TO SIGN STRUCTURE

Effective: October 1, 2002

Description: This item shall consist of furnishing all material and work required to connect the extension of a lighting circuit at the base of a sign structure. The feeder, up to the sign structure as shown on the drawings or as directed by the Engineer will be paid for separately.

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

Item	Article/Section
(a) Electric Raceway Material.....	1088
(b) Conductors.....	1066.02
(c) Insulation.....	1066.03

Disconnect Switch. The disconnect switch shall be 600 volt, 3-pole, 30 ampere, fusible, with solid neutral in a NEMA 4X stainless steel enclosure, complete with 20 ampere, 600 volt, dual element time delay 4L Class R fuses having a UL listed interrupting rating of not less than 200,000 rms symmetrical amperes at rated voltage.

CONSTRUCTION REQUIREMENTS

General. This item shall include fusing at the base of the structure, a disconnect switch adjacent to the sign panels and shall also include the wiring, raceways, fittings and the like between the base fusing and the disconnect switch and from the disconnect switch to the sign luminaires, all as depicted on the Plans, as specified herein and as directed by the Engineer. Sign luminaires will be paid separately

Basis of Payment. This work shall be paid for at the contract unit price each for **ELECTRIC CONNECTION TO SIGN STRUCTURE.**

TRAFFIC SIGNAL SPECIFICATIONS

Effective: January 1, 2002

Revised: May 22, 2002

These Traffic Signal Special Provisions and the "District 1 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. 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 Section 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.

SECTION 800 ELECTRICAL

INSPECTION OF ELECTRICAL SYSTEMS.

Add the following to Section 802.01 of the Standard Specifications:

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. 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.

DAMAGE TO TRAFFIC SIGNAL SYSTEM.

Revise Section 802.02 of the Standard Specifications to read:

Any damaged equipment or equipment 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.

RESTORATION OF WORK AREA.

Add to Section 802 of the Standard Specifications:

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. Restoration of the work area shall be incidental to the contract without any extra compensation allowed to the Contractor.

SUBMITTALS.

Revise Section 802.04 of the Standard Specifications to read:

The Contractor shall provide:

- a. All material approval requests shall be submitted a minimum of seven (7) days 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, whichever is first.
- b. Seven (7) copies of a letter from the Traffic Signal Contractor listing the 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. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.
- c. One (1) copy of material catalog cuts.
- d. Seven (7) copies of mast arm poles and assemblies.
- e. 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 as required in items b, c and d.
- f. 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.

MAINTENANCE AND RESPONSIBILITY.

Revise Section 802.07 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. 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) 705-4139 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) 705-4139 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. 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.

TRAFFIC SIGNAL INSPECTION (TURN-ON).

Revise Section 802.10 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) 705-4139 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 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. 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 (280 mm X 430 mm) 11" x 17" of the cabinet wiring diagrams.
7. The controller manufacturer shall provide a printer at the turn-on to supply a printed form, not to exceed (280 mm X 430 mm) 11" x 17" 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 803.00 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 1 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 the local Counties or Municipalities may need to be contacted, in the City of Chicago contact D.I.G.G.E.R. at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123.

ELECTRIC SERVICE INSTALLATION.

Revise Section 805.00 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 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications.

Materials.

- a. General. The completed control panel shall be constructed in accordance with UL Std. 508, 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 2.03 mm (0.080-inch) 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 350 mm (14-inches) high, 225 mm (9-inches) wide and 200 mm (8-inches) 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 3.175 mm (0.125-inch) thick, the top 6.350 mm (0.250-inch) thick and the bottom 12.70 mm (0.500-inch) 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 1.91 mm (.075-inch) 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 1000 mm (40-inches high), 400 mm (16-inches) wide and 375 mm (15-inches) 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, otherwise noted on the plans, 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 3.0 meters (10') in length, and 20mm (3/4") 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 type A foundation which includes the ground rod shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 20mm (3/4") grounding conduit, ground rod, and pole mount assembly. Any changes 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 807.00 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 1 Traffic Signal detail plan sheet 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 foundation paid item and will not be paid for separately.

Testing shall be according to Section 801.11.

- 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 Section 801.14 of the Standard Specifications.
 - 1) Equipment grounding conductors shall be XLP insulated No. 6, unless otherwise noted on the plans, and 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 and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. A Listed electrical joint compound shall be applied to all conductors terminations, connector threads and contact points.
 - 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.

- 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.

HANDHOLES.

Add the following to Section 814.00 of the Standard Specifications:

All handholes shall be concrete, poured in place, with inside dimensions of 549 mm (21-1/2") 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 15.875 mm (7/16") 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 300 mm (12 inches).

All conduits shall enter the handhole at a depth of (760 mm) 30" except for the conduits for detector loops when the handhole is less than (1.52 m) 5' from the detector loop.

Steel cable hooks shall be coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 9.525 mm (3/8") diameter and extend into the handhole at least 150 mm (6 inches). Hooks shall be placed a minimum of 300 mm (12 inches) below the lid or lower if additional space is required.

FIBER OPTIC TRACER CABLE.

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

Add to Section 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. 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. The tracer cable will be allowed to be spliced at the handholes only. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable splice shall use a Western Union Splice soldered with resin core flux. All exposed surfaces of the solder shall be smooth. Splices shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. The splice shall be covered with WCSMW 30/100 heat shrink tube, minimum length (100 mm) 4" and with a minimum (25 mm) 1" coverage over the XLP insulation, underwater grade.

Revise Section 817.05 of the Standard Specifications to read:

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

GROUNDING CABLE.

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

Add to Section 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 XLP jacket.

The traffic signal grounding conductor shall be bonded, using a Listed grounding connector (Burdny 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. Bonding to existing handhole frames and covers shall be paid for separately.

Revise Section 817.05 of the Standard Specifications to read:

Basis of Payment. Grounding cable shall be measured in place for payment in (meter) foot. 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/other Listed connectors and hardware.

RAILROAD INTERCONNECT CABLE.

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

Add to Section 817.02 of the Standard Specifications:

The cable shall be three conductor standard #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.

Revise Section 817.05 of the Standard Specifications to read:

Basis of Payment. This work shall be paid for at the contract unit price per (meter) foot 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.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Revise Section 850.00 of the Standard Specifications to read:

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 on staff electricians with IMSA Level II certification 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, telephone service installations, communication cables and conduits to adjacent intersections.

The maintenance shall be according to District 1 revised Article 802.07 and the following contained herein.

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, 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. At approaches where a yellow flashing indication is necessary, as directed by the Engineer, stop signs will not be required. 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 these Specifications.

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 State. 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.

Basis of Payment. This work shall be paid for at the contract unit price each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

TRAFFIC ACTUATED CONTROLLER.

Add the following to Section 857.00 of the Standard Specifications:

Controllers shall be NEMA TS2 Type 1, Econolite ASC/2S-1000 or Eagle M41 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District 1 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. 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.

By December 31, 2002, the controller shall provide a background timer which will prevent phases from being skipped during program changes.

MASTER CONTROLLER.

Revise Sections 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 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 Specification 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.

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.

The cabinet shall be provided with a Siecor CAC 3000, or equivalent, 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. The CAC 3000 shall be equipped with a standard Three-Electrode Heavy Duty Gas Tube Surge Arrestor.

The cabinet shall provide a caller identification unit with 50 number memory.

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.

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 suitable media (CD, 3 1/2" or 5 1/4" floppy disks as requested 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 his use in monitoring the system.

The Contractor shall be required to setup graphic displays and all software parameters for every intersection to be interconnected under this Contract, including complete viewing and control capabilities from IDOT remote monitor.

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 1 staff.

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 1 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).

FIBER OPTIC CABLE.

Revise Section 871.00 of the Standard Specifications to read:

This work shall consist of furnishing and installing Fiber Optical cable in conduit with all accessories and connectors according to Section 871 of the Standard Specifications. The cable shall be of the type, size, and the number of fiber specified.

The control cabinet distribution enclosure shall be 3M Model 8173 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. 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 (4m) 13.0' of slack cable shall be provided for the controller cabinet. The controller cabinet slack cable shall be stored as directed by the Engineer.

Fiber Optic cable may be gel filled or an approved water blocking tape.

Basis of Payment. The work shall be paid for at the contract unit price for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F, per (meter) foot for the cable in place, including distribution enclosure and all connectors.

CONCRETE FOUNDATIONS.

Add the following to Section 878.03 of the Standard Specifications:

All anchor bolts shall be according to Section 1006.09, except all anchor bolts shall be hot dipped galvanized the full length of the anchor bolt including the hook.

Concrete Foundations, Type "A" for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "District 1 Standard Traffic Signal Design Details." All Type "A" foundations shall be a minimum depth of 1.22 m (48").

Concrete Foundations, Type "D" for Traffic Signal Cabinets shall be a minimum of 1.22 m (48") long and 790 mm (31") wide. All Type "D" foundations shall be a minimum depth of 1.22 m (48"). The concrete apron shall be 910 mm X 1220 mm X 130 mm (36"x48"x5"). 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 following requirements:

DESIGN TABLE FOR 750 mm (30-INCH) DIAMETER FOUNDATION
FOR ALL MAST ARMS 4.26M (14 FEET) TO 16.76M (55 FEET)
AND ALL COMBINATION POLES (DESIGN DEPTH IS 4.57 m [15 FEET])

	TYPE OF SOIL DESCRIPTION	DESIGN DEPTH OF FOUNDATION		TYPE OF SOIL DESCRIPTION	DESIGN DEPTH OF FOUNDATION
1.	SOFT CLAY	5.33 m(17' – 6")	*4.	LOOSE SAND	3.05 m(10' – 0")
2.	MEDIUM CLAY	3.81 m(12' – 6")	*5.	MEDIUM SAND	2.74 m(9' – 0")
3.	STIFF CLAY	2.59 m(8' – 6")	*6.	DENSE SAND	2.44 m(8' – 0")

* WATER TABLE ASSUMED BELOW DEPTHS SPECIFIED

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation. Foundations used for Roadway Lighting shall provide an extra 65 mm (2-1/2 inch) duct.

DETECTOR LOOP.

Revise Section 886 of the Standard Specifications to read:

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) 705-4139 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.

Loop detectors shall be installed according to the requirements of the "District 1 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 250W175C 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 6.3 mm (1/4") deep x 100 mm (4") 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 A/C Grade or an approved equal. The sealant shall be installed 3 mm (1/8") 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 incidental to the price of the detector loop. Unit duct, trench and backfill, and drilling of pavement or handholes shall be incidental to detector loop quantities.

- (b) Preformed. This work shall consist of furnishing and installing a rubberized 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 protected to the satisfaction of the Engineer.

Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole.

Preformed detector loops shall be factory assembled. 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 17.2 mm (11/16") outside diameter (minimum), 9.5 mm (3/8") inside diameter (minimum) Class A oil resistant synthetic cord reinforced hydraulic hose with 1,720 kPa (250 psi) internal pressure rating. 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. 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.

Basis of Payment. This work shall be paid for at the contract unit price per meter (foot) 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 887.00 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 1 Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 150 watt Par 38 flood lamp 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 4E-5 of the "Manual On Uniform Traffic Control Devices." The stopped pre-empted movements shall be signaled by a continuous indication.

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.

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 incidental to 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 890.00 of the Standard Specifications to read:

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.

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 TS1 or 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 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) 100 mm (4 inch) diameter holes to run the electric cables through. The 100 mm (4 inch) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

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".

All traffic signal sections and pedestrian signal sections shall be 300 mm (12 inches). 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 cable slack 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.

The existing system interconnect is 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 incidental to the item Temporary Traffic Signal Installation.

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 incidental to the item Temporary Traffic Signal Installation.

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. Minor cross streets shall have vehicular detection provided by Microwave Vehicle Sensors or Video Vehicle Detection System as shown on the plans or as directed by the Engineer. The microwave vehicle sensor or video vehicle detection system shall be approved by IDOT before 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.

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.

The energy charges for the operation of the 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.

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.

Maintenance shall meet the requirements of the Traffic Specifications and District Specifications for "Maintenance of Existing Traffic Signal Installation." Maintenance of temporary signals and of the existing signals shall be incidental to the cost of this 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. Maintenance responsibility of the existing signals shall be incidental to the item Temporary Traffic Signal Installation(s). 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 (847) 705-4139 for an inspection of the installation(s).

Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District 1 Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the above requirements for "Temporary Traffic Signal Installation". In addition all electric cable shall be aurally suspended, at a minimum height of 5.5m (18 feet), on temporary wood poles (Class 5 or better) of 13.7 m (45 feet), 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 or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection may be used in place of the detector loops as approved by the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price each for TEMPORARY 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.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT.

Add the following to Section 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 by them outside the right-of-way at their 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. He 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 he 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 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.

SECTION 1000 MATERIALS

PEDESTRIAN PUSH-BUTTON.

Add the following to Section 1074.02 (b) and (d) of the Standard Specifications to read:

- (b) Push-button assemblies shall be a cast aluminum alloy Pelco Push-button station, or an approved equivalent.
- (d) The assembly shall provide ADA push-buttons with one of the following signs: SF-1017, 1018 or 1020 - 5" x 7³/₄" (127 mm x 197 mm).

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Revise Section 1074.03 of the Standard Specifications to read:

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.

- 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.
- Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
- BIU – Containment screw required.
- Transfer Relays – Solid state or mechanical flash relays are acceptable.

- Switch Guards – All switches shall be guarded.
- Heating – Two (2) porcelain light receptacles with cage protection controlled by both a wall switch and a thermostat.
- Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.
- Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channel (16) of vehicular operation.
- Field Wiring Labels – All field wiring shall be labeled.
- Field Wiring Termination – Approved channel lugs required.
- Power Panel – Provide a nonconductive shield.
- Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
- Police Door – Provide wiring and termination for plug in manual phase advance switch.
- Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

TRAFFIC ACTUATED CONTROLLER AND CABINET INTERCONNECTED WITH RAILROADS.

Add the following to Section 1074.03 of the Standard Specifications to read:

Cabinets shall be new and NEMA TS2 Type 1 design. In addition to the aforementioned District One equipment specifications, the following shall apply to railroad interconnected equipment: Railroad interconnected controllers and cabinets shall be assembled only by an approved traffic signal equipment supplier. The equipment shall be tested and approved in the equipment suppliers District One facility prior to field installation.

Pedestrian clearance during railroad pre-emption shall be limited to a flashing don't walk interval in length to the vehicle yellow clearance interval and shall time concurrently with the vehicle yellow clearance.

The controller shall provide for immediate track clearance green re-service upon receipt of each subsequent pre-empt demand. During this re-service all normal vehicle clearance intervals, including red revert, will be respected.

The terminal facility shall be wired so as to provide supervision of all essential pre-emption components. This wiring shall cause the facility to transfer to or remain in flashing operation in the event any critical component is missing, not connected or failed. Interface relays shall be wired so as to be in the energized state during normal (non-pre-empt) operation. Failure of a relay coil shall open the supervision loop and cause the intersection to transfer to flashing operation. Each critical element such as controller harnesses and interface relays shall be wired to form a series loop which must be complete for normal operation.

A method of supervising the 3 conductor cable interconnecting the traffic and railroad facilities shall provide flashing operation during failed cable conditions. Upon detection of a failed railroad interconnect the controller shall provide one (1) track clearance green interval and shall enter flashing operation at end of track clearance yellow interval. Such flashing operation must be manually reset. The supervision circuit shall, within reason, be capable of detecting failure of the supervision circuit components themselves, and shall provide fail-safe operation upon such failure.

The interconnect to railroad facility shall be such that demand for pre-emption begins when the railroad flashers begin to flash and ends when railroad gates begin to rise.

An IDOT approved method of controller security shall be implemented to assure data integrity and to preclude changes to critical data. The method shall include a means for the controller to continuously verify controller/cabinet CRC match. The CRC will be developed based on pre-emptor entries, unit data (including phases in use, sequence and ring structure, etc.), overlap assignment and timing, firmware version, and any special memory content necessary to proper operation. Where data is stored in a data module a spare data module shall be provided to the Engineer.

A test switch shall be provided in the railroad circuit to initiate pre-emption. See cabinet specifications.

ELECTRIC CABLE.

Delete "or stranded, and No. 12 or" from the last sentence of Section 1076.04 (a) of the Standard Specifications.

MAST ARM ASSEMBLY AND POLE.

Add the following to Section 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.

This work shall consist of furnishing and installing a galvanized steel or extruded aluminum shroud for protection of the mast arm pole base plate similar to the dimensions detailed in the "District 1 Standard Traffic Signal Design Details." The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall allow air to circulate throughout the mast arm but not allow manifestation of insects or critters. The shroud shall be constructed, installed and designed not to be hazardous to probing fingers and feet. All mounting hardware shall be stainless steel. The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

TRAFFIC SIGNAL POST.

Add the following to Section 1077.03 (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.

SIGNAL HEADS.

Add the following to Section 1078 of the Standard Specifications to read:

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) or galvanized. A corrosive 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" lenses. Egg crate sun shields are not permitted.

Signal heads shall be positioned according to the "District 1 Standard Traffic Signal Design Details."

SIGNAL HEAD, BACKPLATE.

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

INDUCTIVE LOOP DETECTOR.

Add the following to Section 1079.01 of the Standard Specifications:

Contracts requiring new cabinets shall provide for card mounted detector amplifiers. Loop amplifiers shall provide LCD displays with loop frequency, inductance, and change of inductance readings.

ILLUMINATED SIGN, LIGHT EMITTING DIODE.

Description. This work shall consist of furnishing and installing an illuminated sign with light emitting diodes.

General. 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.

Display. The LED blank out sign shall provide the correct symbol and color for "NO LEFT TURN" OR "NO RIGHT TURN" indicated in accordance with the requirements of the "Manual on Uniform Traffic Control Devices". The message shall be formed by rows of LEDs.

The message shall be clearly legible. The message shall be highly visible, anywhere and under any lighting conditions, within a 15 degree cone centered about the optic axis.

The sign face shall be 24 inches (600 mm) by 24 inches (600 mm). The sign face shall be completely illegible when not illuminated. No symbol shall be seen under any ambient light condition when not illuminated.

All LEDs shall be T-1 3/4 (5mm) and have an expected lamplife of 100,000 hours. Operating wavelengths will be Red-626nm, Amber-590nm, and Bluish/Green-505nm. Transformers shall be rated for the line voltage with Class A insulation and weatherproofing. The sign shall be designed for operation over a range of temperatures from -35F to +165 F (-37C to +75C).

The LED module shall include the message plate, high intensity LEDs and LED drive electronics. Door panels shall be flat black and electrical connections shall be made via barrier-type terminal strip. All fasteners and hardware shall be corrosion resistant stainless steel.

Housing. The housing shall be constructed of extruded aluminum. All corners and seams shall be heli-arc welded to provide a weatherproof seal around the entire case. Hinges shall be continuous full-length stainless steel. Signs shall have stainless steel hardware and provide tool free access to the interior of the sign. Doors shall be 0.125-inch thick extruded aluminum with a 3/16-inch x 1-inch neoprene gasket and sun hood. The sign face shall have a polycarbonate, matte clear, lexan face plate. Drainage shall be provided by four drain holes at the corners of the housing. The finish on the sign housing shall include two coats of exterior enamel applied after the surface is acid-etched and primed with zinc-chromate primer.

Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and brackets specified herein.

Basis of Payment. This work shall be paid for at the unit price each for ILLUMINATED SIGN, L.E.D.

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 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications.

The equipment grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) 1/2-inch diameter x 1 1/4-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 (Burndy 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 contaminates. 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.

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM

This work shall consist of providing a revised Signal Coordination and Timing (SCAT) Report and implementing optimized timings to an existing previously optimized closed loop traffic signal system. This work is required due to the addition of a signalized intersection to an existing system or a modification of an existing signalized intersection which affects the quality of an existing system's operation. MAINTENANCE OF THE SUBJECT INTERSECTION SHALL NOT BE ACCEPTED BY THE DEPARTMENT UNTIL THIS WORK IS COMPLETED.

After the new signalized intersection is added or the existing signal is modified, the traffic signal system shall be re-optimized by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District 1 of the Illinois Department of Transportation. The Contractor shall contact the Area Traffic Signal Operations Engineer at (708) 705-4139 for a listing of approved Consultants.

A listing of existing signal equipment, interconnect information and existing phasing/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 floppy disks, copies containing software runs for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. The Consultant shall consult with the Area Traffic Signal Operations 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 re-optimization.

Traffic counts shall be taken at the subject intersection a minimum of 30 days after the traffic signals are approved for operation by the Area Traffic signal Operations Engineer. Seven day/twenty-four hour automatic traffic recorder counts will be required and 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 typical weekday from midday Monday to midday Friday, and if necessary, on the weekend. Additional manual turning movement counts may be necessary if heavy traffic flows exist during off peak hours. The turning movement counts shall identify cars, heavy vehicles, buses, and pedestrian movements.

A Capacity Analysis shall be conducted at the subject intersection to determine its level of service and degree of saturation. 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 with minor adjustments if necessary. Changes to the cycle lengths and offsets for the entire system may be required due to the addition/modification of the subject intersection. Both volume and occupancy shall be considered when developing the re-optimized timing program. Signal system optimization analyses shall be conducted utilizing SYNCHRO, PASSER II, TRANSYT 7F, SIGNAL 2000 or other appropriate approved computer software.

If the system is being re-optimized due to the addition of a signalized intersection, all the intersections shall be re-addressed according to the current standard of District One. The proposed signal timing plan shall be forwarded to IDOT for review prior to implementation. The timing plan shall include a traffic responsive program and a time-of-day program which may be used as a back-up system. After downloading the system timings, the Consultant shall make fine tuning adjustments to the timing in the field to alleviate observed adverse operating conditions and to enhance operations.

The Consultant shall furnish to IDOT an original and two copies of the revised SCAT Report for the re-optimized system. The report shall contain the following: turning movement and automatic traffic recorder counts, capacity analyses for each count period, computer optimization analysis for each count period, proposed implementation plans and summaries including system description, analysis methodology, method of effectiveness comparison results and special recommendations and/or observations. The new report shall follow the format of the old report and shall incorporate all data from the old report which remains unchanged. Copies of the entire database including intersection displays and any other displays which the system software allows shall be furnished to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

Basis of Payment. This work shall be paid for at the contract unit price per lump sum for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein.

UNIT DUCT.

All installations of Unit Duct shall be incidental to the contract and not paid for separately. Polyethylene unit duct shall be used for detector loop raceways to the handholes. On temporary traffic signal installations with detector loops, polyethylene unit duct shall be used for detector loop raceways from the saw-cut to (3 m) 10' up the wood pole, unless otherwise shown on the plans. Unit duct shall meet the requirements of NEC Article 343.

SIGNAL HEAD, LIGHT EMITTING DIODE.

a) General:

- 1) Signal Head, Light Emitting Diode (LED), 1 Face, (All Section Quantities), (All Mounting Types) shall meet the requirements of Sections 880 and 881 and Articles 1078.01 and 1078.02 of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2002, with the following modifications:
- 2) All signal and pedestrian heads shall be 300 mm (12") glossy black polycarbonate. Connecting hardware and mounting brackets shall be polycarbonate (black) or galvanized. A corrosive 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.

- 3) The optical unit of all traffic signal and pedestrian head sections shall be light emitting diodes (LEDs) instead of incandescent bulbs. Each signal head shall conform fully to the "Interim Purchase Specification of the Institute of Transportation Engineers (ITE) for LED Vehicle Traffic Signal Modules" published July, 1998, or applicable successor ITE specification.
- 4) The lens of each signal indication 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 applied to provide abrasion resistance.
- 5) Each pedestrian signal LED module shall provide the ability to actuate the outlined upraised hand and the outlined walking person on one 12-inch (300mm) section. Two (2) 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. "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).
- 6) 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.
- 7) In the event of a power outage, light output from the LED modules shall cease instantaneously.
- 8) In addition to conforming with the requirements for circular LED signal modules, LED arrow indication modules shall meet existing specifications stated in the ITE Standard: "Vehicle Traffic Control Signal Heads," section 9.01. 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. The LEDs shall be spread evenly across the illuminated portion of the arrow area.
- 9) 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 Section 4.1.1 of the Interim Purchase Specification of the ITE for LED Vehicle Traffic Signal Modules 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.
- 10) 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.

- 11) 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.
- 12) 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.

b) Electrical

- 1) Maximum power consumption for LED modules is per Table 1.
- 2) LED modules will have EPA Energy Star compliance ratings, if applicable to that shape, size and color.
- 3) The modules shall operate from a 60 HZ \pm 3 HZ AC line over a voltage ranging from 95 volts to 135 volts. The fluctuations of line voltage shall have no visible effect on the luminous intensity of the indications.
- 4) Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.
- 5) The LED signal module shall have a power factor of 0.90 or greater.
- 6) Total harmonic distortion (current and voltage) induced into an AC power line by a LED signal module shall not exceed 20 percent.
- 7) The signal module on-board circuitry shall include voltage surge protection to withstand high-repetition noise transients as stated in Section 2.1.6 of NEMA Standard TS-2, 1992.
- 8) The LED circuitry shall prevent perceptible flicker to the unaided eye over the voltage range specified above.
- 9) All wiring and terminal blocks shall meet the requirements of Section 13.02 of the ITE Publication: Equipment and Material Standards, Chapter 2 (Vehicle Traffic Control Signal Heads).
- 10) The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

- 11) 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.
- 12) The modules and associated on-board circuitry must meet Class A emission limits referred in Federal Communications Commission (FCC) Title 47, SubPart B, Section 15 regulations concerning the emission of electronic noise.

c) Photometric Requirements

- 1) The minimum initial luminous intensity values for the modules shall be as stated in Table 2 and/or Table 4 at 25°C.
- 2) The modules shall meet or exceed the illumination values as shown in Table 3 and/or Table 4, 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 Table 5, throughout the useful life over the operating temperature range.

d) Environmental Requirements

- 1) The LED signal module shall be rated for use in the operating temperature range of -40°C (-40°F) to +74°C (+165°F). The modules shall meet all specifications throughout this range.
- 2) The LED signal module shall be protected against dust and moisture intrusion per the requirements of NEMA Standard 250-1991 for Type 4 enclosures to protect all internal components.

e) Construction

- 1) The LED signal module shall be a single, self-contained device, not requiring on-site assembly for installation. The power supply for the module shall be integral to the unit.
- 2) The circuit board and power supply shall be contained inside the module.
- 3) The assembly and manufacturing process for the LED signal assembly shall be designed to assure all internal components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

f) Materials

- 1) Material used for the lens and signal module construction shall conform to ASTM specifications for the materials.
- 2) Enclosures containing either the power supply or electronic components of the signal module shall be made of UL94VO flame retardant materials. The lens of the signal module is excluded from this requirement.

g) Traffic Signal and Pedestrian LED Module Identification

- 1) Each module shall have the manufacturer's name, trademark, model number, serial number, date of manufacture (month-year), and lot number as identification permanently marked on the back of the module.
- 2) The following operating characteristics shall be permanently marked on the back of the module: rated voltage and rated power in Watts and Volt-Ampere.
- 3) 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 25.4 mm (one inch) in diameter. Additionally, the color shall be written out in 12.7mm (½ in) letters next to the symbol.
- 4) If a specific mounting orientation is required, each module shall have prominent and permanent marking(s) for correct indexing and orientation within a signal housing. The markings shall consist of an up arrow, or the word "UP" or "TOP".

h) Traffic Signal LED Module

- 1) Modules can be manufactured under this specification for the following faces:
 - a 300 mm (12-inch) circular, multi-section
 - b 300 mm (12-inch) arrow, multi-section
 - c 300 mm (12-inch) pedestrian, 2 sections
- 2) The maximum weight of a module shall be 1.8 kg (4 lbs.).
- 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.

i) Retrofit Traffic Signal Module

- 1) The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superceded in this section.
- 2) Retrofit modules can be manufactured under this specification for the following faces:
 - a 300 mm (12-inch) circular, multi-section
 - b 300 mm (12-inch) arrow, multi-section
 - c 300 mm (12-inch) pedestrian, 2 sections
- 3) The module shall fit into existing traffic signal section housings built to the specifications detailed in ITE Publication: Equipment and Material Standards, Chapter (Vehicle Traffic Control Signal Heads).
- 4) 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.

- 5) The maximum weight of a Retrofit module shall be 1.8 kg (4 lbs.).
 - 6) 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.
 - 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.
- j) Two secured, color coded, 600 V, 20 AWG minimum, jacketed wires, conforming to the National Electric Code, rated for service at +105°C, are to be provided for electrical connection for each LED signal module. Conductors for modules, including Retrofit modules, shall be 39.4-inches (1m) in length, with quick disconnect terminals attached.
- k) Lens
- 1) The lens of the module shall be tinted and integral to the unit, convex with a smooth outer surface and made of plastic.
 - 2) 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.
 - 3) The LED signal module lens shall be UV stabilized and shall be capable of withstanding ultraviolet (direct sunlight) exposure for a minimum period of 60 months without exhibiting evidence of deterioration.
 - 4) The polymeric lens shall have a surface coating or chemical surface treatment to provide front surface abrasion resistance.
- l) The following specification requirements apply to the 12-inch (300 mm) arrow module only. All general specifications apply unless specifically superceded in this section.
- 1) The arrow module shall meet specifications stated in Section 9.01 of the ITE Publication: Equipment and Material Standards, Chapter 2 (Vehicle Traffic Control Signal Heads) for arrow indications.
 - 2) The LEDs shall be spread evenly across the illuminated portion of the arrow area.
- m) The following specification requirements apply to the 12-inch (300 mm) PV module only. All general specifications apply unless specifically superceded in this section.
- 1) The module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.
 - 2) The LEDs shall be spread evenly across the module.

Basis of Payment. This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, of the type specified, which price shall be payment in full for furnishing the equipment described above including signal head, LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

Pedestrian head(s) shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, of the type specified and of the particular kind of material when specified.

The type specified will indicate the number of faces and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for SIGNAL HEAD, LED of the type specified, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, of the type specified, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) 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.

TABLES

Table 1 Maximum Power Consumption (in Watts)

	Red		Yellow		Green	
	25°C	74°C	25°C	74°C	25°C	74°C
300 mm (12-inch) circular	11	17	22	25	15	15
300 mm (12-inch) arrow	9	12	10	12	11	11
	Hand-Portland Orange		Person-White			
Pedestrian Indication	6.2		6.3			

Table 2 Minimum Initial Intensities for Circular Indications (in cd)

Angle(v,h)	300 mm (12-inch)		
	Red	Yellow	Green
2.5, ±2.5	399	798	798
2.5, ±7.5	295	589	589
2.5, ±12.5	166	333	333
2.5, ±17.5	90	181	181
7.5, ±2.5	266	532	532
7.5, ±7.5	238	475	475
7.5, ±12.5	171	342	342
7.5, ±17.	105	209	209
7.5, ±22.5	45	90	90
7.5, ±27.5	19	38	38
12.5, ±2.5	59	119	119
12.5, ±7.5	57	114	114
12.5, ±12.5	52	105	105
12.5, ±17.5	40	81	81
12.5, ±22.5	26	52	52
12.5, ±27.5	19	38	38
17.5, ±2.5	26	52	52
17.5, ±7.5	26	52	52
17.5, ±12.5	26	52	52
17.5, ±17.5	26	52	52
17.5, ±22.5	24	48	48
17.5, ±27.5	19	38	38

Table 3 Maintained Minimum Intensities for Circular Indications (in cd)

Angle(v,h)	300 mm (12-inch)		
	Red	Yellow	Green
2.5, ±2.5	339	678	678
2.5, ±7.5	251	501	501
2.5, ±12.5	141	283	283
2.5, ±17.5	77	154	154
7.5, ±2.5	226	452	452
7.5, ±7.5	202	404	404
7.5, ±12.5	145	291	291
7.5, ±17.	89	178	178
7.5, ±22.5	38	77	77
7.5, ±27.5	16	32	32
12.5, ±2.5	50	101	101
12.5, ±7.5	48	97	97
12.5, ±12.5	44	89	89
12.5, ±17.5	34	69	69
12.5, ±22.5	22	44	44
12.5, ±27.5	16	32	32
17.5, ±2.5	22	44	44
17.5, ±7.5	22	44	44
17.5, ±12.5	22	44	44
17.5, ±17.5	22	44	44
17.5, ±22.5	20	41	41
17.5, ±27.5	16	32	32

Table 4 Minimum Initial & Maintained Intensities for Arrow and Pedestrian Indications (in cd/m2)

	Red	Yellow	Green
Arrow Indication	5,500	11,000	11,000

Table 5 Chromaticity Standards (CIE Chart) Section 8.04 of

Red	Y: not greater than 0.308, or less than 0.998 – x
Yellow	Y: not less than 0.411, nor less than 0.995 - x,
Green	Y: Not less than 0.506 - .519x, nor less than 0.150 + 1.068x, nor more than 0.730 - x

TRAFFIC SURVEILLANCE

All work and equipment performed and installed under this contract, Contract #62389, Route: FAI 55 (Interstate 55), STATE Section: 2002-022 K, Will County, 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):

Interstate 55 at IL 53 (Ramps)

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.

400#2

TRAFFIC SURVEILLANCE. - GENERAL

Effective: June 1, 1994

Revised: June 11, 2003

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. 895 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 that will provide for satisfactory in-service operation of the mechanical and electrical equipment and related components. These warranties or guarantees shall cover a period of two (2) years following project acceptance. The 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. Contractor 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. A 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 & 1088 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.

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.

TSC T418#1

INDUCTION LOOP

Effective: June 1, 1994

Revised: June 11, 2003

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.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, constructed 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 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 Art. 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 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.

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.

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 counter-clockwise, 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.

TSC T418#2

PREFORMED INDUCTION LOOP EMBEDDED IN NEW CONCRETE PAVEMENT

Effective: Feb. 11, 1997

Revised: June 11, 2003

1. DESCRIPTION

This item shall consist of furnishing, installing and testing an induction loop, of the dimensions shown on the plans or of the dimensions 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 of the Standard Specifications for Road and Bridge Construction. All cable installation, lead-ins and testing necessary to complete the installation shall conform with the following requirements.

2. MATERIALS

The cable used for induction loop shall be #14-7 strand XHHW XLP-600V, encased in a 9.5mm (3/8") synthetic cord reinforced hydraulic hose with a 17576.75 Grams/sq cm (250 psi) internal pressure rating as manufactured by Goodyear Tire & Rubber 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.

Prefomed detector loops shall be factory assembled. Hose for the loop 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 loops. This will provide maximum wire protection and loop system strength. Hose tee connections shall be 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.

The wire used shall be #14 XHHW stranded copper. The number of turns in the loop shall be application specific. No wire splices will be allowed in the preformed loop assembly.

The loops shall be filled and sealed with a flexible sealant to insure complete moisture blockage and further protect the wire.

Loops and wire will be custom marked as necessary for the job.

3. INSTALLATION DETAILS

These preformed induction loops shall be installed in new concrete pavement at the location shown on the plans or as directed by the Engineer. The loops shall be installed at such a time that the loop can be secured to the reinforcement bars to prevent movement during concrete pour. The induction loop shall have a minimum of 50mm (2 inches) of concrete cover at all points.

The reinforced hose shall be fed through a 50mm (2 in) galvanized steel conduit to a heavy duty handhole (See TY-1TSC-418#10). The hose shall extend a minimum of 1.8 meters (6 feet) into the HDHH.

For loops in bridge decks, the reinforced hose shall extend a minimum of 1.8 meters (6 feet) beyond the forms for the bridge deck pour. Extra care shall be taken when the forms are stripped to insure that no damage is done to the loop. A 254mm x 203.2mm x 101.6mm (10" x 8" x 4") stainless steel junction box, minimum, shall be used to house the splice for the induction loop. This stainless steel junction box shall be attached where the loop hose passes out of the bridge deck. The stainless steel junction box shall not be considered incidental but shall be paid for separately as 254mm x 203.2mm x 101.6mm (10" x 8" x 4") Stainless Steel Junction Box Attached to Structure. Enough loop wire and lead-in shall be coiled in the SS Junction Box to permit the splice to be removed, worked on, and replaced.

Where there are continuous count stations in the new concrete pavement, the loops from inside lane to outside lane shall be wrapped and alternate clockwise, counter-clockwise, etc...as per Loop Table #2 shown below:

Mainline Loop Table # 2

<u>Lane 1</u>	<u>Lane 2</u>	<u>Lane 3</u>	<u>Lane 4</u>
Clockwise	Counter-clockwise	Clockwise	Counter-clockwise

The induction loops shall follow this method to reduce crosstalk between adjacent loops. The synthetic cord reinforced hose outside jacket shall be stamped hose size, hose rating, clockwise or counter-clockwise, loop dimension, # of turns, and wire type every 1.8 meters (6 feet) or as directed by the Engineer.

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.

All induction loops shall contain four (4) 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. 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 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 shall require five (5) turns of No. 14 wire.

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 through which it passes. The loop lead-in shall be color coded and tagged at the core hole, in each junction box it passes through, and at the termination point in the cabinet.

RAMP LOOP TABLE #1

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)

The loop shall be spliced to the lead-in wire with a barrel sleeve crimped and soldered. An 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.

The new concrete pavement slab in which the loop is installed shall be stamped near the right shoulder to indicate an induction loop.

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**

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 rubber reinforced hose in the pavement which contain loop wire. The actual length of wire used in the rubber reinforced hose 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 PREFORMED INDUCTION LOOP. The price will be payment in full for furnishing and installing all materials listed complete and operating in place.

TSC T420#1

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
September 1952 (ASTMD-746)
Elongation: 200%

of 25

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 9.0mm (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.
TSC T420#2

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.

TSC T428#1

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.

TSC T430#1

TRENCH AND BACKFILL

Effective: June 1, 1994

Revised: June 12, 2003

DESCRIPTION

This item shall consist of constructing a trench for the accomodation 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 (foot) and designated as TRENCH AND BACKFILL FOR ELECTRICAL WORK. This price shall include the cost of seeding or sodding the surface of the trench, when and as directed by the Engineer.

TSCT454#1

Specifications for Furnishing and Installing
TONE EQUIPMENT - PROGRAMMABLE

Effective: June 1, 1994 Revised: June 12, 2003

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 Plans, 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 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 600 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 $+60^{\circ}$ 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.

TSC-T454#3

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 RECEIVER PROGRAMMABLE, 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.

TSC T454#4

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 TRANSMITTER PROGRAMMABLE, 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.

TSC T620#1

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.

TSC T637#6

REMOVE AND REINSTALL SURVEILLANCE CABINET

Description

This work shall consist of removing, transporting, and reinstalling a Surveillance Cabinet.

Installation Details

The Contractor shall contact the TSC Engineer at (708) 524-2145, 7 days prior to any work. The TSC Engineer will provide a wiring diagram for the existing cabinet as well as information as to where to pick up an empty cabinet to be installed on existing foundation to protect the wiring.

The Contractor shall transport an empty Type 3 Cabinet from state stock to the location indicated on the plans.

Cabinet Removal

The Contractor shall disconnect all wiring that is necessary for removing the cabinet from the foundation. The cabinet shall be removed from the foundation in a manner that will not cause any damage to the existing foundation, mounting bolts, cabinet housing, existing conduits and wiring, and equipment inside the cabinet. Any damage caused by the Contractor will be repaired or replaced at the Contractor's expense to the satisfaction of the T.S.C. Engineer.

The Contractor shall install the empty Type 3 Cabinet on the existing foundation to protect the existing wiring from damage. The Contractor shall provide a waterproof seal between the cabinet and foundation.

Transport of Existing Cabinet

The Contractor shall remove the equipment from the cabinet prior to transport. This equipment shall include any loose items and/or any items which may be damaged during transport. This includes all of the tone equipment and the loop detectors. This equipment shall be packaged separately and transported to a location approved by the Traffic Systems Center Engineer. Any damage will be repaired or replaced at the Contractor's expense to the satisfaction of the T.S.C. Engineer.

The equipment information shall be documented and a copy shall be given to the TSC Engineer. This information shall include the serial # and frequency of each tone transmitter, as well as the serial # of the digital loop detector.

The cabinet shall be bolted to a ½-inch thick x 3 ft. x 2 ft. piece of plywood. The cabinets shall be transported to an indoor location for rewiring.

Re-wiring of Existing Cabinet

The Contractor shall add additional wiring, terminal boards, surge suppressors and harnesses to the cabinet. This wiring shall be used to add an additional induction loop, loop detector and transmitter. The wiring shall be installed in a neat and workmanlike fashion. The TSC Engineer will provide a wiring diagram and inspect the work prior to transporting the cabinet back to the job site.

Cabinet Re-installation

The rewired cabinet, existing equipment and new equipment shall be transported back to the job site as noted above.

The empty cabinet shall be removed and transported back to state stock.

The rewired cabinet shall be installed on the existing foundation. The Contractor shall provide a waterproof seal between the cabinet and foundation.

The existing wiring, including new loops, shall be reconnected to the appropriate connectors in a neat workmanlike fashion.

METHOD OF MEASUREMENT

This work will be measured for payment in place, in units of each.

BASIS OF PAYMENT

The work of removing, transporting, and reinstalling the cabinets, will be paid for at the contract unit price each for REMOVE AND REINSTALL SURVEILLANCE CABINET. Disconnecting and reconnecting existing wiring, preparation for safe transport, plywood, and watertight sealant will be included in this pay item. Rewiring of the cabinet will not be paid for in this pay item, but will be included in the price for PREFORMED INDUCTION LOOP, DIGITAL LOOP DETECTOR SENSOR UNIT, 2 CHANNEL AND TONE EQUIPMENT, 3 FREQUENCY TRANSMITTER PROGRAMMABLE. Any damage caused by the Contractor will be paid for at the Contractor's expense.

TSC T638#1

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.

OVERHEAD SIGN WALKWAY GRATINGS

This work shall consist of furnishing and installing aluminum walkway gratings consisting of 3/16" x 1 1/2" bearing bars at 1 3/16" o.c. conforming to ASTM B211 Alloy 6061-T6. Cross bars shall be 3/16" x 1 1/2" at 4" o.c. conforming to ASTM B221 Alloy 6063-T5 or 6061-T6. The work shall be in conformance with Section 733 of the Standard Specifications.

This work will be paid for at the contract unit price per foot for OVERHEAD SIGN WALKWAY, TYPE A, or OVERHEAD SIGN WALKWAY, CANTILEVER, TYPE A.

FLUORESCENT LUMINAIRE FOR SIGN LIGHTING

Effective: March 25, 2004

Description: This item shall consist of furnishing, testing as required, and installing a Luminaire suitable for illumination of roadway signage as specified herein...

Materials. Materials shall be according to the following:

Housing: The outer housing shall be constructed from 1.6mm (0.064 inch) thick 3003-H14 aluminum or 300 series stainless steel with a minimum thickness of 0.048". The housing shall have a full length hinge, of the same materials as the housing.

Lens and Frame: The lens frame shall be made of extruded aluminum, or stainless steel as described, and have a continuous extruded neoprene gasket seal to ensure weatherproofing. The frame shall have a concealed retaining latch, which locks the door open for servicing and shall include a safety chain. The frame shall have spring-loaded toggle action latches. The lens shall be made of clear 3mm (0.125inch) thick acrylic.

Housing: The outer housing shall be constructed from 1.6mm (0.064 inch) thick 3003-H14 aluminum or 300 series stainless steel with a minimum thickness of 0.048". The housing shall have a full length hinge, of the same materials as the housing.

Lamp Holders: The lamp holders shall be end mounted, spring loaded, self sealing, and self aligning

Reflector: The reflector shall be made of 0.5mm (0.020 inch) minimum thickness specular aluminum.

Wiring: All wiring connections in the fixture shall terminate on molded phenolic, barriers type, heavy duty, terminal blocks rated for a maximum current of 30 amperes and maximum voltage of 3,300 volts. The terminal block shall accommodate NO 10 AWG wire and shall be legibly color marked to suit the ballast wire colors. All wiring, terminal blocks, and ballast shall be fully enclosed within the fixture so none of the above parts are exposed when relamping.

Ballast: The ballast will be electronic ballast capable of starting two T8 fluorescent lamps as described herein. Manufacturer must have a fifteen-year history of designing and manufacturing electronic ballasts for the North American market. Ballast must be manufactured in a facility certified to ISO Quality System Standards.

Physical Requirements: The ballast must have permanently connected leads integral to the ballast, color coded to ANSI C82.11.

Performance Requirements: The ballast shall have a ballast factor of .85-.92. The ballast shall have a maximum input wattage (ANSI) of 140 watts. The Ballast Efficacy Factor shall be greater than or equal to 0.67. The ballast shall be capable of starting and operate the specified lamps at a minimum temperature of -20degrees Fahrenheit. The ballast must be designed and UL Listed to operate the number and type of lamps as indicated.

Electrical Performance Requirements: The ballast Total Harmonic Distortion shall be less than 10%. The lamp current crest factor shall not exceed 1.6. The power factor shall be greater than 90%. The ballast output frequency shall be greater than 20Khz and less than 30Khz or greater than 42Khz. Ballast output shall not be between 30Khz and 42Khz for any lamp combination.

The ballast must operate between 230-250V (240V nominal), 60Hz. The ballast must maintain light output at +/- 10% during a voltage fluctuation +/- 10% .

Regulatory Requirements: The ballast shall meet ANSI C82.11 limits for Total Harmonic Distortion (THD) The ballast shall meet ANSI 62.41 Category A standards for transient voltage protection. This ballast shall meet ANSI 62.41 Category A standards for transient voltage protection. The ballast shall be UL Class P, Type 1 Outdoor. The ballast shall not contain any Polychlorinated Byphenols (PCBs) in accordance with US law.

Lamps: Fluorescent lamps for sign lighting shall be T8, high output, Type F72T8/HO with an average rated life of 18,000 hours and a mean lumen output of 5,490 lumens. The lamp shall have a color temperature of 4100 K, and a CRI of 85. All fluorescent lamps shall be capable of starting and operating at a minimum temperature of -30 C (-20 F) and shall be a low mercury content design.

CONSTRUCTION REQUIREMENTS

Installation. Each Luminaire shall be mounted on the sign walkway structure with stainless steel hardware and with at least 3 points of attachment. The mounting Luminaire or mounting hardware shall not extend above the bottom of the sign or below the bottom of the walkway support.

The Engineer will determine the center- to -center spacing of the luminaire. The end sections shall not exceed one-half the spacing between luminaires.

The mounting shall provide the correct position of the luminaire as recommended by the manufacturer and shall be liable to withstand 130Km/h (80mph) winds with a 1.3 gust factor. The sign lighting installation shall include a service disconnect with lockable exterior handle mounted within reach from the walkway.

Disabling brightness shall be shielded from traffic approaching either the front or back of the sign.

The mounted luminaire or mounting hardware shall not extend above the bottom of the sign or below the bottom of the walkway support.

Basis of Payment. This work shall be paid for at the contract unit price each for **FLUORSCENT LUMINAIRE FOR SIGN LIGHTING.**

TEMPORARY LIGHTING SYSTEM

Description: This item shall consist of furnishing and removal of temporary wood poles, aerial cable, luminaires and all associated appurtenances as necessary to maintain necessary lighting during construction. The item must include all costs for all labor, material and watchmen required for providing, protecting and maintaining the system, and removing of same upon completion of its need.

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

Item	Article/Section
(a) Wood pole lighting.....	1069.01
(b) Aerial Cable Assembly.....	1066.02
(c) Luminaire.....	1067.01 and 1067.02

CONSTRUCTION REQUIREMENTS

Installation and Removal. Install temporary poles, aerial cable and luminaires at locations as designated by the Engineer and energize Temporary Lighting system to provide lighting during construction. When there is no more need of the Temporary Lighting system contractor will remove temporary wood poles, aerial cable and all associated apparatus and connections. The removal shall include removal of all wiring and connections to the associated lighting controller. All equipment and material except for luminaires removed as part of this item shall become the property of the Contractor and shall be removed from the site.

The Engineer shall inspect all luminaires. Non-operating or damaged luminaires shall be repaired or replaced in kind by the Contractor.

Luminaires shall be removed, boxed in new containers approved by the Engineer and delivered and unloaded at a storage facility of the Owner, as designated by the Engineer.

Pole holes shall be backfilled according to section 815.

With the approval of the Engineer, the Contractor may partially remove the temporary lighting system after parts of the permanent lighting system are operational. Any modifications to the temporary system to keep the temporary lighting system and permanent lighting system operational shall be at the Contractor's expense.

Basis of Payment. This work shall be paid for at the contract lump sum price each for **TEMPORARY LIGHTING SYSTEM.**

BITUMINOUS BASE COURSE / WIDENING SUPERPAVE

Effective: April 1, 2002

Revised: April 1, 2004

Description. This work shall consist of constructing bituminous base course Superpave and bituminous concrete base course widening Superpave according to Sections 355 and 356 respectively, of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures" except as modified herein.

Revise Article 355.02(d) of the Standard Specifications to read:

" (d) RAP Material (Note3)"

Revise Note 2 of Article 355.02 of the Standard Specifications to read:

" Note 2. Unless otherwise specified on the plans, the bituminous material shall be performance graded (PG) asphalt cement (AC) , PG58-22. When more than 15 percent RAP is used, a softer PG binder may be required as determined by the Engineer. When the pavement has a structural number (D_t) of 3.00 or less, the low temperature grade of the asphalt cement shall be lowered one grade (i.e. PG58-28 replaces PG58-22)."

Add the following to the end Article 355.02 of the Standard Specifications:

" Note 3. RAP shall meet the requirements of the special provision "RAP for Use in Bituminous Concrete Mixtures"."

Revise Article 355.05 of the Standard Specifications to read:

"355.05 Mixture Design. The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have completed the course, "Superpave Mix Design Upgrade". The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below:

AASHTO MP 2 Standard Specification for Superpave Volumetric Mix Design

AASHTO R 30 Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)

AASHTO PP 28 Standard Practice for Designing Superpave HMA

AASHTO T 209 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures

AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyrotory Compactor

AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

(a) Job Mix Formula (JMF). The JMF shall be according to the following limits:

<u>Ingredient</u>	<u>Percent by Dry Weight</u>
Aggregate	93.0 to 96.0
Asphalt Cement	4.0 to 7.0
Dust/AC Ratio	1.4

When RAP material is being used, the JMF shall be according to the following limits:

<u>Ingredient</u>	<u>Percent by Dry Weight</u>
Virgin Aggregate(s)	46.0 to 96.0
RAP Material(s) (Note 1)	0 to 50
Mineral Filler (if required)	0 to 5.0
Asphalt Cement	4.0 to 7.0
Dust/AC Ratio	1.4

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

Bituminous concrete binder course Superpave mixture IL-25.0 or IL-19.0 meeting the requirements of the special provision, "Superpave Bituminous Concrete Mixtures" may also be used. The minimum compacted lift thickness specified therein shall apply.

(b) Volumetric Requirements.

Design Compactive Effort	Design Air Voids Target (%)
$N_{DES} = 50$	2.0

(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 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

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. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 355.06 of the Standard Specifications to read:

"355.06 Mixture Production. The asphalt cement shall be transferred to the asphalt tanks and heated to a temperature of 120 °C (250 °F) to 175 °C (350 °F). If the loading temperature exceeds 175 °C (350 °F), the asphalt shall not be used until it has cooled to 175 °C (350 °F). Wide variations in temperature which affect the amount of asphalt delivered will not be permitted.

When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 30 seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

(a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".

(b) Required Tests. Testing shall be conducted to control the production of the bituminous mixture using the test methods identified and performed at a frequency not less than indicated in the following table.

Parameter	Frequency of Tests Non-Class I Mixtures	Test Method
Aggregate Gradation Hot bins for batch and continuous plants. Individual cold-feeds or combined belt-feed for drier-drum plants. (% passing sieves: 12.5 mm (1/2 In.), 4.75 mm (No. 4), 75 µm (No. 200))	1 gradation per day of production. The first day of production shall be washed ignition oven test on the mix. Thereafter, the testing shall alternate between dry gradation and washed ignition oven test on the mix. The dry gradation and the washed ignition oven test results shall be plotted on the same control chart.	Illinois Procedure (See Manual of Test Procedures for Materials).
Asphalt Content by ignition oven (Note 1.)	1 per day	Illinois-Modified AASHTO T 308
Air Voids		
Bulk Specific Gravity of Gyratory Sample	1 per day	Illinois-Modified AASHTO T 312
Maximum Specific Gravity of Mixture	1 per day	Illinois-Modified AASHTO T 209

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

(c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures, except air voids shall be plotted on the control charts within the following control limits:

Air Void Control Limits	
Mixture	Individual Test
Shoulders	± 1.2 %
Others	± 1.2 %”

Revise Article 355.08 of the Standard Specifications to read:

“ **355.08 Placing.** The bituminous mixture shall be placed with a spreading and finishing machine. The minimum compacted thickness of each lift shall be according to the following table:

Nominal Aggregate Size of Mixture	Maximum	Minimum Compacted Lift Thickness
CA 10 - 19 mm (3/4 in.)		57 mm (2 1/4 in.)
CA 6 – 25 mm (1 in.)		76 mm (3 in.)

The maximum compacted thickness of each lift shall be 100 mm (4 in.). If the Contractor elects to substitute an approved vibratory roller for one of the required rollers, the maximum compacted thickness of the each lift, excluding the top lift, may be increased to 150 mm (6 in.) provided the required density is obtained.

The surface of each lift shall be clean and dry before succeeding lifts are placed.”

Revise Article 355.13 of the Standard Specifications to read:

“ **355.13 Basis of Payment.** This work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS BASE COURSE SUPERPAVE of the thickness specified.”

Revise Article 356.02 of the Standard Specifications to read:

" **356.02 Materials.** The materials for the bituminous concrete mixture shall meet the requirements of Article 355.02, be designed according to Article 355.05 and produced according to Article 355.06. Bituminous concrete binder course Superpave mixture IL-25.0 or IL-19.0 meeting the requirements of the special provision, "Superpave Bituminous Concrete Mixtures" may also be used. The minimum compacted lift thickness specified therein shall apply."

Revise the first paragraph of Article 356.06 of the Standard Specifications to read:

" **356.06 Base Course Widening.** The bituminous concrete mixture shall be transported according to Article 406.14."

Revise the second sentence of the fifth paragraph of Article 356.06 of the Standard Specifications to read:

" The minimum compacted thickness of each lift shall be according to the table shown in Article 355.08."

Revise the first paragraph of Article 356.11 of the Standard Specifications to read:

" **356.11 Basis of Payment.** Where the Department requires that bituminous concrete be used, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE BASE COURSE WIDENING SUPERPAVE of the thickness specified."

80065

BITUMINOUS CONCRETE SURFACE COURSE (BDE)

Effective: April 1, 2001

Revised: April 1, 2003

Replace the fourth paragraph of Article 406.23(b) of the Standard Specifications with the following:

"Mixture for cracks, joints, flangeways, leveling binder (machine method), leveling binder (hand method) and binder course in excess of 103 percent of the quantity specified by the Engineer will not be measured for payment.

Surface course mixture in excess of 103 percent of adjusted plan quantity will not be measured for payment. The adjusted plan quantity for surface course mixtures will be calculated as follows:

Adjusted Plan Quantity = C x quantity shown on the plans or as specified by the Engineer.

where C = metric: $C = \frac{G_{mb} \times 24.99}{U}$ English: $C = \frac{G_{mb} \times 46.8}{U}$

and where:

G_{mb} = average bulk specific gravity from approved mix design.

U = Unit weight of surface course shown on the plans in kg/sq m/25 mm (lb/sq yd/in.), used to estimate plan quantity.

24.99 = metric constant.

46.8 = English constant.

If project circumstances warrant a new surface course mix design, the above equations shall be used to calculate the adjusted plan quantity for each mix design using its respective average bulk specific gravity.”

80050

BITUMINOUS EQUIPMENT, SPREADING AND FINISHING MACHINE (BDE)

Effective: January 1, 2005

Revise the fourth paragraph of Article 1102.03 of the Standard Specifications to read:

“The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to uniformly place a non-segregated mixture in front of the screed. The distribution system shall have chain curtains, deflector plates, and/or other devices designed and built by the paver manufacturer to prevent segregation during distribution of the mixture from the hopper to the paver screed. The Contractor shall submit a written certification that the devices recommended by the paver manufacturer to prevent segregation have been installed and are operational. Prior to paving, the Contractor, in the presence of the Engineer, shall visually inspect paver parts specifically identified by the manufacturer for excessive wear and the need for replacement. The Contractor shall supply a completed check list to the Engineer noting the condition of the parts. Worn parts shall be replaced. The Engineer may require an additional inspection prior to the placement of a surface course or at other times throughout the work.”

80142

BUTT JOINTS (BDE)

Effective: April 1, 2004

Revise Article 406.18 of the Standard Specifications to read:

406.18 Butt Joints. Butt joints shall be constructed according to the details shown on the plans. The surface removal shall be performed according to Section 440. Construction of butt joints shall not begin prior to beginning general operations on the project.

When butt joints are to be constructed under traffic, temporary ramps shall be constructed and maintained at both the upstream and downstream ends of the surface removal areas immediately upon completion of the surface removal operation. The temporary ramps shall be constructed by the following methods.

- (a) Temporary Bituminous Ramps. Temporary bituminous ramps shall have a minimum taper rate of 1:40 (V:H). The bituminous material used shall meet the approval of the Engineer. Cold-milled bituminous tailings will not be acceptable.

- (b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 45 mph or less. The ramps shall have a minimum taper rate of 1:30 (V:H). The leading edge of the rubber ramp shall have a maximum thickness of 6 mm (1/4 in.) and the trailing edge shall match the height of the adjacent pavement ± 6 mm (1/4 in.).

The rubber material shall conform to the following:

Property	Test Method	Requirement
Durometer Hardness, Shore A	ASTM D 2240	80 ±10
Tensile Strength	ASTM D 412	5500 kPa (800 psi) min.
Elongation, percent	ASTM D 412	100 min.
Specific Gravity	ASTM D 297	1.1-1.3
Brittleness	ASTM D 746	-40 °C (-40 °F)

The rubber ramps shall be installed according to the manufacturer’s specifications and fastened with the anchors provided. Rubber ramps that fail to stay in place or create a traffic hazard shall be replaced immediately with temporary bituminous ramps at the Contractor’s expense.

The temporary ramps shall be removed just prior to placing the proposed surface course. If work is suspended for the winter season prior to completion of surface course construction, precut butt joints shall be filled to the elevation of the existing pavement surface with compacted bituminous concrete surface course or binder course.”

80118

COARSE AGGREGATE FOR TRENCH BACKFILL, BACKFILL AND BEDDING (BDE)

Effective: April 1, 2001

Revised: November 1, 2003

Revise Article 208.02 of the Standard Specifications to read:

“208.02 Materials. Materials shall be according to the following Articles of Section 1000 – Materials:

- (a) Fine Aggregate (Note 1)..... 1003.04
- (b) Coarse Aggregate (Note 2)..... 1004.06

Note 1. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 2. The coarse aggregate shall be wet to the satisfaction of the Engineer.”

Revise the first sentence of the second paragraph of subparagraph (b) in Article 208.03 of the Standard Specifications to read:

"Any material meeting the requirements of Articles 1003.04 or 1004.06 which has been excavated from the trenches shall be used for backfilling the trenches."

Add the following to the end of Article 542.02 of the Standard Specifications:

“(bb) Fine Aggregate (Note 1).....	1003.04
“(cc) Coarse Aggregate (Note 2).....	1004.06

Note 1. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 2. The coarse aggregate shall be wet to the satisfaction of the Engineer.”

Revise the first and second sentences of the second paragraph of subparagraph (a) of Article 542.04 of the Standard Specifications to read:

"The unstable and unsuitable material shall be removed to a depth determined by the Engineer and for a width of one diameter (or equivalent diameter) of the pipe on each side of the pipe culvert, and replaced with aggregate. Rock shall be removed to an elevation 300 mm (1 ft) lower than the bottom of the pipe or to a depth equal to 40 mm/m (1/2 in./ft) of ultimate fill height over the top of the pipe culvert, whichever is the greater depth, and for a width as specified in (b) below, and replaced with aggregate."

Revise the second paragraph of subparagraph (c) of Article 542.04 of the Standard Specifications to read:

"Well compacted aggregate, at least 100 mm (4 in.) in depth below the pipe culvert, shall be placed the entire width of the trench and for the length of the pipe culvert, except well compacted impervious material shall be used for the outer 1 m (3 ft) at each end of the pipe. When the trench has been widened by the removal and replacement of unstable or unsuitable material, the foundation material shall be placed for a width not less than the above specified widths on each side of the pipe. The aggregate and impervious material shall be approved by the Engineer and shall be compacted to the Engineer's satisfaction by mechanical means."

Revise subparagraph (e) of Article 542.04 of the Standard Specifications to read:

"(e) Backfilling. As soon as the condition of the pipe culvert will permit, the entire width of the trench shall be backfilled with aggregate to a height of at least the elevation of the center of the pipe. The aggregate shall be placed longitudinally along the pipe culvert, except at the outer 1 m (3 ft) at each end of the culvert which shall be backfilled with impervious material. The elevation of the backfill material on each side of the pipe shall be the same. The space under the pipe shall be completely filled. The aggregate and impervious material shall be placed in 200 mm (8 in.) layers, loose measurement. When using PVC, PE, or corrugated metal pipe, the aggregate shall be continued to a height of at least 300 mm (1 ft) above the top of the pipe and compacted to a minimum of 85 percent of standard lab density by mechanical means. When reinforced concrete pipes are used and the trench is within 600 mm (2 ft) of the pavement structure, the backfill shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

When using PVC, PE, or corrugated metal pipe a minimum of 300 mm (1 ft) of cover from the top of the pipe to the top of the subgrade will be required.

The installed pipe and its embedment shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench shall be backfilled with select material, from excavation or borrow, free from large or frozen lumps, clods or rock, meeting the approval of the Engineer. The material shall be placed in layers not exceeding 200 mm (8 in.) in depth, loose measurement and compacted to 95 percent of the standard laboratory density. Compaction shall be obtained by use of mechanical tampers or with approved vibratory compactors. Before compacting, each layer shall be wetted or dried to bring the moisture content within the limits of 80 to 110 percent of optimum moisture content determined according to AASHTO T 99 (Method C). All backfill material shall be deposited in the trench or excavation in such a manner as not to damage the culvert. The filling of the trench shall be carried on simultaneously on both sides of the pipe. The Contractor may, at his/her expense, backfill the entire trench with aggregate in lieu of select material. The aggregate shall be compacted to the satisfaction of the Engineer by mechanical means.

The backfill material for all trenches and excavations made in the subgrade of the proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk shall be according to Section 208. The trench backfill material shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

The Contractor may, at his/her expense, backfill the entire trench with controlled low strength material meeting the approval of the Engineer.

When the trench has been widened for the removal and replacement of unstable or unsuitable material, the backfilling with aggregate and impervious material, will be required for a width of at least the specified widths on each side of the pipe. The remaining width of each layer may be backfilled with select material. Each 200 mm (8 in.) layer for the entire trench width shall be completed before beginning the placement of the next layer."

Revise subparagraph (b) of Article 542.05 of the Standard Specifications to read:

"(b) Embankment. Embankment extending to an elevation of 300 mm (1 ft) over the top of the pipe shall be constructed according to Article 542.04(f), except the material up to the elevation of the center of the pipe and extending to a width of at least 450 mm (18 in.) on each side of the pipe, exclusive of the outer 1 m (3 ft) at each end of the pipe, shall consist of aggregate. At the outer 1 m (3 ft) at each end of the culvert, impervious material shall be used."

Add the following paragraph after the first paragraph of Article 542.10 of the Standard Specifications:

"Trench backfill will be measured for payment according to Article 208.03."

Add the following paragraph after the third paragraph of Article 542.11 of the Standard Specifications:

“Trench backfill will be paid for according to Article 208.04.”

Add the following to of Article 550.02 of the Standard Specifications:

“(m) Fine Aggregate (Note 2)..... 1003.04
(n) Coarse Aggregate (Note 3)..... 1004.06

Note 2. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 3. The coarse aggregate shall be wet to the satisfaction of the Engineer.”

Revise the first two sentences of the third paragraph of Article 550.04 of the Standard Specifications to read:

"Well compacted, aggregate bedding material at least 100 mm (4 in.) in depth below the pipe, shall be placed for the entire width of the trench and length of the pipe. The aggregate shall be compacted to the satisfaction of the Engineer by mechanical means."

Revise Article 550.07 of the Standard Specifications to read:

"550.07 Backfilling. As soon as the condition of the pipe will permit, the entire width of the trench shall be backfilled with aggregate to a height of at least the elevation of the center of the pipe. The aggregate shall be placed longitudinally along the pipe. The elevation of the backfill material on each side of the pipe shall be the same. The space under the pipe shall be completely filled. The aggregate backfill material shall be placed in 200 mm (8 in.) layers, loose measurement and compacted to the satisfaction of the Engineer by mechanical means. When using PVC pipe, the aggregate shall be continued to a height of at least 300 mm (12 in.) above the top of the pipe.

The installed pipe and its embedment shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench and excavation shall be backfilled to the natural line or finished surface as rapidly as the condition of the sewer will permit. The backfill material shall consist of suitable excavated material from the trench or of trench backfill as herein specified. All backfill material shall be deposited in the trench or excavation in such a manner as not to damage the sewer and shall be compacted to the satisfaction of the Engineer by mechanical means. The filling of the trench shall be carried on simultaneously on both sides of the pipe.

The backfill material for trenches and excavation made in the subgrade of the proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk shall be according to Section 208. The backfill material shall be compacted to 85 percent of standard lab density by mechanical means.

All backfill material up to a height of 300 mm (1 ft) above the pipe shall be deposited in uniform layers not exceeding 200 mm (8 in.) thick, loose measurement. The material in each layer shall be compacted to the satisfaction of the Engineer by mechanical means. The backfilling above this height shall be done according to Method 1, 2 or 3 as described below, with the following exceptions.

When trench backfill or excavated material meeting the requirements of Section 208 is required above the first 300 mm (1 ft) of the pipe, the layers shall not exceed 200 mm (8 in.). Gradations CA6 or CA10 shall not be used with Method 2 or Method 3.

Method 1. The material shall be deposited in uniform layers not exceeding 300 mm (1 ft) thick, loose measurement, and each layer shall be compacted to the satisfaction of the Engineer by mechanical means.

Method 2. The material shall be deposited in uniform layers not exceeding 300 mm (1 ft) thick, loose measurement, and each layer shall be either inundated or deposited in water.

Method 3. The trench shall be backfilled with loose material, and settlement secured by introducing water through holes jetted into the backfill to a point approximately 600 mm (2 ft) above the top of the pipe. The holes shall be spaced as directed by the Engineer but shall be no farther than 2 m (6 ft) apart.

The water shall be injected at a pressure just sufficient to sink the holes at a moderate rate of speed. The pressure shall be such that the water will not cut cavities in the backfill material nor overflow the surface. If water does overflow the surface, it shall be drained into the jetted holes by means of shallow trenches.

Water shall be injected as long as it will be absorbed by the backfill material and until samples taken from test holes in the trench show a satisfactory moisture content. The Contractor shall bore the test holes not more than 15 m (50 ft) apart and at such other locations in the trench designated by the Engineer. As soon as the watersoaking has been completed, all holes shall be filled with soil and compacted by ramming with a tool approved by the Engineer.

Backfill material which has been watersoaked shall be allowed to settle and dry for at least 10 days before any surface course or pavement is constructed on it. The length of time may be altered, if deemed desirable, by the Engineer. Where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk, the provisions of this paragraph shall also apply.

At the end of the settling and drying period, the crusted top of the backfill material shall be scarified and, if necessary, sufficient backfill material added, as specified in Method 1, to complete the backfilling operations.

The method used for backfilling and compacting the backfill material shall be the choice of the Contractor. If the method used does not produce results satisfactory to the Engineer, the Contractor will be required to alter or change the method being used so the resultant backfill will be satisfactory to the Engineer. Should the Contractor be required to alter or change the method being used, no additional compensation will be allowed for altering or changing the method.

The Contractor may, at his/her expense, backfill the entire trench with controlled low strength material meeting the approval of the Engineer.

When sheeting and bracing have been used, sufficient bracing shall be left across the trench as the backfilling progresses to hold the sides firmly in place without caving or settlement. This bracing shall be removed as soon as practicable. Any depressions which may develop within the area involved in the construction operation due to settlement of the backfilling material shall be filled in a manner approved by the Engineer.

When the Contractor constructs the trench with sloped or benched sides according to Article 550.04, backfilling for the full width of the excavation shall be as specified, except no additional compensation will be allowed for trench backfill material required outside the vertical limits of the specified trench width.

Whenever excavation is made for installing sewer pipe across earth shoulders or private property, the topsoil disturbed by excavation operations shall be replaced as nearly as possible in its original position, and the whole area involved in the construction operations shall be left in a neat and presentable condition.

When using any PVC pipe, the pipe shall be backfilled with aggregate to 300 mm (1 ft) over the top of the pipe and compacted to a minimum of 85 percent of standard lab density by mechanical means.

When reinforced concrete pipes are used and the trench is within 600 mm (2 ft) of the pavement structure, the backfill shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

Deflection Testing for Storm Sewers. All PVC storm sewers will be tested for deflection not less than 30 days after the pipe is installed and the backfill compacted.

For PVC storm sewers with diameters 600 mm (24 in.) or smaller, a mandrel drag shall be used for deflection testing. For PVC storm sewers with diameters over 600 mm (24 in.), 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 9, 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, where the base inside diameter is:

For all PVC pipe (as defined using ASTM D 3034 methodology):

If the pipe is found to have a deflection greater than specified, that pipe section shall be removed, replaced, and retested."

Revise subparagraph (c) of Article 1003.04 of the Standard Specifications to read:

"(c) Gradation. The fine aggregate gradation shall be as follows:

Backfill, bedding and trench backfill for pipe culverts and storm sewers	FA 1, FA 2, FA 6, or FA 21
Porous granular embankment and backfill, french drains, and sand backfill for underdrains	FA 1, FA 2, or FA20 (Note 1)

Note 1: For FA 1, FA 2, and FA 20 the percent passing the 75 µm (No. 200) sieve shall be 2 ± 2."

Revise the title of Article 1004.06 of the Standard Specifications to read:

"Coarse Aggregate for Blotter, Embankment, Backfill, Trench Backfill, French Drains, and Bedding."

Add the following to the end of subparagraph (c) of Article 1004.06 of the Standard Specifications:

"Backfill, bedding, and trench backfill for pipe culverts and storm sewers CA 6, CA 10, and CA 18"

80051

CONCRETE ADMIXTURES (BDE)

Effective: January 1, 2003

Revised: July 1, 2004

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

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

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

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

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

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

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

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

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

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

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

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

When a water-reducing admixture is added, a cement factor reduction of up to 18 kg/cu m (0.30 hundredweight/cu yd), from the concrete designed for a specific slump without the admixture, will be permitted for Class PV, MS, SI, RR, SC and SH concrete. When an approved high range water-reducing admixture is used, a cement factor reduction of up to 36 kg/cu m (0.60 hundredweight/cu yd), from a specific water cement/ratio without the admixture, will be permitted based on a 14 percent minimum water reduction. This is applicable to Class PV, MS, SI, RR, SC and SH concrete. A cement factor below 320 kg/cu m (5.35 hundredweight/cu yd) will not be permitted for Class PV, MS, SI, RR, SC and SH concrete. A cement factor reduction will not be allowed for concrete placed underwater. Cement factor reductions shall not be cumulative when using multiple admixtures.

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

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

Revise Section 1021 of the Standard Specifications to read:

“SECTION 1021. CONCRETE ADMIXTURES”

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

80094

CONCRETE BARRIER (BDE)

Effective: January 1, 2004

Revised: April 2, 2004

Revise Section 637 of the Standard Specifications to read:

“SECTION 637. CONCRETE BARRIER

637.01 Description. This work shall consist of constructing a concrete barrier and its base.

637.02 Materials. Materials for concrete barrier and concrete base shall conform to the requirements of the following Articles of Section 1000 - Materials:

Item	Article/Section
(a) Portland Cement Concrete.....	1020
(b) Tie Bars (Note 1).....	1006.10(a)(b)
(c) Dowel Bars.....	1006.11(b)
(d) Protective Coat.....	1023
(e) Non-Shrink Grout.....	1024
(f) Chemical Adhesive.....	1027
(g) Prefomed Expansion Joint Filler.....	1051.01 – 1051.08

Note 1. Tie bars shall be Grade 400 (Grade 60).

Materials for bituminous concrete base shall conform to the requirements of Article 356.02.

637.03 Equipment. Equipment for concrete barrier shall conform to the requirements of the following Articles of Section 1100 - Equipment:

Item	Article/Section
(a) Hand Vibrator	1103.17(a)
(b) 3 m (10 ft) Straightedge	1103.17(h)

Equipment for portland cement concrete base shall conform to the requirements of Article 483.03.

Equipment for bituminous concrete base shall conform to the requirements of Article 356.03.

CONSTRUCTION REQUIREMENTS

637.04 Barrier Base. The base may be constructed separately or poured monolithically with the barrier. When constructed separately, portland cement concrete base shall be constructed according to Articles 483.04 – 483.06, except the surface shall be finished according to Article 503.09(a). Bituminous concrete base shall be constructed according to Articles 356.05 and 356.06.

637.05 Anchoring. Barrier shall be anchored to the base by the methods shown on the plans. When tie bars are used, they shall be installed in preformed or drilled holes with a non-shrink grout or chemical adhesive.

637.06 Barrier Construction. Concrete barrier shall be constructed according to the applicable portions of Articles 503.06 and 503.07. Where the horizontal alignment of the concrete barrier is curved, the barrier shall be constructed either on the curved alignment or on cords not more than 3 m (10 ft) in length.

When slipformed, the vertical centerline of the barrier shall not vary from the proposed centerline by more than 75 mm (3 in.) nor by more than 13 mm in 3 m (1/2 in. in 10 ft). All surfaces shall be checked with a 3 m (10 ft) straightedge as the concrete exits the slipform mold. Surface irregularities greater than 10 mm in 3 m (3/8 in. in 10 ft) shall be corrected immediately. Continued variations in the barrier surface exceeding 6 mm in 3 m (1/4 in. in 10 ft) will not be permitted and remedial action shall immediately be taken to correct the problem. Any deformations or bulges remaining after the initial set shall be removed by grinding after the concrete has hardened. All holes and honeycombs shall be patched immediately.

637.07 Barrier Transitions. Transitions between barriers of different design shall be constructed according to the details shown on the plans.

637.08 Joints. Joints shall be constructed as shown on the plans and as follows:

(a) Construction Joints. Construction joints shall be constructed in the barrier whenever there is an interruption in the pour of more than 30 minutes.

(b) Expansion Joints. Expansion joints shall be constructed in the barrier and the base in line with expansion joints in the adjacent pavement or shoulder. Expansion joints shall also be constructed at locations where the barrier abuts a rigid structure.

Prior to placing concrete, a light coating of oil shall be uniformly applied to the dowel bars.

- (c) **Contraction Joints.** Contraction joints shall be constructed in the barrier at uniform intervals with a maximum spacing of 6 m (20 ft) or in line with contraction joints in the adjacent pavement or shoulder. Contraction joints shall be formed by a groove 3 mm (1/8 in.) wide by 50 mm (2 in.) deep either formed in the plastic concrete or sawed after the concrete has set.

637.09 Finishing. The surface of concrete barrier shall be finished according to Article 503.16(a).

637.10 Protective Coat. When required, the top and vertical surfaces of the barrier exposed to traffic shall receive a protective coat. The application of the protective coat shall be according to Article 420.21.

637.11 Method of Measurement. This work will be measured as follows:

- (a) **Contract Quantities.** The requirements for the use of contract quantities shall be according to Article 202.07(a).
- (b) **Measured Quantities.** New barrier base, both separate and monolithic, will be measured for payment in meters (feet) in place, along the centerline of the base or barrier. The width of the base will be defined as the width of the barrier.

Concrete barrier will be measured for payment in meters (feet) in place, along the centerline of the barrier.

Barrier transitions will be measured for payment in meters (feet) in place, along the centerline of the transition.

Protective coat will be measured for payment according to Article 420.22(b).

637.12 Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for BARRIER BASE; CONCRETE BARRIER, DOUBLE FACE, of the height specified; CONCRETE BARRIER, SINGLE FACE, of the height specified; and CONCRETE BARRIER TRANSITION.

Protective coat will be paid for according to Article 420.23.”

80112

CURING AND PROTECTION OF CONCRETE CONSTRUCTION (BDE)

Effective: January 1, 2004

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

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

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

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

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

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

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

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

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

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

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

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

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

“As soon as each member is finished, the concrete shall be covered with curing material according to Article 1020.13.”

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

“The prestressing force shall not be transferred to any member before the concrete has attained the compressive strength of 28,000 kPa (4000 psi) or other higher compressive release strength specified on the plans, as determined from tests of 150 mm (6 in.) by 300 mm (12 in.) cylinders cured with the member according to Article 1020.13. Members shall not be shipped until 28-day strengths have been attained and members have a yard age of at least 4 days.”

Delete the third paragraph of Article 512.03(a) of the Standard Specifications.

Delete the last sentence of the second paragraph of Article 512.04(d) of the Standard Specifications.

Revise the “Index Table of Curing and Protection of Concrete Construction” table of Article 1020.13 of the Standard Specifications to read:

“INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Cast-in-Place Concrete: ^{11/}			
Pavement			
Shoulder	1020.13(a)(1)(2)(3)(4)(5) ^{3/ 5/}	3	1020.13(c)
Base Course			
Base Course Widening	1020.13(a)(1)(2)(3)(4)(5) ^{1/ 2/}	3	1020.13(c)
Driveway			
Median			
Curb			
Gutter	1020.13(a)(1)(2)(3)(4)(5) ^{4/ 5/}	3	1020.13(c) ^{16/}
Curb and Gutter			
Sidewalk			
Slope Wall			
Paved Ditch			
Catch Basin			
Manhole	1020.13(a)(1)(2)(3)(4)(5) ^{4/}	3	1020.13(c)
Inlet			
Valve Vault			
Pavement Patching	1020.13(a)(1)(2)(3)(4)(5) ^{2/}	3 ^{12/}	1020.13(c)
Pavement Replacement	1020.13(a)(1)(2)(3)(4)(5) ^{1/ 2/}	3	442.06(h) and 1020.13(c)
Railroad Crossing	1020.13(a)(3)(5)	1	1020.13(c)
Piles	1020.13(a)(3)(5)	7	1020.13(e)(1)(2)(3)
Footings			
Foundation Seals	1020.13(a)(1)(2)(3)(4)(5) ^{4/6/}	7	1020.13(e)(1)(2)(3)
Substructure	1020.13(a)(1)(2)(3)(4)(5) ^{1/7/}	7	1020.13(e)(1)(2)(3)
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5) ^{8/}	7	1020.13(e)(1)(2)
Deck	1020.13(a)(5)	7	1020.13(e)(1)(2) ^{17/}
Retaining Walls	1020.13(a)(1)(2)(3)(4)(5) ^{1/7/}	7	1020.13(e)(1)(2)
Pump Houses	1020.13(a)(1)(2)(3)(4)(5) ^{1/}	7	1020.13(e)(1)(2)
Culverts	1020.13(a)(1)(2)(3)(4)(5) ^{4/6/}	7	1020.13(e)(1)(2) ^{18/}
Other Incidental Concrete	1020.13(a)(1)(2)(3)(5)	3	1020.13(c)
Precast Concrete: ^{11/}			
Bridge Beams			
Piles			
Bridge Slabs	1020.13(a)(3)(5) ^{9/10/}	As required.	^{13/} 504.06(c)(6), 1020.13(e)(2) ^{19/}
Nelson Type Structural Member			
All Other Precast Items	1020.13(a)(3)(4)(5) ^{2/9/10/}	As required.	^{14/} 504.06(c)(6), 1020.13(e)(2) ^{19/}
Precast, Prestressed Concrete: ^{11/}			
All Items	1020.13(a)(3)(5) ^{9/10/}	Until strand tensioning is released. ^{15/}	504.06(c)(6), 1020.13(e)(2) ^{19/}

Notes-General:

- 1/ Type I, membrane curing only
- 2/ Type II, membrane curing only
- 3/ Type III, membrane curing only
- 4/ Type I, II and III membrane curing
- 5/ Membrane curing will not be permitted between November 1 and April 15.
- 6/ The use of water to inundate footings, foundation seals or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 7 °C (45 °F) or higher.
- 7/ Asphalt Emulsion for Waterproofing may be used in lieu of other curing methods when specified and permitted according to Article 503.18.
- 8/ On non-traffic surfaces which receive protective coat according to Article 503.19, a linseed oil emulsion curing compound may be used as a substitute for protective coat and other curing methods. The linseed emulsion curing compound will be permitted between April 16 and October 31 of the same year, provided it is applied with a mechanical sprayer according to Article 1101.09 (b), and meets the material requirements of Article 1022.07.
- 9/ Steam curing (heat and moisture) is acceptable and shall be accomplished by the method specified in Article 504.06(c)(6).
- 10/ A moist room according to AASHTO M 201 is acceptable for curing.
- 11/ If curing is required and interrupted because of form removal for cast-in-place concrete items, precast concrete products, or precast prestressed concrete products, the curing shall be resumed within two hours from the start of the form removal.
- 12/ Curing maintained only until opening strength is attained, with a maximum curing period of three days.
- 13/ The curing period shall end when the concrete has attained the mix design strength. The producer has the option to discontinue curing when the concrete has attained 80 percent of the mix design strength or after seven days. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.
- 14/ The producer shall determine the curing period or may elect to not cure the product. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.
- 15/ The producer has the option to continue curing after strand release.
- 16/ When structural steel or structural concrete is in place above slope wall, Article 1020.13(c) shall not apply. The protection method shall be according to Article 1020.13(e)(1).
- 17/ When Article 1020.13(e)(2) is used to protect the deck, the housing may enclose only the bottom and sides. The top surface shall be protected according to Article 1020.13(e)(1).
- 18/ For culverts having a waterway opening of 1 sq m (10 sq ft) or less, the culverts may be protected according to Article 1020.13(e)(3).
- 19/ The seven day protection period in the first paragraph of Article 1020.13(e)(2) shall not apply. The protection period shall end when curing is finished. For the third paragraph of Article 1020.13(e)(2), the decrease in temperature shall be according to Article 504.06(c)(6)."

Add the following to Article 1020.13(a) of the Standard Specifications:

“(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry cotton mats. The cotton mats shall be placed in a manner which will not mar the concrete surface. A texture resulting from the cotton mat material is acceptable. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. For bridge decks, a foot bridge shall be used to place and wet the cotton mats.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without marring the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 1.2 m (4 ft) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets.

For construction items other than bridge decks, soaker hoses or a continuous wetting system will not be required if the alternative method keeps the cotton mats wet. Periodic wetting of the cotton mats is acceptable.

For areas inaccessible to the cotton mats on bridge decks, curing shall be according to Article 1020.13(a)(3).”

Revise the first paragraph of Article 1020.13(c) of the Standard Specifications to read:

“Protection of Portland Cement Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 0 °C (32 °F), or lower, or if the actual temperature drops to 0 °C (32 °F), or lower, concrete less than 72 hours old shall be provided at least the following protection:”

Delete Article 1020.13(d) and Articles 1020.13(d)(1),(2),(3),(4) of the Standard Specifications.

Revise the first five paragraphs of Article 1020.13(e) of the Standard Specifications to read:

“Protection of Portland Cement Concrete Structures From Low Air Temperatures. When the official National Weather Service Forecast for the construction area predicts a low below 7 °C (45 °F), or if the actual temperature drops below 7 °C (45 °F), concrete less than 72 hours old shall be provided protection. Concrete shall also be provided protection when placed during the winter period of December 1 through March 15. Concrete shall not be placed until the materials, facilities and equipment for protection are approved by the Engineer.

When directed by the Engineer, the Contractor may be required to place concrete during the winter period. If winter construction is specified, the Contractor shall proceed with the construction, including concrete, excavation, pile driving, steel erection and all appurtenant work required for the complete construction of the item, except at times when weather conditions make such operations impracticable.

Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced by the Contractor at his/her own expense.”

Add the following at the end of the third paragraph of Article 1020.13(e)(1) of the Standard Specifications:

“The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period.”

Revise the second sentence of the first paragraph of Article 1020.13(e)(2) of the Standard Specifications to read:

“The Contractor shall provide means for checking the temperature of the surface of the concrete or air temperature within the housing during the protection period.”

Delete the last sentence of the first paragraph of Article 1020.13(e)(3) of the Standard Specifications.

Add the following Article to Section 1022 of the Standard Specifications:

“1022.06 Cotton Mats. Cotton mats shall consist of a cotton fill material, minimum 400 g/sq m (11.8 oz/sq yd), covered with unsized cloth or burlap, minimum 200 g/sq m (5.9 oz/sq yd), and be tufted or stitched to maintain stability.

Cotton mats shall be in a condition satisfactory to the Engineer. Any tears or holes in the mats shall be repaired.

Add the following Article to Section 1022 of the Standard Specifications:

“1022.07 Linseed Oil Emulsion Curing Compound. Linseed oil emulsion curing compound shall be composed of a blend of boiled linseed oil and high viscosity, heavy bodied linseed oil emulsified in a water solution. The curing compound shall meet the requirements of a Type I, II, or III according to Article 1022.01, except the drying time requirement will be waived. The oil phase shall be 50 ± 4 percent by volume. The oil phase shall consist of 80 percent by mass (weight) boiled linseed oil and 20 percent by mass (weight) Z-8 viscosity linseed oil. The water phase shall be 50 ± 4 percent by volume.”

Revise Article 1020.14 of the Standard Specifications to read:

“1020.14 Temperature Control for Placement. Temperature control for concrete placement shall conform to the following requirements:

- (a) Temperature Control other than Structures. The temperature of concrete immediately before placing, shall be not less than 10 °C (50 °F) nor more than 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department’s Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

Plastic concrete temperatures up to 35 °C (96 °F), as placed, may be permitted provided job site conditions permit placement and finishing without excessive use of water on and/or overworking of the surface. The occurrence within 24 hours of unusual surface distress shall be cause to revert to a maximum 32 °C (90 °F) plastic concrete temperature.

Concrete shall not be placed when the air temperature is below 5 °C (40 °F) and falling or below 2 °C (35 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to not less than 20 °C (70 °F) nor more than 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

For pavement patching, refer to Article 442.06(e) for additional information on temperature control for placement.

- (b) Temperature Control for Structures. The temperature of concrete as placed in the forms shall be not less than 10 °C (50 °F) nor more than 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits. When insulated forms are used, the temperature of the concrete mixture shall not exceed 25 °C (80 °F). If the Engineer determines that heat of hydration might cause excessive temperatures in the concrete, the concrete shall be placed at a temperature between 10 °C (50 °F) and 15 °C (60 °F), per the Engineer's instructions. When concrete is placed in contact with previously placed concrete, the temperature of the concrete may be increased as required to offset anticipated heat loss.

Concrete shall not be placed when the air temperature is below 7 °C (45 °F) and falling or below 4 °C (40 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to not less than 20 °C (70 °F) nor more than 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

- (c) Temperature. The concrete temperature shall be determined according to ASTM C 1064."

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000

Revised: June 1, 2004

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR part 26 and listed in the DBE Directory or most recent addendum.

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

The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of federally-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

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

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 22.00% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

- (a) The bidder documents that firmly committed DBE participation has been obtained to meet the goal; or

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

DBE LOCATOR REFERENCES. Bidders may consult the DBE Directory as a reference source for DBE companies certified by the Department. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at www.dot.state.il.us.

BIDDING PROCEDURES. Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid nonresponsive.

- (a) In order to assure the timely award of the contract, the as-read low bidder must submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement, the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the as-read low bidder to ensure that the postmark or receipt date is affixed within the seven (7) working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven (7) day submittal requirement, and the bid will be declared nonresponsive. In the event the bid is declared nonresponsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.
- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. The signatures on these forms must be original signatures. All elements of information indicated on the said form shall be provided, including but not limited to the following:

- (1) The name and address of each DBE to be used;
 - (2) A description, including pay item numbers, of the commercially useful work to be done by each DBE;
 - (3) The price to be paid to each DBE for the identified work specifically stating the quantity, unit price and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
 - (4) A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and
 - (5) If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).
- (d) The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five (5) working day period in order to cure the deficiency.

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

- (a) DBE as the Contractor: 100% goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100% goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

- (c) DBE as a subcontractor: 100% goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE firm does not count toward the DBE goal.
- (d) DBE as a trucker: 100% goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed and insured by the DBE must be used on the contact. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.
- (e) DBE as a material supplier:
 - (1) 60% goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
 - (2) 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
 - (3) 100% credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

GOOD FAITH EFFORT PROCEDURES. If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.
 - (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

- (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.
 - b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.
- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.
- (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.
- (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

- (b) If the Department determines that the Contractor has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will designate a five (5) working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.
- (c) The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five (5) working days after the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten (10) working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid nonresponsive.

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

- (a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (b) All work indicated for performance by an approved DBE shall be performed, managed and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete its work on the contract for any reason, the Contractor shall make good faith efforts to find another DBE to substitute for the terminated DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.
- (c) The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefor to the DBE by the Contractor, but not later than thirty (30) calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the District Engineer. If full and final payment has not been made to the DBE, the Report shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.
- (d) The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: August 1, 2001

Revised: November 1, 2001

When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, he/she will direct the Contractor in writing to correct the deficiency. The Contractor shall then correct the deficiency within 24 hours. The 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 National Pollutant Discharge Elimination System (NPDES) Storm Water Permit for Construction Site Activities.

If the Contractor fails to correct the deficiency(s) within 24 hours, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The time period will begin with the initial written notification to the Contractor and end with the Engineer's acceptance of the corrected work. The per calendar day deduction will be either \$1000.00 or 0.05 percent of the awarded contract value, whichever is greater.

If the Contractor fails to respond, the Engineer may correct the deficiencies and deduct the cost from monies due or which may become due the Contractor. This corrective action shall in no way relieve the Contractor of his/her contractual requirements or responsibilities.

80055

EXPANSION JOINTS (BDE)

Effective: August 1, 2003

Add the following paragraph after the second paragraph of Article 420.10(e) of the Standard Specifications:

"After the dowel bars are oiled, plastic expansion caps shall be secured to the bars maintaining a minimum expansion gap of 50 mm (2 in.) between the end of the bar and the end of the cap. The caps shall fit snugly on the bar and the closed end shall be watertight. For expansion joints formed using dowel bar basket assemblies, the caps shall be installed on the alternating free ends of the bars. For expansion joints formed using a construction header, the caps shall be installed on the exposed end of each bar once the header has been removed and the joint filler material has been installed."

80103

FLAGGER VESTS (BDE)

Effective: April 1, 2003

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

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

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

“(6) Nighttime Flagging. The flagger station shall be lit by additional overhead lighting other than streetlights. The flagger shall be equipped with a fluorescent orange or fluorescent orange and fluorescent yellow/green garment meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments.”

80101

FREEZE-THAW RATING (BDE)

Effective: November 1, 2002

Revise the first sentence of Article 1004.02(f) of the Standard Specifications to read:

“When coarse aggregate is used to produce portland cement concrete for base course, base course widening, pavement, driveway pavement, sidewalk, shoulders, curb, gutter, combination curb and gutter, median, paved ditch or their repair using concrete, the gradation permitted will be determined from the results of the Department’s Freeze-Thaw Test.”

| 80079

FURNISHED EXCAVATION (BDE)

| Effective: August 1, 2002

Revised: November 1, 2004

| Revise Article 204.01 of the Standard Specifications to read:

| **Description.** Borrow excavation and furnished excavation shall consist of excavating suitable materials obtained from locations approved by the Engineer and transporting the materials to various locations throughout the limits of the contract.”

Revise Article 204.07(b) of the Standard Specifications to read:

“(b) Measured Quantities. Furnished excavation will be computed for payment in cubic meters (cubic yards) as follows:

Furnished Excavation = Embankment - [Suitable Excavation x (1 - Shrinkage Factor)]

Where:

Embankment = the volume of fill in its final position computed by the method of average end areas and based upon the existing ground line as shown on the plans except as noted in (1) and (2) below;

Suitable Excavation = earth excavation, rock excavation, and other on-site excavation suitable for use in embankments as shown in the Earthwork Schedule on the plans;

Shrinkage Factor = 0.25 unless otherwise shown on the plans.

- (1) If the Contractor so requests, the Engineer will reestablish the existing ground line after the clearing and tree removal have been performed according to Section 201 and the top 150 mm (6 in.) of the existing ground surface has been disked and compacted to the satisfaction of the Engineer.
- (2) If settlement platforms are erected, the Engineer will reestablish the existing ground line after the embankment is complete as specified in Article 204.07(a)(2).

Furnished excavation placed in excess of that required for the execution of the contract will not be measured for payment.”

Add the following paragraph to the end of Article 204.07 of the Standard Specifications:

“The quantity for furnished excavation will not be recalculated when surplus, suitable materials are utilized in embankments according to Article 202.03.”

80072

HAND VIBRATOR (BDE)

Effective: November 1, 2003

Add the following paragraph to Article 1103.17(a) of the Standard Specifications:

“The vibrator shall have a non-metallic head for areas containing epoxy coated reinforcement. The head shall be coated by the manufacturer. The hardness of the non-metallic head shall be less than the epoxy coated reinforcement, resulting in no damage to the epoxy coating. Slip-on covers will not be allowed.”

80054

IMPACT ATTENUATORS, TEMPORARY (BDE)

Effective: November 1, 2003

Revised: April 1, 2004

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).....	1003.01
(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) Rapid Set Mortar (Note 2)	

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.

Note 2. Rapid set mortar shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs. For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume or a packaged rapid set mortar shall be used. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

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 (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.
80110

INLET FILTERS (BDE)

Effective: August 1, 2003

Add the following to Article 280.02 of the Standard Specifications:

“(k) Inlet Filters..... 1081.15(h)”

Add the following paragraph after the first paragraph of Article 280.04(c) of the Standard Specifications:

“When specified, drainage structures shall be protected with inlet filters. Inlet filters shall be installed either directly on the drainage structure or under the grate of the drainage structure resting on the lip of the frame. The fabric bag shall hang down into the drainage structure. Prior to ordering materials, the Contractor shall determine the size and shape of the various drainage structures being protected.”

Revise Article 280.07(d) of the Standard Specifications to read:

“(d) Inlet and Pipe Protection. This work will be paid for at the contract unit price per each for INLET AND PIPE PROTECTION.

Protection of drainage structures with inlet filters will be paid for at the contract unit price per each for INLET FILTERS.”

Add the following to Article 1081.15 of the Standard Specifications:

“(h) Inlet Filters. An inlet filter shall consist of a steel frame with a two piece geotextile fabric bag attached with a stainless steel band and locking cap that is suspended from the frame. A clean, used bag and a used steel frame in good condition meeting the approval of the Engineer may be substituted for new materials. Materials for the inlet filter assembly shall conform to the following requirements:

- (1) Frame Construction. Steel shall conform to Article 1006.04.
Frames designed to fit under a grate shall include an overflow feature that is welded to the frame’s ring. The overflow feature shall be designed to allow full flow of water into the structure when the filter bag is full. The dimensions of the frame shall allow the drainage structure grate to fit into the inlet filter assembly frame opening. The assembly frame shall rest on the inside lip of the drainage structure frame for the full variety of existing and proposed drainage structure frames that are present on this contract. The inlet filter assembly frame shall not cause the drainage structure grate to extend higher than 6 mm (1/4 in.) above the drainage structure frame.
- (2) Grate Lock. When the inlet is located in a traffic lane, a grate lock shall be used to secure the grate to the frame. The grate lock shall conform to the manufacturer’s requirements for materials and installation.
- (3) Geotextile Fabric Bag. The sediment bag shall be constructed of an inner filter bag and an outer reinforcement bag.
 - a. Inner Filter Bag. The inner filter bag shall be constructed of a polypropylene geotextile fabric with a minimum silt and debris capacity of 0.06 cu m (2.0 cu ft). The bag shall conform to the following requirements:

Inner Filter Bag		
Material Property	Test Method	Minimum Avg. Roll Value
Grab Tensile Strength	ASTM D 4632	45 kg (100 lb)
Grab Tensile Elongation	ASTM D 4632	50%
Puncture Strength	ASTM D 4833	29 kg (65 lb)
Trapezoidal Tear	ASTM D 4533	20 kg (45 lb)
UV Resistance	ASTM D 4355	70% at 500 hours
Actual Open Size	ASTM D 1420	212 μm (No. 70 sieve US)
Permittivity	ASTM D 4491	2.0/sec
Water Flow Rate	ASTM D 4491	5900 Lpm/sq m (145 gpm/sq ft)

- b. Outer Reinforcement Bag. The outer reinforcement bag shall be constructed of polyester mesh material that conforms to the following requirements:

Outer Reinforcement Bag		
Material Property	Test Method	Value
Content	ASTM D 629	Polyester
Weight	ASTM D 3776	155 g/sq m (4.55 oz/sq yd) ±15%
Whales (holes)	ASTM D 3887	7.5 ± 2 holes/25 mm (1 in.)
Chorses (holes)	ASTM D 3887	15.5 ± 2holes/25 mm (1 in.)
Instronball Burst	ASTM D 3887	830 kPa (120 psi) min.
Thickness	ASTM D 1777	1.0 ± 0.1 mm (0.040 ± 0.005 in.)

- (4) Certification. The manufacturer shall furnish a certification with each shipment of inlet filters, stating the amount of product furnished, and that the material complies with these requirements.”

80104

MINIMUM LANE WIDTH WITH LANE CLOSURE (BDE)

Effective: January 1, 2005

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

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

80137

MULCHING SEEDED AREAS (BDE)

Effective: January 1, 2005

Delete Article 251.02(a) of the Standard Specifications.

Add the following to Article 251.02 of the Standard Specifications:

“(h) Compost 1081.05(b)”

Delete Article 251.03(b)(1) of the Standard Specifications.

Add the following to Article 251.03 of the Standard Specifications:

“(d) Method 4. This method shall consist of applying compost combined with a performance additive designed to bind/stabilize the compost. The compost/performance additive mixture shall be applied to the surface of the slope using a pneumatic blower at a depth of 50 mm (2 in.)”

Revise the first sentence of the first paragraph of Article 251.06(b) of the Standard Specifications to read:

“Mulch Methods 1, 2, 3, and 4 will be measured for payment in hectares (acres) of surface area mulched.”

Revise Article 251.07 of the Standard Specifications to read:

“**251.07 Basis of Payment.** This work will be paid for at the contract unit price per hectare (acre) for MULCH, METHOD 1; MULCH, METHOD 2; MULCH, METHOD 3; or MULCH, METHOD 4; and at the contract unit price per square meter (square yard) for EROSION CONTROL BLANKET or HEAVY DUTY EROSION CONTROL BLANKET.”

Add the following after the second paragraph of Article 1081.05(b) of the Standard Specifications:

“Chemical Compost Binder. Chemical compost binder shall be a commercially available product specifically recommended by the manufacturer for use as a compost stabilizer.

The compost binder shall be nonstaining and nontoxic to vegetation and the environment. It shall disperse evenly and rapidly and remain in suspension when agitated in water.

Prior to use of the compost binder, the Contractor shall submit a notarized certification by the manufacturer stating that it meets these requirements. Chemical compost binder shall be packaged, stored, and shipped according to the manufacturer’s recommendations with the net quantity plainly shown on each package or container.”

80138

MULTILANE PAVEMENT PATCHING (BDE)

Effective: November 1, 2002

Pavement broken and holes opened for patching shall be completed prior to weekend or holiday periods. Should delays of any type or for any reason prevent the completion of the work, temporary patches shall be constructed. Material able to support the average daily traffic and meeting the approval of the Engineer shall be used for the temporary patches. The cost of furnishing, placing, maintaining, removing and disposing of the temporary work, including traffic control, shall be the responsibility of the Contractor.

80082

NOTCHED WEDGE LONGITUDINAL JOINT (BDE)

Effective: July 1, 2004

Description. This work shall consist of constructing a notched wedge longitudinal joint between successive passes of bituminous concrete binder course that is placed in 57 mm (2 1/4 in.) or greater lifts on pavement that is open to traffic.

The notched wedge longitudinal joint shall consist of a 25 to 38 mm (1 to 1 1/2 in.) vertical notch at the centerline or lane line, a 230 to 300 mm (9 to 12 in.) uniform taper extending into the open lane, and a second 25 to 38 mm (1 to 1 1/2 in.) vertical notch (see Figure 1).

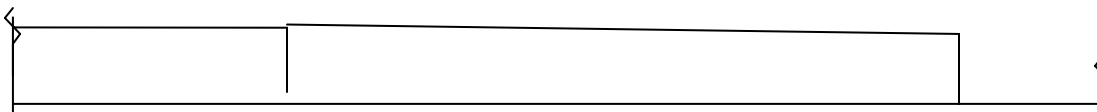


Figure 1

Equipment. Equipment shall meet the following requirements:

- a) Strike Off Device. The strike off device shall produce the notches and wedge of the joint and shall be adjustable. The device shall be attached to the paver and shall not restrict operation of the main screed.
- b) Wedge Roller. The wedge roller shall have a minimum diameter of 300 mm (12 in.), a minimum weight of 9 N/mm (50 lb/in.) of width, and a width equal to the wedge. The roller shall be attached to the paver.

CONSTRUCTION REQUIREMENTS

Joint Construction. The notched wedge longitudinal joint shall be formed by the strike off device on the paver. The wedge shall then be compacted by the joint roller.

Compaction. Initial compaction of the wedge shall be as close to final density as possible. Final density requirements of the entire binder mat, including the wedge, shall remain unchanged.

Prime Coat. Immediately prior to placing the adjacent lift of binder, the bituminous material specified for the mainline prime coat shall be applied to the entire face of the notched wedge longitudinal joint. The material shall be uniformly applied at a rate of 0.2 to 0.5 L/sq m (0.05 to 0.1 gal/sq yd).

Method of Measurement. The notched wedge longitudinal joint will not be measured for payment.

The prime coat will be measured for payment according to Article 406.23 of the Standard Specifications.

Basis of Payment. The work of constructing the notched wedge longitudinal joint will not be paid for separately but shall be considered as included in the cost of the bituminous concrete binder course being constructed.

The prime coat will be paid for according to Article 406.24 of the Standard Specifications.

80129

PARTIAL PAYMENTS (BDE)

Effective: September 1, 2003

Revise Article 109.07 of the Standard Specifications to read:

“109.07 Partial Payments. Partial payments will be made as follows:

- (a) Progress Payments. At least once each month, the Engineer will make a written estimate of the amount of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than \$1000.00 will be approved for payment other than the final payment.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved. Furthermore, progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c).

- (b) **Material Allowances.** At the discretion of the Department, payment may be made for materials, prior to their use in the work, when satisfactory evidence is presented by the Contractor. Satisfactory evidence includes justification for the allowance (to expedite the work, meet project schedules, regional or national material shortages, etc.), documentation of material and transportation costs, and evidence that such material is properly stored on the project or at a secure location acceptable and accessible to the Department.

Material allowances will be considered only for nonperishable materials when the cost, including transportation, exceeds \$10,000 and such materials are not expected to be utilized within 60 days of the request for the allowance. For contracts valued under \$500,000, the minimum \$10,000 requirement may be met by combining the principal (material) product of no more than two contract items. An exception to this two item limitation may be considered for any contract regardless of value for items in which material (products) are similar except for type and/or size.

Material allowances shall not exceed the value of the contract items in which used and shall not include the cost of installation or related markups. Amounts paid by the Department for material allowances will be deducted from estimates due the Contractor as the material is used. Two-sided copies of the Contractor's cancelled checks for materials and transportation must be furnished to the Department within 60 days of payment of the allowances or the amounts will be reclaimed by the Department."

80116

PAVEMENT AND SHOULDER RESURFACING (BDE)

Effective: February 1, 2000

Revised: July 1, 2004

Revise Article 406.20 of the Standard Specifications to read:

"406.20 Resurfacing Sequence. The resurfacing operations shall satisfy the following requirements:

- (a) Before paving in a lane, the adjacent lane and its shoulder must be at the same elevation.
- (b) Each lift of resurfacing shall be completed, including shoulders, before the next lift is begun.
- (c) Elevation differences between lanes shall be eliminated within twelve calendar days.

Revise the first paragraph of Article 406.23 of the Standard Specifications to read:

“406.23 Method of Measurement. This work will be measured for payment according to the following:”

Revise the first sentence of the ninth paragraph of Article 406.23 of the Standard Specifications to read:

“When a Superpave Binder and Surface Course mixture is used on shoulders and is placed simultaneously with the traffic lane as specified in Section 482, the quantity of bituminous mixture placed on the traffic lane that will be paid for will be limited to a calculated tonnage based upon actual mat width and length, plan thickness or a revised thickness authorized by the Engineer, and design mix weight per millimeter (inch) of thickness.”

Delete the tenth paragraph of Article 406.23 of the Standard Specifications.

Revise the second paragraph of Article 482.06 of the Standard Specifications to read:

“On pavement and shoulder resurfacing projects, the resurfacing sequence shall be according to Article 406.20. When the Superpave mixture option is used, the shoulders may be placed, at the Contractor’s option, simultaneously with the adjacent traffic lane for both the binder and surface courses, provided the specified density, thickness and cross slope of both the pavement and shoulder can be satisfactorily obtained.”

80013

PAVEMENT THICKNESS DETERMINATION FOR PAYMENT (BDE)

Effective: April 1, 1999

Revised: January 1, 2004

Description. This work shall consist of determining pavement thickness for payment for full depth bituminous concrete and all pcc pavements. Pavement pay items that individually contain at least 840 sq m (1000 sq yd) of contiguous pavement will be subject to this Special Provision with the following exclusions: temporary pavements; variable width pavement; radius returns and side streets less than 125 m (400 ft) in length; and turn lanes of constant width less than 125 m (400 ft) in length. The areas of pavement excluded from the pay adjustment as described in this Special Provision will be cored according to Article 407.10 of the Standard Specifications. Temporary pavements are defined as pavements constructed and removed under this contract.

Materials. Rapid set materials shall be obtained from the Department’s approved list of Packaged, Dry, Rapid Hardening Cementitious Materials For Concrete Repairs. Coarse aggregate may be added to the mortar if allowed by the manufacturer’s instructions on the package. Mixing shall be according to the manufacture’s recommendations.

Equipment. Cores shall be taken utilizing an approved coring machine. The cores shall have a diameter of 50 mm (2 in.). The cores shall be measured utilizing an approved measuring device.

CONSTRUCTION REQUIREMENTS

Tolerance in Thickness. Determination of the pavement thickness shall be performed after the pavement surface tests and all corrective grinding are complete according to Article 407.09 of the Standard Specifications. Adjustments made in the contract unit price for pavement thickness will be in addition to and independent of those made for the Profile Index.

The pavement will be divided into approximately equal lots of not more than 1500 m (5000 ft) in length. When the length of a continuous strip of pavement is less than 1500 m (5000 ft), these short lengths of pavement, ramps, turn lanes, and other short sections of continuous pavement shall be grouped together to form lots of approximately 1500 m (5000 ft) 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.

Fifty millimeter (Two inch) cores shall be taken from the pavement by the Contractor at random locations selected by the Engineer. When computing the thickness of a lot, one core will be taken per subplot. Core locations will be specified by the Engineer prior to beginning the coring operations.

The Contractor and the Engineer shall witness the coring operations, the measurement, 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 discarded.

Patching Holes. Upon completion of coring, all core holes shall be filled with a rapid set mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used, and the material shall be struck-off flush with the adjacent pavement.

For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume; or a packaged rapid set mortar shall be used. For a rapid set concrete mixture, a packaged rapid set mortar shall be combined with coarse aggregate according to the manufacturer's instructions or a packaged rapid set concrete shall be used. Mixing of a rapid set mortar or concrete shall be according to the manufacturer's instructions.

Deficient Sublot. When the thickness of the core in a sublot is deficient by more than ten percent of plan thickness, the Contractor will have the option of taking three additional cores selected at random by the Engineer within the same sublot at the Contractor's expense. The thickness of the additional three cores will be averaged with the original core thickness. When the average thickness shows the sublot to be deficient by ten percent or less, no additional action is necessary. If the Contractor chooses not to take additional cores, the pavement in the sublot shall be removed and replaced at the Contractor's expense. When additional cores are taken and the average thickness of the additional cores show the sublot to be deficient by more than ten percent, the pavement in that sublot shall be removed and replaced at the Contractor's expense. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing such thin pavement to remain in place. For Bituminous Concrete Pavement (Full Depth) allowed to remain in place, additional lift(s) may be placed, at the Contractor's expense, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The material thickness(es), areas to be overlaid, and method of placement used for additional lift(s) will be approved by the Engineer. When the thin pavement is removed and replaced or additional lifts are placed, the replacement pavement will be retested for thickness at the Contractor's expense. When the thin pavement is left in place and no additional lift(s) are placed, no payment will be made for the deficient pavement sublot. The thickness of the original core taken in the sublot will be used in determining the payment for the entire lot and no adjustment to the pay factor will be made for any corrective action taken.

Deficient Lot. After analyzing the cores, the Percent Within Limits will be calculated. A lot of pavement represented by the Percent Within Limits (PWL) of 60 percent or less, shall be removed and replaced at the Contractor's expense. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing such pavement to remain in place. For Bituminous Concrete Pavement (Full Depth), allowed to remain in place, additional lift(s) may be placed, at the Contractor's expense, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The material, thickness(es), areas to be overlaid and method of placement used for the additional lift(s) will be approved by the Engineer. After either corrective action, the Contractor shall core the lot according to the "Coring Procedures" at no additional cost to the Department. The PWL will then be recalculated for the lot, however, the pay factor for the lot will be a maximum of 100 percent. When requested in writing by the Contractor, the Engineer, at his/her option, may permit in writing, the lot to remain in place. When the lot is left in place and no additional lifts are placed the pay factor for the lot will be based on the calculated PWL.

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 cores in addition to those specified. 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. These additional cores and locations will be determined prior to commencement of coring operations. When the additional cores show the pavement to be deficient by more than ten percent, additional cores shall be taken at locations determined by the Engineer to determine the limits of the deficient pavement area. The deficient pavement area will be defined as the area between two acceptable cores. An acceptable core is a core with a thickness of 90 percent or more of plan thickness. The defined pavement area shall be removed and replaced at the Contractor's expense. When requested by the Contractor, the Engineer, at his/her option, may permit in writing such thin pavement to remain in place. On Bituminous Concrete Pavement (Full Depth) allowed to remain in place, additional lift(s) may be placed to bring the deficient pavement to plan thickness when the Engineer determines that grade control conditions will permit such lift(s). The material, thickness(es), areas to be overlaid and method of placement for the additional lift(s) will be approved by the Engineer. When the thin pavement is removed and replaced or additional lifts are placed, the replacement pavement will be retested for thickness at the Contractor's expense. When the thin 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 deficient by ten percent or less the additional cores will be paid for according to Article 109.04. When the additional cores show the pavement to be deficient by more than ten percent the additional cores taken in the deficient area shall be at the Contractor's expense.

Profile Index Adjustment. After any section of pavement is removed and replaced or any additional lifts are added, the corrected areas shall be tested for pavement smoothness and any necessary Profile Index adjustments and/or corrections will be made based on these final profile readings. Such surface testing shall be performed at the Contractor's expense.

Core Analysis. Cores will be analyzed according to the following:

(a) Definition:

- 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 (LSL = 0.98 plan thickness for pavement)
- 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.

Compute the sample standard deviation 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 the Lower Quality Index to the nearest two decimal places using:

$$Q_L = \frac{(\bar{x} - LSL)}{S}$$

Determine the percentage that will fall above the Lower Specification Limit (LSL) by going to the attached Table and utilizing calculated Q_L . Read the appropriate PWL value from the Table. For Q_L values less than zero the value shown in the table must be subtracted from 100 to obtain PWL.

Pay Adjustment. The following pay adjustment equation will be used to determine (to the nearest two decimal places) the pay factor for each lot.

Pay Factor (PF) in percent = 55 + 0.5 (PWL)

If \bar{x} for a lot is less than the plan thickness, the maximum pay factor for that lot will be 100 percent.

Total Payment. The payment will be based on the appropriate pay items in Sections 407, 420, and 421. The final payment will be adjusted according to the following equation:

$$\text{Total Payment} = \text{TPF}[\text{CUP} (\text{TOTPAVT} - \text{DEFFPAVT})]$$

TPF = Total Pay Factor

CUP = Contract Unit Price

TOTPAVT = Area of Pavement Subject to Coring

DEFFPAVT = Area of Deficient Pavement

The TPF for the entire pavement will be the average of the PF for all the lots, however, not more than 102 percent of plan quantity will be paid.

Deficient pavement is defined as an area of pavement represented by a subplot deficient by more than 10 percent which is left in place with no additional thickness added.

All work involved in determining the total payment will be included in the contract unit prices of the pay items involved.

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

53600

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000

Revised: September 1, 2003

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts no later than 30 days from the receipt of each payment made to the Contractor.

State law addresses the timing of payments to be made to subcontractors. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, generally requires that when a Contractor receives any payment from the Department, the Contractor is required to make corresponding, proportional payments to each subcontractor performing work within 15 calendar days after receipt of the state payment. Section 7 of the State Prompt Payment Act further provides that interest in the amount of 2% per month, in addition to the payment due, shall be paid to any subcontractor by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors throughout the contracting chain.

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

As progress payments are made to the Contractor in accordance with Article 109.07 of the Standard Specifications for Road and Bridge Construction, the Contractor shall make a corresponding partial payment within 15 calendar days to each subcontractor in proportion to the work satisfactorily completed by each subcontractor. The proportionate amount of partial payment due to each subcontractor shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors shall be paid in full within 15 calendar days after the subcontractor's work has been satisfactorily completed. The Contractor shall hold no retainage from the subcontractors.

This Special Provision does not create any rights in favor of any subcontractor against the State of Illinois or authorize any cause of action against the State of Illinois on account of any payment, nonpayment, delayed payment or interest claimed by application of the State Prompt Payment Act. The Department will neither determine the reasonableness of any cause for delay of payment nor enforce any claim to payment, including interest. Moreover, the Department will not approve any delay or postponement of the 15 day requirement. State law creates remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond in accordance with the Public Construction Bond Act, 30 ILCS 550.

80022

PERSONAL PROTECTIVE EQUIPMENT (BDE)

Effective: July 1, 2004

All personnel, excluding flaggers, working outside of a vehicle (car or truck) within 7.6 m (25 ft) of pavement open to traffic shall wear a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/.green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments. Other types of garments may be substituted for the vest as long as the garments have manufacturers tags identifying them as meeting the ANSI Class 2 requirement.

80130

PLASTIC BLOCKOUTS FOR GUARDRAIL (BDE)

Effective: November 1, 2004

Add the following to Article 630.02 of the Standard Specifications:

“(h) Plastic Blockouts (Note 1.)

Note 1. Plastic blockouts, 150 mm (6 in.) deep, may be used in lieu of 150 mm (6 in.) deep wood block-outs for steel plate beam guardrail. The plastic blockouts shall be on the Department’s approved list.”

80134

POLYUREA PAVEMENT MARKING (BDE)

Effective: April 1, 2004

Description. This work shall consist of furnishing and applying pavement marking lines.

The type of polyurea pavement marking applied will be determined by the type of reflective media used. Polyurea Pavement Marking Type I shall use glass beads as a reflective media. Polyurea Pavement Marking Type II shall use a combination of composite reflective elements and glass beads as a reflective media.

Polyurea-based liquid pavement markings shall only be applied by Contractors on the list of Approved Polyurea Contractors maintained by the Engineer of Operations and in effect on the date of advertisement for bids.

Materials. Materials shall meet the following requirements:

- (a) Polyurea Pavement Marking. The polyurea pavement marking material shall consist of 100 percent solid two part system formulated and designed to provide a simple volumetric mixing ratio of two components (must be two or three volumes of Part A to one volume of Part B). No volatile or polluting solvents or fillers will be allowed.
- (b) Pigmentation. The pigment content by weight of component A shall be determined by low temperature ashing according to ASTM D 3723. The pigment content shall not vary more than \pm two percent from the pigment content of the original qualified paint.

White Pigment shall be Titanium Dioxide meeting ASTM D 476 Type II, Rutile.

Yellow Pigment shall be an Organic Yellow and contain no heavy metals.

- (c) Environmental. Upon heating to application temperature, the material shall not exude fumes which are toxic or injurious to persons or property.
- (d) Daylight Reflectance. The daylight directional reflectance of the cured polyurea material (without reflective media) shall be a minimum of 80 percent (white) and 50 percent (yellow) relative to magnesium oxide when tested using a color spectrophotometer with a 45 degrees circumferential /zero degrees geometry, illuminant C, and two degrees observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm. In addition, the color of the yellow polyurea shall visually match Color Number 33538 of Federal Standard 595a with chromaticity limits as follows:

X	0.490	0.475	0.485	0.539
Y	0.470	0.438	0.425	0.456

- (e) Weathering Resistance. The polyurea marking material, when mixed in the proper ratio and applied at 0.35 to 0.41 mm (14 to 16 mils) wet film thickness to an aluminum alloy panel (Federal Test Std. No. 141, Method 2013) and allowed to cure for 72 hours at room temperature, shall be subjected to accelerated weathering for 75 hours. The accelerated weathering shall be completed by using the light and water exposure apparatus (fluorescent UV - condensation type) and tested according to ASTM G 53.

The cycle shall consist of four hours UV exposure at 50 °C (122 °F) and four hours of condensation at 40 °C (104 °F). UVB 313 bulbs shall be used. At the end of the exposure period, the material shall show no substantial change in color or gloss.

- (f) Dry Time. The polyurea pavement marking material, when mixed in the proper ratio and applied at 0.35 to 0.41 mm (14 to 16 mils) wet film thickness and with the proper saturation of reflective media, shall exhibit a no-tracking time of ten minutes or less when tested according to ASTM D 711.
- (g) Adhesion. The catalyzed polyurea pavement marking materials when applied to a 100 x 100 x 50 mm (4 x 4 x 2 in.) concrete block, shall have a degree of adhesion which results in a 100 percent concrete failure in the performance of this test.

The concrete block shall be brushed on one side and have a minimum strength of 24,100 kPa (3500 psi). A 50 mm (2 in.) square film of the mixed polyurea shall be applied to the brushed surface and allowed to cure for 72 hours at room temperature. A 50 mm (2 in.) square cube shall be affixed to the surface of the polyurea by means of an epoxy glue. After the glue has cured for 24 hours, the polyurea specimen shall be placed on a dynamic testing machine in such a fashion so that the specimen block is in a fixed position and the 50 mm (2 in.) cube (glued to the polyurea surface) is attached to the dynamometer head. Direct upward pressure shall be slowly applied until the polyurea system fails. The location of the break and the amount of concrete failure shall be recorded.

- (h) Hardness. The polyurea pavement marking materials when tested according to ASTM D 2240, shall have a shore D hardness of between 70 and 100. Films shall be cast on a rigid substrate at 0.35 to 0.41 mm (14 to 16 mils) in thickness and allowed to cure at room temperature for 72 hours before testing.

(i) Abrasion. The abrasion resistance shall be evaluated according to ASTM D 4060 using a Taber Abrader with a 1,000 gram load and CS 17 wheels. The duration of the test shall be 1,000 cycles. The loss shall be calculated by difference and be less than 120 mgs. The tests shall be run on cured samples of polyurea material which have been applied at a film thickness of 0.35 to 0.41 mm (14 to 16 mils) to code S-16 stainless steel plates. The films shall be allowed to cure at room temperature for at least 72 hours and not more than 96 hours before testing.

(j) Reflective Media. The reflective media shall meet the following requirements:

(1) Type I - The glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications and the following requirements:

a. First Drop Glass Beads The first drop glass beads shall be tested by the standard visual method of large glass spheres adopted by the Department. The beads shall have a silane coating and meet the following sieve requirements:

Sieve Size	U.S. Standard Sieve Number	% Passing (By Weight)
1.70 mm	12	95-100
1.40 mm	14	75-95
1.18 mm	16	10-47
1.00 mm	18	0-7
850 µm	20	0-5

b. Second Drop Glass Beads. The second drop glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications for Type B.

(2) Type II - The combination of microcrystalline ceramic elements and glass beads shall meet the following requirements:

a. First Drop Glass Beads. The first drop glass beads shall meet the following requirements:

1. Composition. The elements shall be composed of a titania opacified ceramic core having clear and or yellow tinted microcrystalline ceramic beads embedded to the outer surface.
2. Index of Refraction. All microcrystalline reflective elements embedded to the outer surface shall have an index of refraction of 1.8 when tested by the immersion method.
3. Acid Resistance. A sample of microcrystalline ceramic beads supplied by the manufacturer, shall show resistance to corrosion of their surface after exposure to a one percent solution (by weight) of sulfuric acid. Adding 5.7 ml (0.2 oz) of concentrated acid into the water shall make the one percent acid solution. This test shall be performed by taking a 25 x 50 mm (1 x 2 in.) sample and adhering it to the bottom of a glass tray and placing just enough acid solution to completely immerse the sample. The tray shall be covered with a piece of glass to prevent evaporation and allow the sample to be exposed for 24 hours under these conditions. The acid solution shall be decanted (do not rinse, touch, or otherwise disturb the bead surfaces) and the sample dried while adhered to the glass tray in a 66 °C (150 °F) oven for approximately 15 minutes. Microscope examination (20X) shall show no white (corroded) layer on the entire surface.

b. Second Drop Glass Beads. The second drop glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications for Type B or the following manufacturer's specification:

1. Sieve Analysis. The glass beads shall meet the following sieve requirements:

Sieve Size	U.S. Standard Sieve Number	% Passing (By Weight)
850 μm	20	100
600 μm	30	75-95
300 μm	50	15-35
150 μm	100	0-5

The manufacturer of the glass beads shall certify that the treatment of the glass beads meets the requirements of the polyurea manufacturer.

2. Imperfections. The surface of the glass beads shall be free of pits and scratches. The glass beads shall be spherical in shape and shall contain a maximum of 20 percent by weight of irregular shapes when tested by the standard method using a vibratile inclined glass plate as adopted by the Department.

3. Index of Refraction. The index of refraction of the glass beads shall be a minimum of 1.50 when tested by the immersion method at 25 °C (77 °F).

(k) Packaging. Microcrystalline ceramic reflective elements and glass beads shall be delivered in approved moisture proof bags or weather resistant bulk boxes. Each carton shall be legibly marked with the manufacturer, specifications and type, lot number, and the month and year the microcrystalline ceramic reflective elements and/or glass beads were packaged. The letters and numbers used in the stencils shall be a minimum of 12.7 mm (1/2 in.) in height.

(1) Moisture Proof Bags. Moisture proof bags shall consist of at least five ply paper construction unless otherwise specified. Each bag shall contain 22.7 kg (50 lb) net.

(2) Bulk Weather Resistance Boxes. Bulk weather resistance boxes shall conform to Federal Specification PPP-8-640D Class II or latest revision. Boxes are to be weather resistant, triple wall, fluted, corrugated-fiber board. Cartons shall be strapped with two metal straps. Straps shall surround the outside perimeter of the carton. The first strap shall be located approximately 50 mm (2 in.) from the bottom of the carton and the second strap shall be placed approximately in the middle of the carton. All cartons shall be shrink wrapped for protection from moisture. Cartons shall be lined with a minimum 4 mil polyester bag and meet Interstate Commerce Commission requirements. Cartons shall be approximately 1 x 1 m (38 x 38 in.), contain 910 kg (2000 lb) of microcrystalline ceramic reflective elements and/or glass beads and be supported on a wooden pallet with fiber straps.

(l) Packaging. The material shall be shipped to the job site in substantial containers and shall be plainly marked with the manufacturer's name and address, the name and color of the material, date of manufacture, and batch number.

- (m) Verification. Prior to approval and use of the polyurea pavement marking materials, the manufacturer shall submit a notarized certification of an independent laboratory, together with the results of all tests, stating these materials meet the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, brand name of polyurea and date of manufacture. The certification shall be accompanied by one 1/2 L (1 pt) samples each of Part A and Part B. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B.

After approval by the Department, certification by the polyurea manufacturer shall be submitted for each batch used. New independent laboratory certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer.

- (n) Acceptance samples. Acceptance samples shall consist of one 1/2 L (1 pt) samples of Part A and Part B, of each lot of paint. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B. The samples shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state the formulation for the lot represented is essentially identical to that used for qualification testing. All, acceptance samples will be taken by a representative of the Department. The polyurea pavement marking materials shall not be used until tests are completed and they have met the requirements as set forth herein.
- (o) Material Retainage. The manufacturer shall retain the test sample for a minimum of 18 months.

Equipment. The polyurea pavement marking compounds shall be applied through equipment specifically designed to apply two component liquid materials, glass beads and/or reflective elements in a continuous and skip-line pattern. The two-component liquid materials shall be applied after being accurately metered and then mixed with a static mix tube or airless impingement mixing guns. The static mixing tube or impingement mixing guns shall accommodate plural component material systems that have a volumetric ratio of 2 to 1 or 3 to 1. This equipment shall produce the required amount of heat at the mixing head and gun tip and maintain those temperatures within the tolerances specified. The guns shall have the capacity to deliver materials from approximately 5.7 to 11.4 L/min (1.5 to 3 gal/min) to compensate for a typical range of application speeds of 10 to 13 km/h (6 to 8 mph). The accessories such as spray tip, mix chamber, and rod diameter shall be selected according to the manufacturer's specifications to achieve proper mixing and an acceptable spray pattern. The application equipment shall be maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. This equipment shall also have as an integral part of the gun carriage, a high pressure air spray capable of cleaning the pavement immediately prior to making application.

The equipment shall be capable of spraying both yellow and white polyurea, according to the manufacturer's recommended proportions and be mounted on a truck of sufficient size and stability with an adequate power source to produce lines of uniform dimensions and prevent application failure. The truck shall have at least two polyurea tanks each of 415 L (110 gal) minimum capacity and be equipped with hydraulic systems and agitators. It shall be capable of placing stripes on the left and right sides and placing two lines on a three-line system simultaneously with either line in a solid or intermittent pattern, in yellow or white, and applying the appropriate reflective media according to manufacturer's recommendations. All guns shall be in full view of operations at all times. The equipment shall have a metering device to register the accumulated installed quantities for each gun, each day. Each vehicle shall include at least one operator who shall be a technical expert in equipment operations and polyurea application techniques. Certification of equipment shall be provided at the pre-construction conference.

The mobile applicator shall include the following features:

- (a) Material Reservoirs. The applicator shall provide individual material reservoirs, or space for the storage of Part A and Part B of the resin composition.
- (b) Heating Equipment. The applicator shall be equipped with heating equipment of sufficient capacity to maintain the individual resin components at the manufacturer's recommended temperature of ± 2.8 °C (± 5 °F) for spray application.
- (c) Dispensing Equipment. The applicator shall be equipped with glass bead and/or reflective element dispensing equipment. The applicator shall be capable of applying the glass beads and/or reflective elements at a rate and combination indicated by the manufacturer.
- (d) Volumetric Usage. The applicator shall be equipped with metering devices or pressure gauges on the proportioning pumps as well as stroke counters to monitor volumetric usage. Metering devices or pressure gauges and stroke counters shall be visible to the Engineer.
- (e) Pavement Marking Placement. The applicator shall be equipped with all the necessary spray equipment, mixers, compressors and other appurtenances to allow for the placement of reflectorized pavement markings in a simultaneous sequence of operations.

The Contractor shall provide an accurate temperature-measuring device(s) that shall be capable of measuring the pavement temperature prior to application of the material, the material temperature at the gun tip and the material temperature prior to mixing.

CONSTRUCTION REQUIREMENTS

General. The pavement shall be cleaned by a method approved by the Engineer to remove all dirt, grease, glaze or any other material that would reduce the adhesion of the markings with minimum or no damage to the pavement surface. New PCC pavements shall be air-blast-cleaned to remove all latents.

Widths, lengths, and shapes of the cleaned surface shall be of sufficient size to include the full area of the specified pavement marking to be placed.

The cleaning operation shall be a continuous moving operation process with minimum interruption to traffic.

Markings shall be applied to the cleaned surfaces on the same calendar day. If this cannot be accomplished, the surface shall be re-cleaned prior to applying the markings. No markings shall be applied until the Engineer approves the cleaning.

The pavement markings shall be applied to the cleaned road surface, during conditions of dry weather and subsequently dry pavement surfaces at a minimum uniform wet thickness of 0.4 mm (15 mils) according to the manufacturer's installation instructions. On new bituminous course surfaces the pavement markings shall be applied at a minimum uniform wet thickness of 0.5 mm (20 mils). The application of and combination of reflective media (glass beads and/or reflective elements) shall be applied at a rate specified by the manufacturer. At the time of installation the pavement surface temperature and the ambient temperature shall be above 4 °C (40 °F) and rising. The pavement markings shall not be applied if the pavement shows any visible signs of moisture or it is anticipated that damage causing moisture, such as rain showers, may occur during the installation and set periods. The Engineer will determine the atmospheric conditions and pavement surface conditions that produce satisfactory results.

Using the application equipment, the pavement markings shall be applied in the following manner, as a simultaneous operation:

- (a) The surface shall be air-blasted to remove any dirt and residue.
- (b) The resin shall be mixed and heated according to manufacturer's recommendations and sprayed onto the pavement surface.

The edge of the center line or lane line shall be offset a minimum distance of 50 mm (2 in.) from a longitudinal crack or joint. Edge lines shall be approximately 50 mm (2 in.) from the edge of pavement. The finished center and lane lines shall be straight, with the lateral deviation of any 3 m (10 ft) line not to exceed 25 mm (1 in.).

Notification. The Contractor shall notify the Engineer 72 hours prior to the placement of the markings in order that he/she can be present during the operation. At the time of notification, the Contractor shall provide the Engineer the manufacturer and lot numbers of polyurea and reflective media that will be used.

Inspection. The polyurea pavement markings will be inspected following installation according to Article 780.10 of the Standard Specifications, except, no later than December 15, and inspected following a winter performance period that extends 180 days from December 15.

Method of Measurement. This work will be measured for payment in place, in meters (feet). Double yellow lines will be measured as two separate lines.

Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for POLYUREA PAVEMENT MARKING TYPE I – LINE of the line width specified or for POLYUREA PAVEMENT MARKING TYPE II – LINE of the line width specified.
80119

PORTABLE CHANGEABLE MESSAGE SIGNS (BDE)

Effective: November 1, 1993

Revised: April 2, 2004

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

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

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

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

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

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

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

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

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

80124

PORTLAND CEMENT (BDE)

Effective: January 1, 2005

Replace the first sentence of the second paragraph of Article 1001.01 of the Standard Specifications with the following:

"For portland cement according to ASTM C 150, the addition of up to 5.0 percent limestone by mass (weight) to the cement will not be permitted. Also, the total of all organic processing additions shall not exceed 1.0 percent by mass (weight) of the cement and the total of all inorganic processing additions shall not exceed 4.0 percent by mass (weight) of the cement."

80139

PORTLAND CEMENT CONCRETE PATCHING (BDE)

Effective: January 1, 2001

Revised: January 1, 2004

Revise Note 1 of Article 442.02 of the Standard Specifications, to read:

"Note 1. When patching ramp pavements and two lane pavements with two way traffic, Class PP-2, PP-3, or PP-4 concrete shall be used for Class A, Class B and Class C patching. For all other pavements, Class PP-1, PP-2, PP-3, or PP-4 concrete shall be used, at the Contractor's option, for Class A, Class B and Class C patching."

Delete Note 2 of Article 442.02 of the Standard Specifications.

Add the following to Article 442.02 of the Standard Specifications:

"(l) Calcium Chloride (Note 5)..... 1013.01

Note 5. The calcium chloride accelerator, when permitted by the Department, shall be Type L (Liquid) with a minimum of 32.0 percent by mass (weight) of calcium chloride."

Revise the first paragraph of Article 442.06(e) of the Standard Specifications to read:

"(e) Concrete Placement. For Class A, Class B and Class C Patches, concrete shall be placed according to Article 420.07 and governed by the limitations set forth in Article 1020.14, except that the maximum temperature of the mixed concrete immediately before placing shall be 35 °C (96 °F), the required use of an approved retarding admixture when the plastic concrete reaches 30 °C (85 °F) shall not apply."

Revise the first paragraph of Article 442.06(h) of the Standard Specifications to read:

"(h) Curing and Protection. In addition to Article 1020.13, when the air temperature is less than 13 °C (55 °F), the Contractor shall cover the patch with minimum R12 insulation until opening strength is reached. Insulation is optional when the air temperature is 13 °C - 35 °C (55 °F - 96 °F). Insulation shall not be placed when the air temperature is greater than 35 °C (96 °F)."

Revise the second paragraph of Article 701.05(e)(1)d.1. of the Standard Specifications to read:

"No open holes, broken pavement, or partially filled holes shall remain overnight for bituminous patching or when the Department specifies only Class PP-2, PP-3, or PP-4 concrete be used. The only exception is conditions beyond the control of the Contractor."

Revise Article 701.05(e)(2)b. of the Standard Specifications to read:

"b. Strength Tests. For patches constructed with Class PP-1, PP-2, PP-3, or PP-4 concrete, the pavement may be opened to traffic when test specimens cured with the patches have obtained a minimum flexural strength of 4150 kPa (600 psi) or a minimum compressive strength of 22,100 kPa (3200 psi) according to Article 1020.09.

For patches constructed with Class PP-2, PP-3, or PP-4 concrete which can obtain a minimum flexural strength of 4150 kPa (600 psi) or a minimum of compressive strength of 22,100 kPa (3200 psi) in 16 hours, the pavement may be opened to traffic at a lower opening strength. The specimens cured with the patches shall have obtained a minimum flexural strength of 2050 kPa (300 psi) or a minimum compressive strength of 11,000 kPa (1600 psi) according to Article 1020.09, to permit opening pavement to traffic.

With the approval of the Engineer, concrete strength may be determined according to AASHTO T 276. The strength-maturity relationship shall be developed from concrete which has an air content near the upper specification limit. The strength-maturity relationship shall be re-established if the mix design or materials are changed."

Revise Article 701.05(e)(2)c. of the Standard Specifications to read:

- "c. Construction Operations. For Class PP-2, PP-3, or PP-4 concrete used on ramp pavements and two lane pavements with two way traffic, or when the Department specifies only Class PP-2, PP-3, or PP-4 concrete be used for other pavements, Contractor construction operations shall be performed in a manner which allows the patches to be opened the same day and before nightfall. If patches are not opened before nightfall, the additional traffic control shall be at the Contractor's expense. Any time patches cannot be opened before nightfall, the Contractor shall change subsequent construction operations or the mix design. The changes shall be at no additional cost to the Department."

Revise Table 1 of Article 1020.04 of the Standard Specifications by replacing Class PP concrete with the following:

"TABLE 1. CLASSES OF PORTLAND CEMENT CONCRETE AND MIX DESIGN CRITERIA				
Class of Concrete	Use	Specification Section Reference	Cement Factor kg/cu m (cwt/cu yd)	Max. Water/Cement Ratio kg/kg (lb/lb)
PP-1	PCC Pavement Patching Bridge Deck Patching	442	Type I Cement 385 to 445 (6.50 to 7.50) Type III Cement 365 to 425 (6.20 to 7.20)	0.44
PP-2	PCC Pavement Patching Bridge Deck Patching	442	Type I Cement 435 (7.35)	0.38
PP-3	PCC Pavement Patching Bridge Deck Patching	442	Type III Cement 435 (7.35)	0.35
PP-4	PCC Pavement Patching Bridge Deck Patching	442	Rapid Hardening Cement 355 to 370 (6.00 to 6.25)	0.50

For PP-1, the Contractor has the option to replace the Type I Cement with Class C fly ash or ground granulated blast-furnace slag. The amount of cement replaced shall not exceed 15 percent by mass (weight), at a minimum replacement ratio of 1.5:1.

For PP-2, the Contractor has the option to replace the Type I cement with ground granulated blast-furnace slag. The amount of cement replaced shall not exceed 30 percent by mass (weight), at a minimum replacement ratio of 1:1.

For PP-3, in addition to the cement, 60 kg/cu m (100 lb/cu yd) of ground granulated blast-furnace slag and 30 kg/cu m (50 lb/cu yd) of microsilica are required. For an air temperature greater than 30 °C (85 °F), the Contractor has the option to replace the Type III cement with Type I cement.

For PP-4, the cement shall be from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs".

TABLE 1. (CONT'D) CLASSES OF PORTLAND CEMENT CONCRETE AND MIX DESIGN CRITERIA					
Class of Concrete	Slump, mm (in.)	Mix Design Compressive Strength, kPa (psi)	Mix Design Flexural Strength, kPa (psi)	Air Content, %	Coarse Aggregate Gradations Permitted
		Hours	Hours		
		48	48		
PP – 1	100 (4) Max	22,100 (3200)	4150 (600)	4.0 – 7.0	CA-7, CA-11, CA-13, CA14, or CA-16
PP – 2	150 (6) Max	22,100 (3200)	4150 (600)	4.0 – 6.0	CA-7, CA-11, CA-13, CA14, or CA-16
PP – 3	100 (4) Max	22,100 (3200)	4150 (600)	4.0 – 6.0	CA-7, CA-11, CA-13, CA14, or CA-16
PP – 4	150 (6) Max	22,100 (3200)	4150 (600)	4.0 – 6.0	CA-7, CA-11, CA-13, CA14, or CA-16

For PP-1, PP-2, PP-3 or PP-4; only CA-13, CA-14, or CA-16 may be used for bridge deck patching. In addition, the mix design strength at 48 hours shall be increased to 27,500 kPa (4,000 psi) compressive or 4,650 kPa (675 psi) flexural for bridge deck patching.

For PP-1, the slump may be increased to 150 mm (6 in.) Max if a high range water-reducing admixture is used."

Delete Article 1020.05(g) of the Standard Specifications.

80036

PRECAST CONCRETE PRODUCTS (BDE)

Effective: July 1, 1999

Revised: November 1, 2004

Product Approval. Precast concrete products shall be produced according to the Department's current Policy Memorandum, "Quality Control/Quality Assurance Program for Precast Concrete Products". The Policy Memorandum applies to precast concrete products listed under the Products Key of the "Approved List of Certified Precast Concrete Producers".

Precast Concrete Box Culverts. Add the following sentence to the end of the fourth paragraph of Article 540.06:

"After installation, the interior and exterior joint gap between precast concrete box culvert sections shall not exceed 38 mm (1 1/2 in.)."

Portland Cement Replacement. For precast concrete products using Class PC concrete or other mixtures, portland cement replacement with fly ash or ground granulated blast-furnace (GGBF) slag shall be governed by the AASHTO or ASTM standard specification referenced in the Standard Specifications.

For all other precast concrete products using Class PC concrete or other mixtures, portland cement replacement with fly ash or GGBF slag shall be approved by the Engineer. Class F fly ash shall not exceed 15 percent by mass (weight) of the total portland cement and Class F fly ash. Class C fly ash shall not exceed 20 percent by mass (weight) of the total portland cement and Class C fly ash. GGBF slag shall not exceed 25 percent by mass (weight) of the total portland cement and GGBF slag.

Concrete mix designs, for precast concrete products, shall not consist of portland cement, fly ash and GGBF slag.

Ready-Mixed Concrete. Delete the last paragraph of Article 1020.11(a) of the Standard Specifications.

Shipping. When a precast concrete product has attained the specified strength, the earliest the product may be loaded, shipped, and used is on the fifth calendar day. The first calendar day shall be the date casting was completed.

Acceptance. Products which have been lot or piece inspected and approved by the Department prior to July 1, 1999, will be accepted for use on this contract.

419.doc

PREFORMED RECYCLED RUBBER JOINT FILLER (BDE)

Effective: November 1, 2002

Revise Article 503.02(c) of the Standard Specifications to read:

“(c) Preformed Expansion Joint Filler 1051”

Revise Article 637.02(d) of the Standard Specifications to read:

“(d) Preformed Expansion Joint Filler 1051”

Add the following Article to Section 1051 of the Standard Specifications:

“1051.10 Preformed Recycled Rubber Joint Filler. Preformed recycled rubber joint filler shall consist of ground tire rubber, free of steel and fabric, combined with ground scrap or waste polyethylene. It shall not have a strong hydrocarbon or rancid odor and shall meet the physical property requirements of ASTM D 1752. Water absorption by volume shall not exceed 5.0 percent.”

| 80084

RAP FOR USE IN BITUMINOUS CONCRETE MIXTURES (BDE)

Effective: January 1, 2000

Revised: April 1, 2002

Revise Article 1004.07 to read:

“1004.07 RAP Materials. RAP is reclaimed asphalt pavement resulting from cold milling or crushing of an existing dense graded hot-mix asphalt pavement. RAP must originate from routes or airfields under federal, state or local agency jurisdiction. The Contractor shall supply documentation that the RAP meets these requirements.

(a) Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP will be allowed on top of the pile after the pile has been sealed.

(1) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I/ Superpave, or equivalent mixtures only and represent the same aggregate quality, but shall be at least C quality or better, the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag), similar gradation and similar AC 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. Homogenous stockpiles shall meet the requirements of Article 1004.07(d). Homogeneous RAP stockpiles not meeting these requirements may be processed (crushing and screening) and retested.

(2) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I/ Superpave, or equivalent mixtures only. The coarse aggregate in this RAP shall be crushed aggregate only and may represent more than one aggregate type and/or quality but shall be at least C quality or better. This RAP may have an inconsistent gradation and/or asphalt cement content prior to processing. All conglomerate RAP shall be processed prior to testing by crushing to where all RAP shall pass the 16 mm (5/8 in.) or smaller screen. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate RAP stockpiles shall meet the requirements of Article 1004.07(d).

(3) Conglomerate “D” Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP containing coarse aggregate (crushed or round) that is at least D quality or better. This RAP may have an inconsistent gradation and/or asphalt content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate DQ RAP shall meet the requirements of Article 1004.07(d).

Reclaimed Superpave Low ESAL IL-9.5L surface mixtures shall only be placed in conglomerate DQ RAP stockpiles due to the potential for rounded aggregate.

(4) Other. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as “Other”. “Other” RAP stockpiles shall not be used in any of the Department’s bituminous mixtures.

- (b) Use. The allowable use of a RAP stockpile shall be set by the lowest quality of coarse aggregate in the RAP stockpile. Class I/Superpave surface mixtures are designated as containing Class B quality coarse aggregate only. Superpave Low ESAL IL-19.0L binder and IL-9.5L surface mixtures are designated as Class C quality coarse aggregate only. Class I/Superpave binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate only. Bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate only. Any mixture not listed above shall have the designated quality determined by the Department.

RAP containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in Class I/Superpave (including Low ESAL) surface mixtures only. RAP stockpiles for use in Class I/Superpave mixtures (including Low ESAL), base course, base course widening and Class B mixtures shall be either homogeneous or conglomerate RAP stockpiles except conglomerate RAP stockpiles shall not be used in Superpave surface mixture Ndesign 50 or greater. RAP for use in bituminous aggregate mixtures (BAM) shoulders and BAM stabilized subbase shall be from homogeneous, conglomerate, or conglomerate DQ stockpiles.

Additionally, RAP used in Class I/Superpave surface mixtures shall originate from milled or crushed mixtures only, in which the coarse aggregate is of Class B quality or better. RAP stockpiles for use in Class I/Superpave (including Low ESAL) binder mixes as well as base course, base course widening and Class B mixtures shall originate from milled or processed surface mixture, binder mixture, or a combination of both mixtures uniformly blended to the satisfaction of the Engineer, in which the coarse aggregate is of Class C quality or better.

- (c) Contaminants. RAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.
- (d) Testing. All 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 450 metric tons (500 tons) for the first 1800 metric tons (2,000 tons) and one sample per 1800 metric tons (2,000 tons) thereafter. A minimum of five tests shall be required for stockpiles less than 3600 metric tons (4,000 tons).

For testing existing stockpiles, 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 extract representative samples throughout the pile for testing.

Before extraction, each field sample shall be split to 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.

All of the extraction results shall be compiled and averaged for asphalt content and gradation. Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	Homogeneous / Conglomerate	Conglomerate "D" Quality
25 mm (1 in.)		± 5%
12.5 mm (1/2 in.)	± 8%	± 15%
4.75 mm (No. 4)	± 6%	± 13%
2.36 mm (No. 8)	± 5%	
1.18 mm (No. 16)		± 15%
600 μm (No. 30)	± 5%	
75 μm (No. 200)	± 2.0%	± 4.0%
AC	± 0.4%	± 0.5%

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt content test results fall outside the appropriate tolerances, the RAP will not be allowed to be used in the Department's bituminous concrete mixtures unless the RAP representing the failing tests is removed from the stockpile to the satisfaction of the Engineer. 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)".

- (e) Designs. At the Contractor's option, bituminous concrete mixtures may be constructed utilizing RAP material meeting the above detailed requirements. The amount of RAP included in the mixture shall not exceed the percentages specified in the plans.

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 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.

- (f) Production. The coarse aggregate in all RAP used shall be equal to or less than the nominal maximum size requirement for the bituminous 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.

SEEDING AND SODDING (BDE)

Effective: July 1, 2004

Revised: November 1, 2004

Revise Class 1A and 2A seeding mixtures shown in Table 1 of Article 250.07 of the Standard Specifications to read:

"Table 1 - SEEDING MIXTURES		
Class – Type	Seeds	kg/hectare (lb/acre)
1A Salt Tolerant Lawn Mixture 7/	Bluegrass	70 (60)
	Perennial Ryegrass	20 (20)
	Audubon Red Fescue	20 (20)
	Rescue 911 Hard Fescue	20 (20)
	Fults Salt Grass*	70 (60)
2A Salt Tolerant Roadside Mixture 7/	Alta Fescue or Ky 31	70 (60)
	Perennial Ryegrass	20 (20)
	Audubon Red Fescue	20 (30)
	Rescue 911 Hard Fescue	20 (30)
	Fults Salt Grass 1/	70 (60)"

Revise Note 7 of Article 250.07 of the Standard Specifications to read:

"Note 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 coverage over the entire seeded area(s) after one growing season. The guarantee shall be submitted to the Engineer in writing prior to performing the work. After one growing season, areas not sustaining 75 percent growth shall be interseeded or reseeded, as determined by the Engineer, at the Contractor's expense."

Add the following sentence to Article 252.04 of the Standard Specifications:

"Sod shall not be placed during the months of July and August."

Revise the first paragraph of Article 252.08 of the Standard Specifications to read:

"252.08 Sod Watering. Within two hours after the sod has been placed, water shall be applied at a rate of 25 L/sq m (5 gal/sq yd). Additional water shall be applied every other day at a rate of 15 L/sq m (3 gal/sq yd) for a total of 15 additional waterings. During periods exceeding 26 °C (80 °F) or subnormal rainfall, the schedule of additional waterings may be altered with the approval of the Engineer."

Revise Article 252.09 of the Standard Specifications to read:

“252.09 Supplemental Watering. During periods exceeding 26 °C (80 °F) or subnormal rainfall, supplemental watering may be required after the initial and additional waterings. Supplemental watering shall be performed when directed by the Engineer. Water shall be applied at the rate specified by the Engineer within 24 hours of notice.”

Revise the first and third paragraphs of Article 252.12 of the Standard Specifications to read:

“252.12 Method of Measurement. Sodding will be measured for payment in place and the area computed in square meters (square yards). To be acceptable for final payment, the sod shall be growing in place for a minimum of 30 days in a live, healthy condition. When directed by the Engineer, any defective or unacceptable sod shall be removed, replaced and watered by the Contractor at his/her own expense.”

“Supplemental watering will be measured for payment in units of 1000 L (1000 gal) of water applied on the sodded areas. Waterings performed in addition to those required by Article 252.08 or after the 30 day establishment period will be considered as supplemental watering.”

Replace the first paragraph of Article 252.13 of the Standard Specifications with the following:

“252.13 Basis of Payment. Sodding will be paid for at the contract unit price per square meter (square yard) for SODDING or SODDING, SALT TOLERANT according to the following schedule.

- (a) Initial Payment. Upon placement of sod, 25 percent of the pay item will be paid.
- (b) Final Payment. Upon acceptance of sod, the remaining 75 percent of the pay item will be paid.”

Revise Article 1081.03(b) of the Standard Specifications to read:

“(b) Salt Tolerant Sod.

Variety	Percent by Weight
Buffalo Grass	30%
Buchloe Dactyloides	
Amigo Fineleaf Tall Fescue	20%
Audubon Red Fescue	15%
Rescue 911 Hard Fescue	15%
Rugby Kentucky Bluegrass	5%
Fults Pucinnellia Distans	15%”

Revise Table II of Article 1081.04(c)(6) of the Standard Specifications to read:

TABLE II						
Variety of Seeds	Hard Seed Percent Maximum	Purity Percent Minimum	Pure, Live Seed Percent Minimum	Weed Percent Maximum	Secondary Noxious Weeds No. per kg (oz) Max. Permitted*	Remarks
Alfalfa	20	92	89	0.50	211 (6)	1/
Brome Grass	-	90	75	0.50	175 (5)	-
Clover, Alsike	15	92	87	0.30	211 (6)	2/
Clover, Crimson	15	92	83	0.50	211 (6)	-
Clover, Ladino	15	92	87	0.30	211 (6)	-
Clover, Red	20	92	87	0.30	211 (6)	-
Clover, White Dutch	30	92	87	0.30	211 (6)	3/
Audubon Red Fescue	0	97	82	0.10	105 (3)	-
Fescue, Alta or Ky. 31	-	97	82	1.00	105 (3)	-
Fescue, Creeping Red	-	97	82	1.00	105 (3)	-
Fults Salt Grass	0	98	85	0.10	70 (2)	-
Kentucky Bluegrass	-	97	80	0.30	247 (7)	5/
Lespedeza, Korean	20	92	84	0.50	211 (6)	3/
Oats	-	92	88	0.50	70 (2)	4/
Orchard Grass	-	90	78	1.50	175 (5)	4/
Redtop	-	90	78	1.80	175 (5)	4/
Ryegrass, Perennial, Annual	-	97	85	0.30	175 (5)	4/
Rye, Grain, Winter	-	92	83	0.50	70 (2)	4/
Rescue 911 Hard Fescue	0	97	82	0.10	105 (3)	-
Timothy	-	92	84	0.50	175 (5)	4/
Vetch, Crown	30	92	67	1.00	211 (6)	3/ & 6/
Vetch, Spring	30	92	88	1.00	70 (2)	4/
Vetch, Winter	15	92	83	1.00	105 (3)	4/
Wheat, hard Red Winter	-	92	89	0.50	70 (2)	4/

80131

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)

Effective: July 1, 2004

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. The design and testing of a self-consolidating concrete mixture shall be according to Section 1020 of the Standard Specifications except as modified herein.

Materials. Materials shall conform to the following requirements:

- (a) 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 flowable concrete that does not require mechanical vibration.

The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F.

The viscosity modifying admixture will be evaluated according to the test methods and mix design proportions referenced in AASHTO M 194, except the following physical requirements shall be met:

- (1) For initial and final set times, the allowable deviation of the test concrete from the reference concrete shall not be more than 1.0 hour earlier or 1.5 hours later.
 - (2) For compressive and flexural strengths, the test concrete shall be a minimum of 90 percent of the reference concrete at 3, 7 and 28 days.
 - (3) The length change of the test concrete shall be a maximum 135 percent of the reference concrete. However, if the length change of the reference concrete is less than 0.030 percent, the length change of the test concrete shall be a maximum 0.010 percentage units greater than the reference concrete.
 - (4) The relative durability factor of the test concrete shall be a minimum 80 percent.
- (b) Fine Aggregate. A fine aggregate used alone in the mix design shall not have an expansion greater than 0.30 percent per ASTM C 1260. For a blend of two or more fine aggregates, the resulting blend shall not have an expansion greater than 0.30 percent.

The aggregate blend expansion will be calculated as follows:

$$\text{Aggregate Blend Expansion} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots \text{etc.}$$

Where: a, b, c, ... = percent of aggregate blend
A, B, C, ... = aggregate expansion according to ASTM C 1260

Mix Design Criteria. The slump requirements of Article 1020.04 of the Standard Specifications shall not apply. In addition, the allowable coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. The fine aggregate proportion shall be a maximum 50 percent by mass (weight) of the total aggregate used.

Trail Batch. A minimum 1 cu m (1 cu yd) trial batch shall be produced. The mixture will be evaluated for air content, slump flow, visual stability index, compressive strength, passing ability, and static/dynamic segregation resistance.

The trial batch shall be scheduled and performed in the presence of the Engineer. Testing shall be performed per the Department's test method or as approved by the Engineer.

For the trial batch, the air content shall be within the top half of the allowable specification range. The slump flow range shall be 510 mm (20 in.) minimum to 710 mm (28 in.) maximum. The visual stability index shall be a maximum of 1. Strength shall be determined at 28 days. At the Contractor's option, strength may be determined for additional days.

Passing ability and static/dynamic segregation resistance shall be determined by tests selected by the Contractor and approved by the Engineer. The visual stability index shall not be used as the sole criteria for evaluating static segregation resistance.

After an acceptable mixture has been batched and tested, the mixture shall also be evaluated for robustness. Robustness shall be evaluated by varying the dosage of the self-consolidating admixture system and water separately. Additional trial batches may be necessary to accomplish this.

When necessary, the trial batches shall be disposed of according to Article 202.03 of the Standard Specifications.

Quality Control. Once testing is completed and acceptable results have been attained, production test frequencies and allowable test ranges for slump flow, visual stability index, passing ability, and static/dynamic segregation resistance shall be proposed. The production test frequencies and allowable test ranges will be approved by the Engineer.

The slump flow range shall be ± 50 mm (± 2 in.) of the target value, and within the overall range of 510 mm (20 in.) minimum to 710 mm (28 in.) maximum. The visual stability index shall be a maximum of 1. The approved test ranges for passing ability and static/dynamic segregation resistance will be based on recommended guidelines determined by the Engineer.

80132

SHOULDER RUMBLE STRIPS (BDE)

Effective: January 1, 2003

Delete the third paragraph of Article 482.06 of the Standard Specifications.

Delete the last two sentences of the fourth paragraph of Article 483.06 of the Standard Specifications.

Add the following to the Standard Specifications:

“SECTION 642. SHOULDER RUMBLE STRIPS

642.01 Description. This work shall consist of constructing rumble strips in shoulders.

642.02 Equipment. The equipment shall be a self-propelled milling machine with a rotary-type cutting head(s). The cutting head(s) shall be suspended from the machine such that it can align itself with the slope of the shoulder and any irregularities in the shoulder surface. The teeth of the cutting head(s) shall be arranged to provide a smooth cut, with no more than a 3 mm (1/8 in.) difference between peaks and valleys.

Prior to commencement of the work, the Contractor shall demonstrate, to the satisfaction of the Engineer, the ability of the equipment to achieve the desired results without damaging the shoulder.

CONSTRUCTION REQUIREMENTS

642.03 General. The rumble strips shall be cut to the dimensions shown on the plans. Guides shall be used to ensure consistent alignment, spacing and depth. In portland cement concrete shoulders, rumble strips may be formed according to the details shown on the plans immediately after the application of the final finish.

Rumble strips shall be omitted within the limits of structures, entrances, side roads, entrance ramps and exit ramps. In portland cement concrete shoulders, rumble strips shall not be placed within 150 mm (6 in.) of transverse joints.

Cuttings resulting from this operation shall be disposed of according to Article 202.03 of the Standard Specifications and the shoulders shall be swept clean.

642.04 Method of Measurement. This work will be measured for payment in meters (feet) along the edge of pavement. Measurement will include both the cut and uncut (formed and unformed) sections of the shoulder rumble strips with exceptions for bridge decks, approach pavements, turn lanes, entrances and other sections where shoulder rumble strips have been omitted.

642.05 Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for SHOULDER RUMBLE STRIPS.”

SHOULDER STABILIZATION AT GUARDRAIL (BDE)

Effective: January 1, 2005

Revise the last sentence of the second paragraph of Article 630.06 of the Standard Specifications to read:

“The void around each post shall be backfilled with earth or aggregate and capped with 75 mm (3 in.) of bituminous mixture or grout.”

Replace the last sentence of the third paragraph of Article 630.06 of the Standard Specifications with the following:

“Guardrail posts shall be driven through holes cored in the completed shoulder stabilization. The void around each post shall be backfilled with earth or aggregate and capped with 75 mm (3 in.) of bituminous mixture or grout.”

Add the following paragraph to the end of Article 630.06 of the Standard Specifications:

“When driving guardrail posts through existing shoulders, shoulder stabilization, or other paved areas, the posts shall be driven through cored holes. The void around each post shall be backfilled with earth or aggregate and capped with 75 mm (3 in.) of bituminous mixture or grout.”

80140

STABILIZED SUBBASE AND BITUMINOUS SHOULDERS SUPERPAVE (BDE)

Effective: April 1, 2002

Revised: July 1, 2004

Description. This work shall consist of constructing stabilized subbase and bituminous shoulders Superpave according to Sections 312 and 482 respectively, of the Standard Specifications and the special provision, “Quality Control/Quality Assurance of Bituminous Concrete Mixtures” except as modified herein.

Revise Article 312.03(b) of the Standard Specifications to read:

“(b) RAP Material (Note 3)”

Revise Note 2 of Article 312.03 of the Standard Specifications to read:

“Note 2. Gradation CA 6, CA 10, or CA 12 shall be used.”

Revise Note 3 of Article 312.03 of the Standard Specifications to read:

"Note 3. RAP shall meet the requirements of the special provision "RAP for Use in Bituminous Concrete Mixtures". RAP containing steel slag shall be permitted for use in top-lift surface mixtures only."

Revise Note 4 of Article 312.03 of the Standard Specifications to read:

"Note 4. Unless otherwise specified on the plans, the bituminous material shall be performance graded asphalt cement, PG58-22. When more than 15 percent RAP is used, a softer PG binder may be required as determined by the Engineer."

Revise Article 312.06 of the Standard Specifications to read:

"312.06 Mixture Design. The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have completed the course, “Superpave Mix Design Upgrade”. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below:

- AASHTO MP 2 Standard Specification for Superpave Volumetric Mix Design
- AASHTO R 30 Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)
- AASHTO PP 28 Standard Practice for Designing Superpave HMA
- AASHTO T 209 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
- AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor
- AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

(a) Job Mix Formula (JMF). The JMF shall be according to the following limits:

<u>Ingredient</u>	<u>Percent by Dry Weight</u>
Aggregate.....	94.0 to 96.0
Asphalt Cement.....	4.0 to 6.0*
Dust/AC Ratio	1.4

*Upper limit may be raised for the lower or top lifts if the Contractor elects to use a highly absorptive coarse and/or fine aggregate requiring more than six percent asphalt. The additional asphalt shall be furnished at no cost to the Department.

When RAP material is being used, the JMF shall be according to the following limits:

<u>Ingredient</u>	<u>Percent by Dry Weight</u>
Virgin Aggregate(s)	46.0 to 96.0
RAP Material(s) (Note 1).....	0 to 50
Mineral Filler (if required)	0 to 5.0
Asphalt Cement.....	4.0 to 7.0
Dust/AC Ratio	1.4

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

(b) Volumetric Requirements.

Design Compactive Effort	Design Air Voids Target (%)
$N_{DES} = 30$	2.0

(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 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

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. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 312.08 of the Standard Specifications to read:

"312.08 Mixture Production. When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 35 seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

- (a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".
- (b) Required Tests. Testing for stabilized subbase and bituminous shoulders shall be conducted to control the production of the bituminous mixture using the test methods identified and performed at a frequency not less than indicated in the following table.

Parameter	Frequency of Tests Non-Class I Mixtures	Test Method
Aggregate Gradation Hot bins for batch and continuous plants. Individual cold-feeds or combined belt-feed for drier-drum plants. (% passing sieves: 12.5 mm (1/2 In.), 4.75 mm (No. 4), 75 µm (No. 200))	1 gradation per day of production. The first day of production shall be washed ignition oven test on the mix. Thereafter, the testing shall alternate between dry gradation and washed ignition oven test on the mix. The dry gradation and the washed ignition oven test results shall be plotted on the same control chart.	Illinois Procedure (See Manual of Test Procedures for Materials).
Asphalt Content by ignition oven (Note 1.)	1 per day	Illinois-Modified AASHTO T 308
Air Voids		
Bulk Specific Gravity of Gyratory Sample	1 per day	Illinois-Modified AASHTO T 312
Maximum Specific Gravity of Mixture	1 per day	Illinois-Modified AASHTO T 209

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

- (c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures except air voids shall be plotted on the control charts within the following control limits:

Air Void Control Limits	
Mixture	Individual Test
Shoulders	± 1.2 %
Others	± 1.2 %”

Replace the first paragraph of Article 312.10 of the Standard Specifications with the following:

“312.10 Placing and Compacting. After the subgrade has been compacted and is acceptable to the Engineer, the bituminous aggregate mixture shall be spread upon it with a mechanical spreader. The maximum compacted thickness of each lift shall be 150 mm (6 in.) provided the required density is obtained. The minimum compacted thickness of each lift shall be according to the following table:

Nominal Maximum Aggregate Size of Mixture	Minimum Compacted Lift Thickness
CA 12 – 12.5 mm (1/2 in.)	38 mm (1 1/2 in.)
CA 10 - 19 mm (3/4 in.)	57 mm (2 1/4 in.)
CA 6 – 25 mm (1 in.)	76 mm (3 in.)

The surface of each lift shall be clean and dry before succeeding lifts are placed.”

Revise Article 482.02 of the Standard Specifications to read:

“482.02 Materials. Materials shall meet the requirements of Article 312.03. For the top lift, the aggregate used shall meet the gradation requirements for a CA 10 or CA 12. Blending of aggregates to meet these gradation requirements will be permitted.”

Revise the first paragraph of Article 482.04 of the Standard Specifications to read:

“482.04 General. For pavement and shoulder resurfacing projects, Superpave binder and surface course mixtures may be used in lieu of bituminous aggregate mixture for the resurfacing of shoulders, at the option of the Contractor, or shall be used when specified on the plans.”

Revise Article 482.04(c) of the Standard Specifications to read:

“(c) Mixture Production312.08”

Revise Article 482.05 of the Standard Specifications to read:

“482.05 Composition of Bituminous Aggregate Mixture. The composition of the mixture shall be according to Article 312.06, except that the amount of asphalt cement used in the top lift shall be increased up to 0.5 percent more than that required in the lower lifts. For resurfacing projects when the Superpave binder and surface course mixtures option is used, the asphalt cement used in the top lift shall not be increased. Superpave mixtures used on the top lift of such shoulders shall meet the gradation requirements of the special provision “Superpave Bituminous Concrete Mixtures”.

For shoulder and strip construction, the composition of the Superpave binder and surface course shall be the same as that specified for the mainline pavement.”

In the following locations of Section 482 of the Standard Specifications, change “Class I” to “Superpave”:

- the second paragraph of Article 482.04
- the first sentence of the second paragraph of Article 482.06
- the first sentence of the fourth paragraph of Article 482.06
- the second sentence of the fourth paragraph of Article 482.06
- the first sentence of the third paragraph of Article 482.08(b)

Revise the first paragraph of Article 482.06 of the Standard Specifications to read:

“482.06 Placing and Compacting. This work shall be according to Article 312.10. The mechanical spreader for the top lift of shoulders shall meet the requirements of Article 1102.03 when the shoulder width is 3 m (10 ft) or greater.”

Revise Article 482.09 of the Standard Specifications to read:

“482.09 Basis of Payment. When bituminous shoulders are constructed along the edges of the completed pavement structure, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS SHOULDERS SUPERPAVE of the thickness specified. The specified thickness shall be the thickness shown on the plans at the edge of the pavement.

On pavement and shoulder resurfacing projects, the shoulder resurfacing will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS SHOULDERS SUPERPAVE.

The construction of shoulder strips for resurfacing pavements will be paid according to the special provision, “Superpave Bituminous Concrete Mixtures”.

80070

SUBGRADE PREPARATION (BDE)

Effective: November 1, 2002

Revise the tenth paragraph of Article 301.03 of the Standard Specifications to read:

“Equipment of such weight, or used in such a way as to cause a rut in the finished subgrade of 13 mm (1/2 in.) or more in depth, shall be removed from the work or the rutting otherwise prevented.”

| 80086

SUPERPAVE BITUMINOUS CONCRETE MIXTURES (BDE)

| Effective: January 1, 2000

Revised: April 1, 2004

Description. This work shall consist of designing, producing and constructing Superpave bituminous concrete mixtures using Illinois Modified Strategic Highway Research Program (SHRP) Superpave criteria. This work shall be according to Sections 406 and 407 of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as follows.

Materials.

- (a) Fine Aggregate Blend Requirement. The Contractor may be required to provide FA 20 manufactured sand to meet the design requirements. For mixtures with $N_{design} \geq 90$, at least 50 percent of the required fine aggregate fraction shall consist of either stone sand, slag sand, or steel slag sand meeting the FA/FM 20 gradation.
- (b) Reclaimed Asphalt Pavement (RAP). If the Contractor is allowed to use more than 15 percent RAP, as specified in the plans, a softer performance-graded binder may be required as determined by the Engineer.

RAP shall meet the requirements of the special provision, "RAP for Use in Bituminous Concrete Mixtures".

RAP will not be permitted in mixtures containing polymer modifiers.

RAP containing steel slag will be permitted for use in top-lift surface mixtures only.

- (c) Bituminous Material. The asphalt cement (AC) shall be performance-graded (PG) or polymer modified performance-graded (SBS-PG or SBR-PG) meeting the requirements of Article 1009.05 of the Standard Specifications for the grade specified on the plans.

The following additional guidelines shall be used if a polymer modified asphalt is specified:

- (1) The polymer modified asphalt cement shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. Polymer modified asphalt cement shall be placed in an empty tank and shall not be blended with other asphalt cements.

- (2) The mixture shall be designed using a mixing temperature of 163 ± 3 °C (325 ± 5 °F) and a gyratory compaction temperature of 152 ± 3 °C (305 ± 5 °F).
- (3) Pneumatic-tired rollers will not be allowed unless otherwise specified by the Engineer. A vibratory roller meeting the requirements of Article 406.16 of the Standard Specifications shall be required in the absence of the pneumatic-tired roller.

Laboratory Equipment.

- (a) Superpave Gyratory Compactor. The superpave gyratory compactor (SGC) shall be used for all QC/QA testing.
- (b) Ignition Oven. The ignition oven shall be used to determine the AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations.

The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

Mixture Design. The Contractor shall submit mix designs, for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have successfully completed the course, "Superpave Mix Design Upgrade". Articles 406.10 and 406.13 of the Standard Specifications shall not apply. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below.

AASHTO MP 2	Standard Specification for Superpave Volumetric Mix Design
AASHTO R 30	Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)
AASHTO PP 28	Standard Practice for Designing Superpave HMA
AASHTO T 209	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
AASHTO T 312	Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor
AASHTO T 308	Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

- (a) Mixture Composition. The ingredients of the bituminous mixture shall be combined in such proportions as to produce a mixture conforming to the composition limits by weight. The gradation mixture specified on the plans shall produce a mixture falling within the limits specified in Table 1.

TABLE 1. MIXTURE COMPOSITION (% PASSING)^{1/}

Sieve Size	IL-25.0 mm		IL-19.0 mm		IL-12.5 mm ^{4/}		IL-9.5 mm ^{4/}	
	min	max	min	max	Min	max	min	max
37.5 mm (1 1/2 in.)		100						
25 mm (1 in.)	90	100		100				
19 mm (3/4 in.)		90	82	100		100		
12.5 mm (1/2 in.)	45	75	50	85	90	100		100
9.5 mm (3/8 in.)						89	90	100
4.75 mm (#4)	24	42 ^{2/}	24	50 ^{2/}	28	65	28	65
2.36 mm (#8)	16	31	20	36	28	48 ^{3/}	28	48 ^{3/}
1.18 mm (#16)	10	22	10	25	10	32	10	32
600 μm (#30)								
300 μm (#50)	4	12	4	12	4	15	4	15
150 μm (#100)	3	9	3	9	3	10	3	10
75 μm (#200)	3	6	3	6	4	6	4	6

- 1/ Based on percent of total aggregate weight.
- 2/ The mixture composition shall not exceed 40 percent passing the 4.75 mm (#4) sieve for binder courses with Ndesign ≥ 90.
- 3/ The mixture composition shall not exceed 40 percent passing the 2.36 mm (#8) sieve for surface courses with Ndesign ≥ 90.
- 4/ The mixture composition for surface courses shall be according to IL-12.5 mm or IL-9.5 mm, unless otherwise specified by the Engineer.

One of the above gradations shall be used for leveling binder as specified in the plans and according to Article 406.04 of the Standard Specifications.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

- (b) Dust/AC Ratio for Superpave. The ratio of material passing the 75 μm (#200) sieve to total asphalt cement shall not exceed 1.0 for mixture design (based on total weight of mixture).

- (c) Volumetric Requirements. The target value for the air voids of the hot mix asphalt (HMA) shall be 4.0 percent at the design number of gyrations. The VMA and VFA of the HMA design shall be based on the nominal maximum size of the aggregate in the mix and shall conform to the requirements listed in Table 2.

TABLE 2. VOLUMETRIC REQUIREMENTS					
Ndesign	Voids in the Mineral Aggregate (VMA), % minimum				Voids Filled with Asphalt (VFA), %
	IL-25.0	IL-19.0	IL-12.5	IL-9.5	
50	12.0	13.0	14.0	15	65 - 78
70					65 - 75
90					
105					

- (d) 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 T 283 using 4 in. Marshall bricks. To be considered acceptable by the Department as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSRs) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSRs less than 0.75 will be considered unacceptable.

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. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Department. The method of application shall be according to Article 406.12 of the Standard Specifications.

Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".

Required Plant Tests. Testing shall be conducted to control the production of the bituminous mixture. The Contractor shall use the test methods identified to perform the following mixture tests at a frequency not less than that indicated in Table 3.

TABLE 3. REQUIRED PLANT TESTS for SUPERPAVE		
Parameter	Frequency of Tests	Test Method
Aggregate Gradation Hot bins for batch and continuous plants Individual cold-feeds or combined belt-feed for drier drum plants. (% passing sieves: 12.5 mm (1/2 in.), 4.75 mm (No. 4), 2.36 mm (No. 8), 600 µm (No. 30), 75 µm (No. 200))	1 dry gradation per day of production (either morning or afternoon sample). And 1 washed ignition oven test on the mix per day of production (conduct in afternoon if dry gradation is conducted in the morning or vice versa). NOTE. The order in which the above tests are conducted shall alternate from the previous production day (example: a dry gradation conducted in the morning will be conducted in the afternoon on the next production day and so forth). The dry gradation and washed ignition oven test results shall be plotted on the same control chart.	Illinois Procedure (See Manual of Test Procedures for Materials).
Asphalt Content by Ignition Oven (Note 1.)	1 per half day of production	Illinois Modified AASHTO T 308
Air Voids	Bulk Specific Gravity of Gyratory Sample	Illinois Modified AASHTO T 312
	Maximum Specific Gravity of Mixture	Illinois Modified AASHTO T 209

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.2 and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resuming production.

During production, mixtures containing an anti-stripping additive will be tested by the Department for stripping according to Illinois Modified T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

Construction Requirements

Lift Thickness.

- (a) Binder and Surface Courses. The minimum compacted lift thickness for constructing bituminous concrete binder and surface courses shall be according to Table 4:

TABLE 4 – MINIMUM COMPACTED LIFT THICKNESS	
Mixture	Thickness, mm (in.)
IL-9.5	32 (1 1/4)
IL-12.5	38 (1 1/2)
IL-19.0	57 (2 1/4)
IL-25.0	76 (3)

- (b) Leveling Binder. Mixtures used for leveling binder shall be as follows:

TABLE 5 – LEVELING BINDER	
Nominal, Compacted, Leveling Binder Thickness, mm (in.)	Mixture
≤ 32 (1 1/4)	IL-9.5
32 (1 1/4) to 50 (2)	IL 9.5 or IL-12.5

Density requirements shall apply for leveling binder when the nominal, compacted thickness is 32 mm (1 1/4 in.) or greater for IL-9.5 mixtures and 38 mm (1 1/2 in.) or greater for IL-12.5 mixtures.

- (c) Full-Depth Pavement. The compacted thickness of the initial lift of binder course shall be 100 mm (4 in.). The compacted thickness of succeeding lifts shall meet the minimums specified in Table 4 but not exceed 100 mm (4 in.).

If a vibratory roller is used for breakdown, the compacted thickness of the binder lifts, excluding the top lift, may be increased to 150 mm (6 in.) provided the required density is obtained.

- (d) Bituminous Patching. The minimum compacted lift thickness for constructing bituminous patches shall be according to Table 4.

Control Charts/Limits. Control charts/limits shall be according to QC/QA Class I requirements, except density shall be plotted on the control charts within the following control limits:

TABLE 6. DENSITY CONTROL LIMITS		
Mixture	Parameter	Individual Test
12.5 mm / 9.5 mm	N _{design} ≥ 90	92.0 – 96.0%
12.5 mm / 9.5 mm	N _{design} < 90	92.5 – 97.4%
19.0 mm / 25.0 mm	N _{design} ≥ 90	93.0 – 96.0%
19.0 mm / 25.0 mm	N _{design} < 90	93.0 – 97.4%

Basis of Payment. On resurfacing projects, this work will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, of the friction aggregate mixture and Ndesign specified, LEVELING BINDER (HAND METHOD), SUPERPAVE, of the Ndesign specified, LEVELING BINDER (MACHINE METHOD), SUPERPAVE, of the Ndesign specified, and BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition and Ndesign specified.

On resurfacing projects in which polymer modifiers are required, this work will be paid for at the contract unit price per metric ton (ton) for POLYMERIZED BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, of the friction aggregate mixture and Ndesign specified, POLYMERIZED LEVELING BINDER (HAND METHOD), SUPERPAVE, of the Ndesign specified, POLYMERIZED LEVELING BINDER (MACHINE METHOD), SUPERPAVE, of the Ndesign specified, and POLYMERIZED BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition and Ndesign specified.

On full-depth pavement projects, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE PAVEMENT, (FULL-DEPTH), SUPERPAVE, of the thickness specified.

On projects where widening is constructed and the entire pavement is then resurfaced, the binder for the widening will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition, Ndesign, and thickness specified. The surface and binder used to resurface the entire pavement will be paid for according to the paragraphs above for resurfacing projects.

80010

SURFACE TESTING OF PAVEMENTS (BDE)

Effective: April 1, 2002

Revised: July 1, 2004

Bituminous Concrete Overlays

Revise Article 406.03(k) of the Standard Specifications to read:

“(k) Pavement Surface Test Equipment 1101.10”

Revise Article 406.21 of the Standard Specifications to read:

“406.21 Surface Tests. The finished surface of the pavement shall be tested for smoothness within 24 hours and before the pavement is opened to traffic. All objects and debris shall be removed from the pavement surface prior to testing. Testing shall be performed in the presence of the Engineer.

(a) Test Sections/Equipment.

- (1) High-Speed Mainline Pavement. High-speed mainline pavement shall consist of pavements, ramps and loops with a posted speed greater than 75 km/hr (45 mph). These sections shall be tested using a California Profilograph or an approved equivalent.

(2) Low-Speed Mainline Pavement. Low-speed mainline pavement shall consist of pavements, ramps and loops with a posted speed of 75 km/hr (45 mph) or less. These sections shall be tested using a California Profilograph or an approved equivalent.

(3) Miscellaneous Pavement. Miscellaneous pavement shall consist of:

- a. pavement on horizontal curves with a centerline radius of curvature of less than or equal to 300 m (1000 ft) and pavement within the superelevation transition of such curves;
- b. the first or last 4.5 m (15 ft) of a pavement section where the Contractor is not responsible for the adjoining surface;
- c. intersections;
- d. variable width pavements;
- e. side street returns;
- f. crossovers;
- g. connector pavement from mainline pavement expansion joint to the bridge approach pavement;
- h. bridge approach pavement; and
- i. other miscellaneous pavement surfaces (i.e. a turn lane) as determined by the Engineer.

Miscellaneous pavement shall be tested using a 5 m (16 ft) straightedge set to a 10 mm (3/8 in.) tolerance.

(b) Lots/Sublots. Mainline pavement test sections will be divided into lots and sublots.

(1) Lots. A lot will be defined as a continuous strip of pavement 1600 m (1 mile) long and one lane wide. When the length of a continuous strip of pavement is less than 1600 m (1 mile), that pavement will be included in an adjacent lot. Structures will be omitted when measuring pavement length.

(2) Sublots. Lots will be divided into 160 m (0.1 mile) sublots. A partial subplot resulting from an interruption in the pavement will be subject to the same evaluation as a whole subplot.

(c) Testing Procedure. One wheel track shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to the edge of the lane away from traffic. A guide shall be used to maintain the proper distance.

The profile trace generated shall have stationing indicated every 150 m (500 ft) at a minimum. Both ends of the profile trace shall be labeled with the following information: contract number, beginning and ending stationing, which direction is up on the trace, which direction the profilograph was pushed, and the profilograph operator name(s). The top portion of the Department supplied form, "Profilograph Report of Pavement Smoothness" shall be completed and secured around the trace roll.

Although surface testing of intermediate lifts will not be required, they may be performed at the Contractor's option. When this option is chosen, the testing shall be performed and the profile traces shall be generated as described above.

The Engineer may perform his/her own testing at any time for monitoring and comparison purposes.

- (d) Trace Reduction and Bump Locating Procedure. All traces shall be reduced. Traces produced by a mechanical recorder shall be reduced using an electronic scanner and computer software. This software shall calculate the profile index of each subplot in mm/km (in./mile) and indicate any high points (bumps) in excess of 8 mm (0.30 in.) with a line intersecting the profile on the printout. Computerized recorders shall provide the same information.

The profile index of each track, average profile index of each subplot, average profile index of the lot and locations of bumps shall be recorded on the form.

All traces and reports shall be provided to the Engineer for the project file.

The Engineer will use the results of the testing to evaluate paving methods and equipment. If the average profile index of a lot exceeds 635 mm/km (40.0 in./mile) for high-speed mainline pavement or 1025 mm/km (65.0 in./mile) for low-speed mainline pavement, the paving operation will be suspended until corrective action is taken by the Contractor.

- (e) Corrective Work. All bumps in excess of 8 mm (0.30 in.) in a length of 8 m (25 ft) or less shall be corrected. If the bump is greater than 13 mm (0.50 in.), the pavement shall be removed and replaced to the satisfaction of the Engineer at the Contractor's expense. The minimum length of pavement to be removed shall be 900 mm (3 ft).
- (1) High-Speed Mainline Pavement. Any subplot having a profile index within the range of, greater than 475 (30.0) to 635 (40.0) mm/km (in./mile) including bumps, shall be corrected to reduce the profile index to 475 mm/km (30.0 in./mile) or less on each trace. Any subplot having a profile index greater than 635 mm/km (40.0 in./mile) including bumps, shall be corrected to reduce the profile index to 475 mm/km (30.0 in./mile) or less on each trace, or replaced at the Contractor's option.
- (2) Low-Speed Mainline Pavement. Any subplot having a profile index within the range of, greater than 710 (45.0) to 1025 (65.0) mm/km (in./mile) including bumps, shall be corrected to reduce the profile index to 710 mm/km (45.0 in./mile) or less on each trace. Any subplot having a profile index greater than 1025 mm/km (65.0 in./mile) including bumps, shall be corrected to reduce the profile index to 710 mm/km (45.0 in./mile) or less on each trace, or replaced at the Contractor's option.

(3) Miscellaneous Pavement. Surface variations which exceed the 10 mm (3/8 in.) tolerance will be marked by the Engineer and shall be corrected by the Contractor.

Corrective work shall be completed using either an approved grinding device consisting of multiple saws or by removing and replacing the pavement. Corrective work shall be applied to the full lane width. When completed, the corrected area shall have uniform texture and appearance, with the beginning and ending of the corrected area squared normal to the centerline of the paved surface.

Upon completion of the corrective work, the surface of the subplot(s) shall be retested. The Contractor shall furnish the profilograph tracing(s) and the completed form(s) to the Engineer within two working days after corrections are made. If the profile index and/or bumps still do not meet the requirements, additional corrective work shall be performed.

Corrective work shall be at the Contractor's expense.

(f) Smoothness Assessments. Assessments will be paid to or deducted from the Contractor for each subplot of mainline pavement, per the Smoothness Assessment Schedule. Assessments will be based on the average profile index of each subplot prior to performing any corrective work unless the Contractor has chosen to remove and replace the subplot. For sublots that are replaced, assessments will be based on the profile index determined after replacement.

Assessments will not be paid or deducted until all other contract requirements for the pavement are satisfied. Pavement that is corrected or replaced for reasons other than smoothness, shall be retested as stated herein.

SMOOTHNESS ASSESSMENT SCHEDULE (Bituminous Concrete Overlays)		
High-Speed Mainline Pavement Average Profile Index mm/km (in./mile)	Low-Speed Mainline Pavement Average Profile Index mm/km (in./mile)	Assessment per subplot
95 (6.0) or less	240 (15.0) or less	+\$150.00
>95 (6.0) to 160 (10.0)	>240 (15.0) to 400 (25.0)	+\$80.00
>160 (10.0) to 475 (30.0)	>400 (25.0) to 710 (45.0)	+\$0.00
>475 (30.0) to 635 (40.0)	>710 (45.0) to 1025 (65.0)	+\$0.00
Greater than 635 (40.0)	Greater than 1025 (65.0)	-\$300.00

Smoothness assessments will not be applied to miscellaneous pavement sections.”

Bituminous Concrete Pavement (Full-Depth)

Revise Article 407.09 of the Standard Specifications to read:

“**407.09 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 406.21 except as follows:

Two wheel tracks shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to each lane edge.”

SMOOTHNESS ASSESSMENT SCHEDULE (Full-Depth Bituminous)		
High-Speed Mainline Pavement Average Profile Index mm/km (in./mile)	Low-Speed Mainline Pavement Average Profile Index mm/km (in./mile)	Assessment per subplot
95 (6.0) or less		+\$800.00
>95 (6.0) to 175 (11.0)	240 (15.0) or less	+\$550.00
>175 (11.0) to 270 (17.0)	>240 (15.0) to 400 (25.0)	+\$350.00
>270 (17.0) to 475 (30.0)	>400 (25.0) to 710 (45.0)	+\$0.00
>475 (30.0) to 635 (40.0)	>710 (45.0) to 1025 (65.0)	+\$0.00
Greater than 635 (40.0)	Greater than 1025 (65.0)	-\$500.00

Delete the fourth paragraph of Article 407.13 of the Standard Specifications.

Portland Cement Concrete Pavement

Revise Article 420.12 of the Standard Specifications to read:

“420.12 Surface Tests. The finished surface of the pavement shall be tested for smoothness according to Article 406.21 except as follows:

Two wheel tracks shall be tested per lane. Testing shall be performed 1 m (3 ft) from and parallel to each lane edge.

Membrane curing damaged during testing shall be repaired as directed by the Engineer at the Contractor’s expense.

No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to ground areas according to Article 420.21 at the Contractor’s expense.”

For pavement that is corrected by removal and replacement, the minimum length to be removed shall meet the requirements of either Class A or Class B patching.

SMOOTHNESS ASSESSMENT SCHEDULE (PCC)		
High-Speed Mainline Pavement Average Profile Index mm/km (in./mile)	Low-Speed Mainline Pavement Average Profile Index mm/km (in./mile)	Assessment per subplot
95 (6.0) or less		+\$1200.00
>95 (6.0) to 175 (11.0)	240 (15.0) or less	+\$950.00
>175 (11.0) to 270 (17.0)	>240 (15.0) to 400 (25.0)	+\$600.00
>270 (17.0) to 475 (30.0)	>400 (25.0) to 710 (45.0)	+\$0.00
>475 (30.0) to 635 (40.0)	>710 (45.0) to 1025 (65.0)	+\$0.00
Greater than 635 (40.0)	Greater than 1025 (65.0)	-\$750.00

Delete the sixth paragraph of Article 420.23 of the Standard Specifications.

Testing Equipment

Revise Article 1101.10 of the Standard Specifications to read:

“1101.10 Pavement Surface Test Equipment. Required surface testing and analysis equipment and their jobsite transportation shall be provided by the Contractor.

- (a) 5 m (16 ft) Straightedge. The 5 m (16 ft) straightedge shall consist of a metal I-beam mounted between two wheels spaced 5 m (16 ft) between the axles. Scratcher bolts which can be easily and accurately adjusted, shall be set at the 1/4, 1/2, and 3/4 points between the axles. A handle suitable for pushing and guiding shall be attached to the straightedge. The straightedge shall meet the approval of the Engineer.
- (b) California Profilograph. The California Profilograph or approved equivalent shall consist of a frame 8 m (25 ft) in length supported upon multiple wheels at either end. The profile shall be recorded from the vertical movement of a wheel attached to the frame at mid point. All traces from pavement sections tested with a California Profilograph or approved equivalent shall be recorded on paper with scales of 300:1 longitudinally and 1:1 vertically. Data filters for an automated California Profilograph shall be set according to the parameters outlined in California Test 526, except the blanking band shall be set to 0.0 mm (0.00 in.).
 - (1) Calibration. The Contractor shall demonstrate to the Engineer that the testing equipment has proper tire pressure inflation, trueness of tire travel, and is calibrated for vertical displacement and horizontal distance. This calibration shall consist of the following:
 - a. A 150 to 300 m (500 to 1000 ft) long calibration test section shall be located on the project. This test section should be relatively straight and flat. The profilograph shall be calibrated for longitudinal distance on this test section to the satisfaction of the Engineer.
 - b. Longitudinal calibration consists of pushing, at walking speed (approximately 5 km/hr (3 mph)), the profilograph over the pre-measured test section and determining the chart scale factor. To calculate the chart scale factor, divide the pre-measured test distance, in millimeters (inches), by the length of the profile trace from this test section, in millimeters (inches). This factor should be 300 ± 0.5 . If the profilograph produces charts with a different scale factor, adjustment of the profilograph shall be made to bring the scale factor to the tolerance specified above.
 - c. Vertical calibration consists of placing the center recording wheel of the profilograph on a base plate and recording the base elevation. Two plates, 13 mm (0.5 in.) thick each, are added under the center wheel, one at a time, and the change in elevation noted. The two plates are removed, one at a time, and the change in elevation noted. Each step in the process shall show a change in height of $13 \text{ mm} \pm 1.0 \text{ mm}$ ($0.5 \text{ in.} \pm 0.01 \text{ in.}$). If the profilograph produces results not conforming to the above limits, it shall be adjusted to the tolerance specified.

- d. The automatic trace reduction capability of a machine so equipped shall be checked by comparing the machine's results to the results obtained through manual trace reduction using California Test 526 with a 0.0 mm (0.00 in.) blanking band. The comparison shall be made with the trace obtained on the pre-measured test section. The results of the comparison shall not differ by more than 30 mm/km (2.0 in./mile).
- e. All calibration traces and calculations shall be submitted to the Engineer for the project file.

The Engineer may retest the pavement at any time to verify the accuracy of the equipment.

- (2) Trace Analysis. The Contractor shall reduce/evaluate these traces using a 0.0 mm (0.00 in.) blanking band and determine a profile index in mm/km (in./mile) for each section of finished pavement surface. If the Contractor's profilograph is equipped with a computerized recorder, the trace produced will be evaluated without further reduction. If the profilograph has a mechanical recorder, the Contractor shall provide an electronic scanner, a computer, and software to reduce the trace. All analysis equipment (electronic scanner, computerized recorder, etc.) shall be able to accept 0.0 mm (0.00 in.) for the blanking band."

80075

TEMPORARY CONCRETE BARRIER (BDE)

Effective: October 1, 2002

Revised: November 1, 2003

Revise Section 704 of the Standard Specifications to read:

"SECTION 704. TEMPORARY CONCRETE BARRIER

704.01 Description. This work shall consist of furnishing, placing, maintaining, relocating and removing precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer.

704.02 Materials. Materials shall meet the requirements of the following Articles of Section 1000 - Materials:

Item	Article/Section
(a) Portland Cement Concrete.....	1020
(b) Reinforcement Bars (Note 1)	1006.10(a)(b)
(c) Connecting Pins and Anchoring Pins.....	1006.09
(d) Connecting Loop Bars (Note 2)	
(e) Rapid Set Mortar (Note 3)	

Note 1. Reinforcement bars shall be Grade 400 (Grade 60).

Note 2. Connecting loop bars shall be smooth bars conforming to the requirements of ASTM A 36.

Note 3. Rapid set materials shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs. For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume or a packaged rapid set mortar shall be used. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

CONSTRUCTION REQUIREMENTS

704.03 General. Precast concrete barrier produced after October 1, 2002 shall meet National Cooperative Highway Research Program (NCHRP) Report 350, Category 3, Test Level 3 requirements and have the F shape. Precast concrete barrier shall be constructed according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products", applicable portions of Sections 504 and 1020, and to the details shown on the plans.

Precast units shall not be removed from the casting beds until a flexural strength of 2,000 kPa (300 psi) or a compressive strength of 10,000 kPa (1400 psi) is attained. When the concrete has attained a compressive strength according to Article 1020.04, and not prior to four days after casting, the units may be loaded, shipped and used.

704.04 Installation. F shape barrier units shall be seated on bare, clean pavement or paved shoulder and pinned together in a smooth, continuous line at the exact locations provided by the Engineer. The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six anchoring pins and protected with an impact attenuator as shown on the plans.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

704.05 New Jersey Shape Barrier. New Jersey shape barrier produced prior to October 1, 2002 according to earlier Department standards, may be used until January 1, 2008.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six dowel bars and protected with an impact attenuator as shown on the plans.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

704.06 Method of Measurement. Temporary concrete barrier will be measured for payment in meters (feet) in place along the centerline of the barrier. When temporary concrete barrier is relocated within the limits of the jobsite, the relocated barrier will be measured for payment in meters (feet) in place along the centerline of the barrier.

704.07 Basis of Payment. When the Contractor furnishes the barrier units, this work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER or RELOCATE TEMPORARY CONCRETE BARRIER.

When the Department furnishes the barrier units, this work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER, STATE OWNED or RELOCATE TEMPORARY CONCRETE BARRIER, STATE OWNED.

Impact attenuators will be paid for separately.”

80092

TRAFFIC BARRIER TERMINALS (BDE)

Effective: January 1, 2003

Revise Article 631.05 of the Standard Specifications to read:

“631.05 Traffic Barrier Terminal, Type 5 and Type 5A. The face of the guardrail shall be installed flush with the face of the bridge rail or parapet.”

Revise Article 631.06 of the Standard Specifications to read:

“631.06 Traffic Barrier Terminal, Type 6. When attaching the end shoe to concrete constructed with forms and with a thickness of 300 mm (12 in.) or less, the holes may be formed, core drilled or an approved 20 mm (3/4 in.) cast-in-place insert may be used.

When attaching the end shoe to concrete constructed with forms and with a thickness greater than 300 mm (12 in.), an approved M20 (3/4 in.) bolt with an approved expansion device may be used in lieu of formed or core drilled holes.

When attaching the end shoe to concrete constructed by slipforming, the holes shall be core drilled.

The tapered, parapet, wood block out shall be used on all appurtenances with a sloped face.

When no bridge approach curb is present, Type B concrete curb shall be constructed as shown on the plans according to Section 606.”

Revise Article 631.07 of the Standard Specifications to read:

“631.07 Traffic Barrier Terminal, Type 6B. Attachment of the end shoe to concrete shall be according to Article 631.06 except the tapered, parapet, wood block out will not be required.”

Delete the third and fourth paragraphs of Article 631.11 of the Standard Specifications.

Add the following paragraph to the end of Article 631.11 of the Standard Specifications:

“Construction of the Type B concrete curb for TRAFFIC BARRIER TERMINAL, TYPE 6 will be paid for according to Article 606.14.”

80098

TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: April 1, 1992

Revised: January 1, 2005

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

When the Engineer is notified, or determines a traffic control deficiency exists, he/she will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from 1/2 hour to 12 hours based upon the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge.

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

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

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

5729I

TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be 2 Trainees. In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

20338

TRANSIENT VOLTAGE SURGE SUPPRESSION (BDE)

Effective: August 1, 2003

Revise the first paragraph of Article 1074.03(a)(4) of the Standard Specifications to read:

“(4) Transient Voltage Surge Suppression. The cabinet shall be provided with transient voltage surge suppression. Transient surge suppression unit leads shall be kept as short as possible and ground shall be made directly to the cabinet wall or ground plate as near as possible to the object being grounded. All transient surge suppression units shall be tested and certified as meeting this specification by an independent testing laboratory. One copy of each of the full testing report shall be submitted to the Engineer.”

Revise Article 1074.03(a)(4)a. of the Standard Specifications to read:

- “a. Surge Suppressor. The suppressor protecting the solid state controller, conflict monitor, and detection equipment shall consist of two stages: stage one which shall include a controller cabinet AC power protection assembly and stage two which shall include AC circuit protection.

The design of the stage one suppressor shall be modular and it shall be installed in such a way that it may be removed and replaced with the intersection under power and in flashing operation. It shall have a permanently mounted and wired base and a removable circuit package. The stage one suppressor shall have two LED failure indicators for power ‘on’ and suppression ‘failure’ and shall meet the following properties:

Stage One Suppressor	
Properties	Criteria
“Plug-in” suppression module	12 pin connector assembly
Clamp voltage	250 V at 20,000 A typical
Response time	Less than 5 nanoseconds
Maximum continuous service current	15 A at 120 VAC 60 Hz
High frequency noise attenuation	At least 50 dB at 100,000 Hz
Operating temperature	-40 °C (-40 °F) to 85 °C (185 °F)

If the controller assembly includes a system telemetry module or remote intersection monitor, the status of the stage one suppressor shall be continuously and remotely monitored by an appropriate alarm circuit.

The stage two, high speed, solid state, transient suppressor shall protect the system from transient over voltage without affecting power at the load. It shall suppress transients of either polarity and from either direction (source or load). The suppressor shall have a visual “on” indicator lamp when the unit is operating normally. It shall also have a UL plastic enclosure, a four position terminal strip for power connection, and it shall utilize silicon avalanche diode technology. The stage two suppressor shall meet the following properties:

Stage Two Suppressor	
Properties	Criteria
Nominal service voltage	120 V at 50/60 Hz
Maximum voltage protection level	±330 V
Minimum voltage protection level	±220 V ±5%
Minimum surge current rating	700 A
Stand by power	Less than 0.5 Watts
Hot to neutral leakage current at 120 V RMS	Less than 5µA
Maximum response time	5 nanoseconds
Operating and Storage temperature	-20 °C (-4 °F) to 50 °C (122 °F)”

80107m

TRUCK BED RELEASE AGENT (BDE)

Effective: April 1, 2004

Add the following sentence after the third sentence of the first paragraph of Article 406.14 of the Standard Specifications.

“In addition to the release agent, the Contractor may use a light scatter of manufactured sand (FA 20 or FA 21) evenly distributed over the bed of the vehicle.”

80123

UNDERDRAIN OPERATIONS (BDE)

Effective: November 1, 2002

Underdrain operations shall be completed prior to weekend periods. Should delays of any type or for any reason prevent the completion of the work, the underdrain trenches shall be temporarily backfilled. Material able to support the average daily traffic and meeting the approval of the Engineer shall be used for the temporary backfill. The cost of furnishing, placing, maintaining, removing and disposing of the temporary work, including traffic control, shall be the responsibility of the Contractor.

| 80091

WEIGHT CONTROL DEFICIENCY DEDUCTION

Effective: April 1, 2001

Revised: August 1, 2002

The Contractor shall provide accurate weights of materials delivered to the contract for incorporation into the work (whether temporary or permanent) and for which the basis of payment is by weight. These weights shall be documented on delivery tickets which shall identify the source of the material, type of material, the date and time the material was loaded, the contract number, the net weight, the tare weight when applicable and the identification of the transporting vehicle. For aggregates, the Contractor shall have the driver of the vehicle furnish or establish an acceptable alternative to provide the contract number and a copy of the material order to the source for each load. The source is defined as that facility that produces the final material product that is to be incorporated into the contract pay items.

The Department will conduct random, independent vehicle weight checks for material sources according to the procedures outlined in the Documentation Section Policy Statement of the Department's Construction Manual and hereby incorporated by reference. The results of the independent weight checks shall be applicable to all contracts containing this Special Provision. Should the vehicle weight check for a source result in the net weight of material on the vehicle exceeding the net weight of material shown on the delivery ticket by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. No adjustment in pay quantity will be made. Should the vehicle weight check for a source result in the net weight of material shown on the delivery ticket exceeding the net weight of material on the vehicle by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. The Engineer will adjust the net weight shown on the delivery ticket to the checked delivered net weight as determined by the independent vehicle weight check.

The Engineer will also adjust the method of measurement for all contracts for subsequent deliveries of all materials from the source based on the independent weight check. The net weight of all materials delivered to all contracts containing this Special Provision from this source, for which the basis of payment is by weight, will be adjusted by applying a correction factor "A" as determined by the following formula:

$$A = 1.0 - \left(\frac{B - C}{B} \right); \text{ Where } A \leq 1.0; \left(\frac{B - C}{C} \right) > 0.50\% \text{ (0.70\% for aggregates)}$$

Where A = Adjustment factor
B = Net weight shown on delivery ticket
C = Net weight determined from independent weight check

The adjustment factor will be applied as follows:

$$\text{Adjusted Net Weight} = A \times \text{Delivery Ticket Net Weight}$$

The adjustment factor will be imposed until the cause of the deficient weight is identified and corrected by the Contractor to the satisfaction of the Engineer. If the cause of the deficient weight is not identified and corrected within seven (7) calendar days, the source shall cease delivery of all materials to all contracts containing this Special Provision for which the basis of payment is by weight.

Should the Contractor elect to challenge the results of the independent weight check, the Engineer will continue to document the weight of material for which the adjustment factor would be applied. However, provided the Contractor furnishes the Engineer with written documentation that the source scale has been calibrated within seven (7) calendar days after the date of the independent weight check, adjustments in the weight of material paid for will not be applied unless the scale calibration demonstrates that the source scale was not within the specified Department of Agriculture tolerance.

At the Contractor's option, the vehicle may be weighed on a second independent Department of Agriculture certified scale to verify the accuracy of the scale used for the independent weight check.

80048

WORK ZONE PUBLIC INFORMATION SIGNS (BDE)

Effective: September 1, 2002

Revised: January 1, 2005

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

Camera-ready artwork for the signs will be provided to sign manufacturing companies upon request by contacting the Central Bureau of Operations at 217-782-2076. The sign number is W21-1116-6048.

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

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

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

80090

WORK ZONE SPEED LIMIT SIGNS (BDE)

Effective: April 2, 2004

Revised: April 15, 2004

Delete Article 702.05(c).

Revise Article 702.05(d) to read:

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

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

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

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

80125

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: January 1, 2003

Revised: November 1, 2004

Add the following to Article 702.01 of the Standard Specifications:

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

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

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

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

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

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

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

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

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

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

Add the following to Article 702.03 of the Standard Specifications:

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

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

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

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

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

STEEL COST ADJUSTMENT (BDE)

Effective: April 2, 2004

Revised: July 1, 2004

Description. At the bidder's option, a steel cost adjustment will be made to provide additional compensation to the Contractor or a credit to the Department for fluctuations in steel prices. The bidder must indicate on the attached form whether or not steel cost adjustments will be part of this contract. This attached form shall be submitted with the bid. Failure to submit the form shall make this contract exempt of steel cost adjustments.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

Metal Piling (excluding temporary sheet piling)
Structural Steel
Reinforcing Steel

Other steel materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), frames and grates, and other miscellaneous items will be subject to a steel cost adjustment when the pay item they are used in has a contract value of \$10,000 or greater.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

- (a) Evidence that increased or decreased steel costs have been passed on to the Contractor.
- (b) The dates and quantity of steel, in kg (lb), shipped from the mill to the fabricator.
- (c) The quantity of steel, in kg (lb), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$$SCA = Q \times D$$

Where: SCA = steel cost adjustment, in dollars
Q = quantity of steel incorporated into the work, in kg (lb)
D = price factor, in dollars per kg (lb)

$$D = CBP_M - CBP_L$$

Where: CBP_M = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the American Metal Market (AMM) for the day the steel is shipped from the mill. The indices will be converted from dollars per ton to dollars per kg (lb).

CBP_L = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the AMM for the day the contract is let. The indices will be converted from dollars per ton to dollars per kg (lb).

The unit masses (weights) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the CBP_M will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the CBP_L and CBP_M in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(CBP_L - CBP_M) \div CBP_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the steel items are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

Attachment

Item	Unit Mass (Weight)
Metal Piling (excluding temporary sheet piling)	
Furnishing Metal Pile Shells 305 mm (12 in.), 3.80 mm (0.179 in.) wall thickness)	34 kg/m (23 lb/ft)
Furnishing Metal Pile Shells 305 mm (12 in.), 6.35 mm (0.250 in.) wall thickness)	48 kg/m (32 lb/ft)
Furnishing Metal Pile Shells 356 mm (14 in.), 6.35 mm (0.250 in.) wall thickness)	55 kg/m (37 lb/ft)
Other piling	See plans
Structural Steel	See plans for weights
Reinforcing Steel	See plans for weights
Dowel Bars and Tie Bars	3 kg (6 lb) each
Mesh Reinforcement	310 kg/sq m (63 lb/100 sq ft)
Guardrail	
Steel Plate Beam Guardrail, Type A w/steel posts	30 kg/m (20 lb/ft)
Steel Plate Beam Guardrail, Type B w/steel posts	45 kg/m (30 lb/ft)
Steel Plate Beam Guardrail, Types A and B w/wood posts	12 kg/m (8 lb/ft)
Steel Plate Beam Guardrail, Type 2	140 kg (305 lb) each
Steel Plate Beam Guardrail, Type 6	570 kg (1260 lb) each
Traffic Barrier Terminal, Type 1 Special (Tangent)	330 kg (730 lb) each
Traffic Barrier Terminal, Type 1 Special (Flared)	185 kg (410 lb) each
Steel Traffic Signal and Light Poles, Towers and Mast Arms	
Traffic Signal Post	16 kg/m (11 lb/ft)
Light Pole, Tenon Mount and Twin Mount, 9 m – 12 m (30 - 40 ft)	21 kg/m (14 lb/ft)
Light Pole, Tenon Mount and Twin Mount, 13.5 m – 16.5 m (45 - 55 ft)	31 kg/m (21 lb/ft)
Light Pole w/Mast Arm, 9 m – 15.2 m (30 - 50 ft)	19 kg/m (13 lb/ft)
Light Pole w/Mast Arm, 16.5 m – 18 m (55 - 60 ft)	28 kg/m (19 lb/ft)
Light Tower w/Luminaire Mount, 24 m – 33.5 m (80 - 110 ft)	46 kg/m (31 lb/ft)
Light Tower w/Luminaire Mount, 36.5 m – 42.5 m (120 - 140 ft)	97 kg/m (65 lb/ft)
Light Tower w/Luminaire Mount, 45.5 m – 48.5 m (150 - 160 ft)	119 kg/m (80 lb/ft)
Metal Railings (excluding wire fence)	
Steel Railing, Type SM	95 kg/m (64 lb/ft)
Steel Railing, Type S-1	58 kg/m (39 lb/ft)
Steel Railing, Type T-1	79 kg/m (53 lb/ft)
Steel Bridge Rail	77 kg/m (52 lb/ft)
Frames and Grates	
Frame	115 kg (250 lb)
Lids and Grates	70 kg (150 lb)

RETURN WITH BID

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**OPTION FOR
STEEL COST ADJUSTMENT**

The bidder shall submit this form with his/her bid. Failure to submit the form shall make this contract exempt of steel 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 plans?

Yes No

Signature: _____ **Date:** _____

80127



Storm Water Pollution Prevention Plan

Route FAI 55
Section 2002-022 K
County WILL

Marked INTERSTATE 55
Project No. CONTRACT NO. 62389

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
Signature

1-3-05
Date

District Engineer
Title

1. Site Description

- a. The following is a description of the construction activity which is the subject of this plan (use additional pages, as necessary):

The work under this contract that is the subject of this plan is the addition of an auxiliary lane and ramp improvements along I-55 at Il Rte 53 in the Village of Bolingbrook in Will County. Work to be performed under this Contract includes topsoil and vegetation removal, tree relocation, excavation to subgrade elevation, embankment, retaining wall construction, combination curb and gutter, new pavement, shoulder work, and new open and enclosed drainage improvements. As part of this Work, the existing detention area within the expressway ramp infields will be expanded to accommodate additional Stormwater detention. A portion of the infield area has been determined to be an existing wetland which will be mitigated within a wetland bank by the Department. The improvement also includes traffic signal installation, overhead sign structures, and landscaping.

- b. 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 (use additional pages, as necessary):

The sequence of activities, which will disturb soil, is clearing and grubbing as necessary, storm sewer and culvert installation, excavation for roadway widening and retaining wall construction, and grading and shaping ditches.

The Contractor is expected to install erosion control devices, remove existing paved shoulders, place embankment and grade to new profile, construct new pavement and plant proposed landscaping. The erosion control devices include silt fencing, ditch checks and temporary seeding.

- c. The total area of the construction site is estimated to be 8.2 Acres.

The total area of the site that it is estimated will be disturbed by excavation, grading or other activities is 8.0 acres.

- d. The estimated runoff coefficients of the various areas of the site after construction activities are completed are contained in the project drainage study which is hereby incorporated by reference in this plan. Information describing the soils at the site is contained either in the Soils Report for the project, which is hereby incorporated by reference, or in an attachment to this plan.
- e. The design/project report, hydraulic report, or plan documents, hereby incorporated by reference, contain site map(s) indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of major soil disturbance, the location of major structural and nonstructural 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 a surface water.
- f. The names of receiving water(s) and area extent of wetland acreage at the site are in the design/project report or plan documents which are incorporated by reference as a part of this plan.
An existing 0.23 acre Wetland is located within the infield area which will be mitigated within a wetland bank by the Department.

2. Controls

This section of the plan addresses the various controls that will be implemented for each of the major construction activities described in 1.b. above. For each measure discussed, the contractor that will be responsible for its implementation is indicated. Each such contractor has signed the required certification on forms which are attached to, and a part of, this plan:

a. Erosion and Sediment Controls

- (i) **Stabilization 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: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided in 2.a.(i).(A) and 2.b., 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 14 days after the construction activity in that portion of the site has temporarily or permanently ceased on all disturbed portions of the site where construction activity will not occur for a period of 21 or more calendar days.
 - (A) where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

Description of Stabilization Practices (use additional pages, as necessary):

1. Temporary measures in accordance with applicable Department standards will be used to control erosion and sedimentation while the project is under construction and prior to establishment of permanent measures. Permanent measures as necessary, shall be part of the completed project and will be used to prevent erosion and sedimentation after the completion of the construction project. Appropriate pay items and details in the plans and specifications have been implemented to address selected erosion and sediment control measures.
 - (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, applicable sediment basins, ditch checks and erosion control fence 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".

- (e) Immediately after tree removal is completed in certain areas which are highly erodable 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".
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 into the construction site until permanent seeding/mowing and overseeding can be complete.
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. mitigate construction noise and dust.

(ii) **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 silt fences, earth dikes, drainage swales, sediment traps, check dams, 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.

A. **Structural Practices at the Beginning of Construction:**

The area within the construction limits of the project will be improved and managed for the purposes of: Controlling erosion within the area; minimizing siltation flow 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:

At locations where a significant amount of water drains into the construction zone from outside areas, erosion control fence and hay or straw bale ditch checks will be utilized to divert water locally, reduce flow rates, and collect outside siltation within the limits of construction. Installation of erosion control items will not be allowed that may cause flooding which will create damaged or other undesirable conditions.

B. **Structural Practices During Construction:**

During roadway construction, areas outside the construction slope limits as outlined previously 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.

Within the construction zone, critical areas as determined by the Engineer shall remain undisturbed until full scale construction is underway to prevent unnecessary soil erosion.

Topsoil and earth stockpiles shall be temporarily seeded if they are to remain unused for more than fourteen days.

As the Contractor constructs a portion of roadway in a fill section, the Contractor shall follow the following steps as directed by the Engineer:

- i. Place temporary erosion control systems at locations where water leaves and enters the construction zone.
- ii. Construct the necessary roadside ditches and provide temporary erosion control systems.
- iii. Temporarily divert water around any proposed culvert locations.
- iv. Build necessary embankment at culvert locations and then excavate and install culvert.
- v. Continue building up the embankment to the proposed grade while at the same time placing permanent erosion control such as riprap ditch lining and conduct final shaping to the slopes.

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.

Excavated areas and embankments shall be permanent seeded when final graded. If not, they shall be temporarily seeded as stated in the Special Provision "Temporary Erosion Control".

The temporary erosion control systems 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.

C. **Structural Practices After Final Grading:**

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 reestablished with a proper stand.

Once permanent erosion control systems as proposed in the plans are functional and established, temporary items shall be removed, cleaned up, and disturbed turf re-seeded. Temporary riprap ditch checks will be allowed to remain in place where approved by the Engineer.

b. 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.

- (i) Such practices may include: 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 10-300 (Design Considerations) in Chapter 10 (Erosion and Sedimentation Control) of the Illinois Department of Transportation Drainage Manual. If practices other than those discussed in Section 10-300 are selected for implementation or if practices are applied to situations different from those covered in Section 10-300, the technical basis for such decisions will be explained below.**
- (ii) 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 (use additional pages, as necessary):

1. Excavation will be completed along the entire length to grade out the proposed roadway.
2. Excavation will be completed in proposed cut sections to lower the existing ground elevation to meet the proposed roadway grade/vertical alignment.
3. Embankment will be completed in fill areas to raise the existing ground elevation to meet the proposed roadway grade/vertical alignment.
4. Placement, maintenance, removal and proper cleanup of temporary erosion control, such as erosion fencing, hay or straw bale ditch checks, rip-rap ditch checks, sedimentation basins, temporary seeding, etc.
5. Placement of permanent erosion control, such as rip-rap ditch lining, rip-rap stilling basins, rip-rap dry dams, excelsior blanket, seeding, etc.
6. Final grading, paving, and other miscellaneous items.

c. Other Controls

- (i) Waste Disposal. No solid materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.
- (ii) The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

d. Approved State or Local Plans

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 or site permits or 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:

None as required by local officials

3. Maintenance

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, erosion and sediment control measures and other protective measures identified in this plan (use additional pages, as necessary):

- The Contractor will assign a trained inspector for erosion and sediment control. His duties will be to supervise the maintenance of erosion and sediment control measures and implementation of this plan. Sediment traps shall be cleaned of sediment when they reach a depth of being half full of sediment. Twenty-four hours after every storm event with precipitation greater than 0.5 inches or greater, all inlet pipe protection devices and silt fences shall be checked for sediment, and if sediment reaches a height of 50 percent of the device, the device shall be cleaned of sediment. All perimeter diversion swales shall be checked within 24 hours after a major storm event for sediment deposition and cleaned of sediment if flow is being impeded by sediment and the swale is no longer functioning as designed.
- Sediment collected during construction by the various erosion control systems shall be disposed of on the site on a regular basis as directed by the Engineer. The cost of this maintenance shall be paid for in accordance with Article 109.04 of the Standard Specifications.
- 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.
- Once permanent erosion control systems as proposed in the plans are functional and established, temporary items shall be removed, cleaned up, and disturbed turf re-seeded. Temporary riprap ditch checks will be allowed in place where approved by the Engineer.

4. Inspections

Qualified personnel shall inspect disturbed areas of the construction site which have not been finally stabilized, structural control measures, and locations where vehicles enter or 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 and areas used for storage of materials that are exposed to precipitation 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. Where discharge locations or points are accessible, they 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 1 above and pollution prevention measures identified in section 2 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 7 calendar days following the inspection.
- 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 4.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 or Resident Technician shall complete and file an "Incidence of Noncompliance" (ION) report for the identified violation. The Resident Engineer or Resident Technician 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 report of noncompliance 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

5. 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. (Use additional pages as necessary to describe non-storm water discharges and applicable pollution control measures).



Contractor Certification Statement

This certification statement is a part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with NPDES Permit No. ILR10, issued by the Illinois Environmental Protection Agency on May 14, 1998.

Project Information:

Route FAI 55 Marked INTERSTATE 55
Section 2002-022 K Project No. CONTRACT NO. 62389
County WILL

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.

<hr/>		<hr/>	
Signature		Date	
<hr/>			
Title			
<hr/>			
Name of Firm			
<hr/>			
Street Address			
<hr/>			
City		State	
<hr/>			
Zip Code			
<hr/>			
Telephone Number			

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

	Page
I. General	1
II. Nondiscrimination	1
III. Nonsegregated Facilities	3
IV. Payment of Predetermined Minimum Wage.....	3
V. Statements and Payrolls	6
VI. Record of Materials, Supplies, and Labor.....	7
VIII. Safety: Accident Prevention	7
IX. False Statements Concerning Highway Projects.....	7
X. Implementation of Clean Air Act and Federal Water Pollution Control Act	8
XI. Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion	8
XII. Certification Regarding Use of Contract Funds for Lobbying	9

ATTACHMENTS

- A. Employment Preference for Appalachian Contracts
(included in Appalachian contracts only)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1, 2, 3, 4 and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

- a. Discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or
- b. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60 (and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job-training."

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

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above

agreement will be met, the following actions will be taken as a minimum:

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

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

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

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

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employees referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish which such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

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

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

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any

evidence of discriminatory wage practices.

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

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

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

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

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

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

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

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

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to

the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or quailifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

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

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

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

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

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

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

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

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

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

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the

contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

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

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

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

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or

disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

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

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

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

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

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not

listed on the wage determination unless the Administrator of the

be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits

Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which cases such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV. 2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

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

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall, upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan

or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period).

The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V.

This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

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

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

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

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

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U/S. C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for

inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all federal-aid contracts on the national highway system, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a

whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract.

Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification,

distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

“Whoever, being an officer, agent or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both.”

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more).

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of

any communication from the Director, Office of Federal Activities, EPA indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “person,” “primary covered transaction,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

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

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded from Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

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

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and
- d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

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

2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealing.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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

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

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

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

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

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS

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

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

NOTICE

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

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

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

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

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