

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

PREQUALIFICATION

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

REQUESTS FOR AUTHORIZATION TO BID

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

WHO CAN BID ?

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

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

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

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

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

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

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

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

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

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

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

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

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

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

Questions Regarding	Call
Prequalification and/or Authorization to Bid	(217)782-3413
Preparation and submittal of bids	(217)782-7806
Mailing of plans and proposals	(217)782-7806
Electronic plans and proposals	(217)524-1642

ADDENDUMS AND REVISIONS TO THE PROPOSAL FORMS

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

30

RETURN WITH BID

Proposal Submitted By
Name
Address
City

Letting September 22, 2006

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. 83815
LAKE County
Section 99-00142-07-WR
Route FAU 2647 (Butterfield Road)
Project F-330(42)
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

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 CD-ROMS	217/782-7806

RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

Taxpayer Identification Number (Mandatory) _____

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

**Contract No. 83815
LAKE County
Section 99-00142-07-WR
Project F-330(42)
Route FAU 2647 (Butterfield Road)
District 1 Construction Funds**

Project consists of the reconstruction and widening of Butterfield Road from 800 ft north of Harding Avenue extending north to Illinois Route 137, the reconstruction of Lake Street from Butterfield Road east for 417 ft, the reconstruction of Winchester Road for a total of 2,466 ft and 1,325 ft of reconstruction of the intersection of Illinois Route 137 at Butterfield Road located in Libertyville.

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.

STATE JOB # - C-91-374-04
 PPS NBR - 1-10691-0000

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 1
 RUN DATE - 08/24/06
 RUN TIME - 113313

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE		
LAKE	097	01	99-00142-07-WR	F-0330/042/000	FAU 2647		
ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
A2004416	T-GINKGO BILOBA 2	EACH	18.000 X	=			
A2004816	T-GLED TRI-I SK 2	EACH	21.000 X	=			
B2005516	T-PYRUS C AR TF 2	EACH	18.000 X	=			
C2011424	S-SYRINGA VULG 2'	EACH	158.000 X	=			
D2000724	E-JUNI CH SAR V 2'	EACH	72.000 X	=			
K1005421	SEEDING SPL	ACRE	1.040 X	=			
XX000479	WATER MAIN REMOV 6	FOOT	108.000 X	=			
XX000610	RELOCATE EX MAILBOX	EACH	2.000 X	=			
XX000882	WOOD FENCE	FOOT	793.000 X	=			
XX001446	PLUG & BLOCK WAT MAIN	EACH	15.000 X	=			
XX001607	RETAINING WALL SPL	SQ FT	6,536.000 X	=			
XX002260	STRUCTURE REM	EACH	1.000 X	=			
XX002868	TEMP DITCH CHECKS SPL	EACH	50.000 X	=			
XX003503	FLARED END SEC REM	EACH	10.000 X	=			
XX003661	ELCBL C COAXIAL	FOOT	380.000 X	=			

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 2
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
XX003885	IRRIGATION SYSTEM	L SUM	1.000		X		
XX004679	PED SH LED 1F BM CDT	EACH	16.000		X		
XX004727	CAST IN PLA CONC WALL	SQ FT	5,910.000		X		
XX004878	MAINT TEMP EROS CON S	L SUM	1.000		X		
XX004960	REM EXIST STR LIGHT	EACH	7.000		X		
XX004970	TEMP PAVEMENT SUPER	SQ YD	6,411.000		X		
XX005022	LANDSCAPING PLANTERS	L SUM	1.000		X		
XX005178	HEMER CHICGO A DYLLY	EACH	411.000		X		
XX005651	DRAINAGE BOARD	SQ FT	5,910.000		X		
XX005723	VIDEO DET SY COMP INT	EACH	2.000		X		
XX005931	TRAF SIGL P 16FT SPL	EACH	8.000		X		
XX005937	LED INT IL STNAME SGN	EACH	8.000		X		
XX005940	REMOTE CONTR VIDEO SY	EACH	3.000		X		
XX006334	AGG BASE CRS TA SPL	TON	2,163.000		X		
XX006357	ELCBL C COM 16 5.5 PR	FOOT	1,657.000		X		

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 3
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
XX006522	FURNISH WITNESS POST	EACH	22.000	X	=		
XX006633	DI PIPE STL CASING 12	FOOT	116.000	X	=		
XX006634	DI PIPE STL CASING 16	FOOT	13.000	X	=		
XX006635	MAN TA FR & LD SPL	EACH	1.000	X	=		
XX006636	SAN SEW DIR BORE 18	FOOT	369.000	X	=		
XX006637	SAN SEW DIR BORE 21	FOOT	580.000	X	=		
XX006638	STEEL CAS OPEN CUT 20	FOOT	82.000	X	=		
XX006639	STEEL CAS OPEN CUT 30	FOOT	21.000	X	=		
XX006640	SS WM REQ T1 30"	FOOT	107.000	X	=		
XX006641	SS WM REQ T1 36"	FOOT	70.000	X	=		
XX006642	SS WM REQ T2 15"	FOOT	455.000	X	=		
XX006643	SS WM REQ T2 24"	FOOT	114.000	X	=		
XX006644	SS WM REQ T2 30"	FOOT	447.000	X	=		
XX006645	SS WM REQ T3 18"	FOOT	198.000	X	=		
XX006646	TREATMENT STRUCTURES	EACH	1.000	X	=		

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECWR003 PAGE 4
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
XX006647	WATER MAIN REM 1 1/2	FOOT	195.000	=		
XX006648	TEMP STORM SEWER 12	FOOT	35.000	=		
XX006649	TEMP STORM SEWER 18	FOOT	35.000	=		
XX006650	MEDIAN SIGN	EACH	2.000	=		
XX006651	MEDIAN SIGN (SPECIAL)	EACH	2.000	=		
XX006652	STAMP CLRD PCC MED 4	SQ FT	13,249.000	=		
XX006653	FENCE (SPECIAL)	FOOT	300.000	=		
XX006654	F0CC62.5/125 MM12SM24	FOOT	6,590.000	=		
XX006655	LYR II DATALINK SWITCH	EACH	3.000	=		
XX006656	MOD EX VID TRAN SYS	EACH	1.000	=		
XX006657	REL EX VID DET SYS CI	EACH	1.000	=		
XX006658	FLOCCULATION LOGS	EACH	100.000	=		
XX006659	FLOCCULATION POWDER	POUND	250.000	=		
XX006660	WETLAND PLANTS	EACH	50.000	=		
XX006661	UNINTERRUPT POWER SUP	EACH	2.000	=		

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 5
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
XX011700	WATER MAIN FITTINGS	POUND	5,999.000	=			
X0301335	WATER MAIN REMOV 8	FOOT	5,461.000	=			
X0320164	FUR SOLDIER PILES	FOOT	445.000	=			
X0320591	SAN MAN REMOVED	EACH	3.000	=			
X0320772	WATER MAIN REMOV 12	FOOT	1,053.000	=			
X0321193	TEMP CATCH BASINS	EACH	5.000	=			
X0322464	ABAN FILL EX SAN MAN	EACH	2.000	=			
X0322671	STAB CONSTR ENTRANCE	SQ YD	167.000	=			
X0322925	ELCBL C TRACER 14 1C	FOOT	16,754.000	=			
X0323381	SS WM REQ T1 12"	FOOT	308.000	=			
X0323382	SS WM REQ T1 15"	FOOT	98.000	=			
X0323383	SS WM REQ T1 18"	FOOT	148.000	=			
X0323426	SED CONT DR ST INL CL	EACH	121.000	=			
X0323430	SS WM REQ T1 24"	FOOT	116.000	=			
X0323484	DRILL/SET SOLDIER PILL	CU FT	1,575.000	=			

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 6
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
X0323622	AGGREGATE BACKFILL	TON	346.000	=			
X0323656	TEMPORARY RISER	EACH	1.000	=			
X0323827	WATER MAIN REMOV 10	FOOT	2,979.000	=			
X0323828	WATER MAIN REMOV 16	FOOT	42.000	=			
X0323863	SS WM REQ T2 12"	FOOT	495.000	=			
X0323889	SS WM REQ T2 18"	FOOT	333.000	=			
X0330200	SAN MAN ADJUST	EACH	3.000	=			
X4066414	BC SC SUPER "C" N50	TON	151.000	=			
X4066426	BC SC SUPER "D" N70	TON	931.000	=			
X4066548	P BCSC SUPER "F" N90	TON	947.000	=			
X4066616	BCBC SUP IL-19.0 N70	TON	766.000	=			
X4067100	P LB MM SU IL4.75 N50	TON	608.000	=			
X4073121	BIT C PVT FD SUP 12	SQ YD	69,792.000	=			
X4073131	B C PVT FD SUP 12.5	SQ YD	909.000	=			
X6013600	PIPE UNDERDRAIN 4 MOD	FOOT	19,300.000	=			

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECWR003 PAGE 7
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
X6063401	COMB CC&G TM4.12	FOOT	634.000	=			
X6063600	COMB CC&G TM4.24	FOOT	874.000	=			
X6700405	ENGR FLD OFF A MOD	CAL MO	15.000	=			
X7015000	CHANGEABLE MESSAGE SN	CAL MO	24.000	=			
X7030010	TEMP PM TAPE 6 BLACK	FOOT	11,250.000	=			
X8050015	SERV INSTALL POLE MT	EACH	3.000	=			
X8710020	F0CC62.5/125 MM12SM12	FOOT	10,247.000	=			
X8730027	ELCBL C GROUND 6 1C	FOOT	1,839.000	=			
X8730250	ELCBL C 20 3C TW SH	FOOT	1,973.000	=			
X8800020	SH LED 1F 3S MAM	EACH	16.000	=			
X8800035	SH LED 1F 3S BM	EACH	2.000	=			
X8800038	SH LED 1F 4S MAM	EACH	2.000	=			
X8800040	SH LED 1F 5S BM	EACH	5.000	=			
X8800045	SH LED 1F 5S MAM	EACH	10.000	=			
X8800060	SH LED 2F 3S BM	EACH	1.000	=			

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 8
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
X8800070	SH LED 2F 5S BM	EACH	1.000		=		
X8805275	SH LED 2F 1-3 1-4 BM	EACH	1.000		=		
X8805285	SH LED 2F 1-4 1-5 BM	EACH	1.000		=		
X8810610	PED SH LED 1F BM	EACH	2.000		=		
X8810620	PED SH LED 2F BM	EACH	1.000		=		
Z0001050	AGG SUBGRADE 12	SQ YD	80,672.000		=		
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000		=		
Z0019600	DUST CONTROL WATERING	UNIT	10.000		=		
Z0022800	FENCE REMOVAL	FOOT	1,156.000		=		
Z0030250	IMP ATTN TEMP NRD TL3	EACH	25.000		=		
Z0030350	IMP ATTN REL NRD TL3	EACH	16.000		=		
Z0048665	RR PROT LIABILITY INS	L SUM	1.000		=		
Z0056900	SAN SEW 8	FOOT	19.000		=		
Z0057100	SAN SEW 12	FOOT	22.000		=		
Z0057400	SAN SEW 21	FOOT	20.000		=		

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 9
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
Z0070200	SURVEY MONUMENTS	EACH	9.000				
Z0076600	TRAINEES	HOUR	2,000.000	0.80		1,600.00	
Z0077700	WOOD FENCE REM & RE-E	FOOT	36.000				
20100110	TREE REMOV 6-15	UNIT	406.000				
20100210	TREE REMOV OVER 15	UNIT	179.000				
20101100	TREE TRUNK PROTECTION	EACH	30.000				
20101200	TREE ROOT PRUNING	EACH	30.000				
20101300	TREE PRUN 1-10	EACH	10.000				
20101350	TREE PRUN OVER 10	EACH	30.000				
20200100	EARTH EXCAVATION	CU YD	52,900.000				
20201200	REM & DISP UNS MATL	CU YD	11,097.000				
20700300	POROUS GRAN EMB SPEC	TON	10,487.000				
20800250	TRENCH BACKFILL SPL	CU YD	6,061.000				
21001000	GEOTECH FAB F/GR STAB	SQ YD	20,374.000				
21101615	TOPSOIL F & P 4	SQ YD	26,135.000				

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 10
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
21300010	EXPLOR TRENCH SPL	FOOT	150.000	=			
25000400	NITROGEN FERT NUTR	POUND	230.000	=			
25000500	PHOSPHORUS FERT NUTR	POUND	23.000	=			
25000600	POTASSIUM FERT NUTR	POUND	230.000	=			
25100630	EROSION CONTR BLANKET	SQ YD	4,715.000	=			
25200100	SODDING	SQ YD	21,055.000	=			
25200200	SUPPLE WATERING	UNIT	166.000	=			
28000250	TEMP EROS CONTR SEED	POUND	783.000	=			
28000400	PERIMETER EROS BAR	FOOT	7,761.000	=			
28000500	INLET & PIPE PROTECT	EACH	26.000	=			
28000510	INLET FILTERS	EACH	121.000	=			
28100105	STONE RIPRAP CL A3	SQ YD	14.000	=			
28200200	FILTER FABRIC	SQ YD	14.000	=			
40200800	AGG SURF CSE B	TON	224.000	=			
40600100	BIT MATLS PR CT	GALLON	8,913.000	=			

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 11
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
40600300	AGG PR CT	TON	89.000 X	=			
40600980	BIT SURF REM BUTT JT	SQ YD	276.000 X	=			
40600990	TEMPORARY RAMP	SQ YD	500.000 X	=			
40800040	INCIDENTAL BIT SURF	TON	50.000 X	=			
42001300	PROTECTIVE COAT	SQ YD	12,402.000 X	=			
42400430	PC CONC SIDEWALK 5 SP	SQ FT	14,528.000 X	=			
42400800	DETECTABLE WARNINGS	SQ FT	330.000 X	=			
44000008	BIT SURF REM 2 1/2	SQ YD	14,604.000 X	=			
44000100	PAVEMENT REM	SQ YD	45,149.000 X	=			
44000200	DRIVE PAVEMENT REM	SQ YD	597.000 X	=			
44000500	COMB CURB GUTTER REM	FOOT	12,025.000 X	=			
44000600	SIDEWALK REM	SQ FT	14,818.000 X	=			
44003100	MEDIAN REMOVAL	SQ FT	480.000 X	=			
44100300	PAVT REPLACE SPL	SQ YD	4.000 X	=			
44201785	CL D PATCH T1 12	SQ YD	40.000 X	=			

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 12
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
44201789	CL D PATCH T2 12	SQ YD	60.000 X	=			
44201794	CL D PATCH T3 12	SQ YD	100.000 X	=			
44201796	CL D PATCH T4 12	SQ YD	100.000 X	=			
48100500	AGGREGATE SHLDS A 6	SQ YD	543.000 X	=			
48202850	BIT SHLD SUPER 12 1/2	SQ YD	143.000 X	=			
50105220	PIPE CULVERT REMOV	FOOT	302.000 X	=			
50200100	STRUCTURE EXCAVATION	CU YD	200.000 X	=			
50300225	CONC STRUCT	CU YD	85.000 X	=			
50300510	RUSTICATION FINISH	SQ FT	2,100.000 X	=			
50500505	STUD SHEAR CONNECTORS	EACH	143.000 X	=			
50800205	REINF BARS, EPOXY CTD	POUND	9,400.000 X	=			
54213657	PRC FLAR END SEC 12	EACH	5.000 X	=			
54213663	PRC FLAR END SEC 18	EACH	4.000 X	=			
54213669	PRC FLAR END SEC 24	EACH	1.000 X	=			
54213675	PRC FLAR END SEC 30	EACH	1.000 X	=			

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DIGECM03 ECMR003 PAGE 13
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
550A0050	STORM SEW CL A 1 12	FOOT	1,157.000		=		
550A0070	STORM SEW CL A 1 15	FOOT	481.000		=		
550A0090	STORM SEW CL A 1 18	FOOT	286.000		=		
550A0120	STORM SEW CL A 1 24	FOOT	330.000		=		
550A0340	STORM SEW CL A 2 12	FOOT	4,279.000		=		
550A0360	STORM SEW CL A 2 15	FOOT	742.000		=		
550A0380	STORM SEW CL A 2 18	FOOT	1,401.000		=		
550A0410	STORM SEW CL A 2 24	FOOT	1,384.000		=		
550A0640	STORM SEW CL A 3 12	FOOT	62.000		=		
550A0680	STORM SEW CL A 3 18	FOOT	244.000		=		
55100100	STORM SEWER REM 4	FOOT	56.000		=		
55100300	STORM SEWER REM 8	FOOT	41.000		=		
55100400	STORM SEWER REM 10	FOOT	207.000		=		
55100500	STORM SEWER REM 12	FOOT	3,033.000		=		
55100700	STORM SEWER REM 15	FOOT	81.000		=		

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DIGECM03 ECMR003 PAGE 14
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
55100900	STORM SEWER REM 18	FOOT	2,035.000	X	=	
55101200	STORM SEWER REM 24	FOOT	55.000	X	=	
55101400	STORM SEWER REM 30	FOOT	14.000	X	=	
55101900	STORM SEWER REM 48	FOOT	74.000	X	=	
56102900	D I WATER MAIN 4	FOOT	4.000	X	=	
56103000	D I WATER MAIN 6	FOOT	67.000	X	=	
56103100	D I WATER MAIN 8	FOOT	154.000	X	=	
56103200	D I WATER MAIN 10	FOOT	28.000	X	=	
56103300	D I WATER MAIN 12	FOOT	1,731.000	X	=	
56103400	D I WATER MAIN 16	FOOT	101.000	X	=	
56104900	WATER VALVES 6	EACH	1.000	X	=	
56105000	WATER VALVES 8	EACH	2.000	X	=	
56105100	WATER VALVES 10	EACH	1.000	X	=	
56105200	WATER VALVES 12	EACH	5.000	X	=	
56105300	WATER VALVES 16	EACH	1.000	X	=	

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 15
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
56106400	ADJ WATER MAIN 8	FOOT	32.000		=		
56106500	ADJ WATER MAIN 10	FOOT	16.000		=		
56200500	WATER SERV LINE 1 1/2	FOOT	204.000		=		
56200700	WATER SERV LINE 2	FOOT	63.000		=		
56201600	CORP STOPS 1 1/2	EACH	1.000		=		
56400400	FIRE HYDNITS RELOCATED	EACH	2.000		=		
56400500	FIRE HYDNITS TO BE REM	EACH	8.000		=		
56400820	FIRE HYD W/AUX V & VB	EACH	6.000		=		
56500600	DOM WAT SER BOX ADJ	EACH	1.000		=		
56500700	DOM WAT SER BOX REM	EACH	1.000		=		
56500800	DOM WAT SER BOX	EACH	1.000		=		
60100080	FRENCH DRAINS	CU YD	25.000		=		
60100085	GEO FAB-FRENCH DRAIN	SQ YD	200.000		=		
60201205	CB TA 4 DIA T12F&G	EACH	3.000		=		
60201340	CB TA 4 DIA T24F&G	EACH	48.000		=		

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 16
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
60207605	CB TC 18G	EACH	11.000				
60208240	CB TC T24F&G	EACH	10.000				
60214700	RD CB 4 DIA T11F&G	EACH	5.000				
60214714	RD CB 4 DIA T24F&G	EACH	22.000				
60216300	RD CB 5 DIA 18G	EACH	1.000				
60216614	RD CB 5 DIA T24F&G	EACH	2.000				
60218400	MAN TA 4 DIA T1F CL	EACH	15.000				
60221100	MAN TA 5 DIA T1F CL	EACH	8.000				
60223800	MAN TA 6 DIA T1F CL	EACH	6.000				
60224600	RD MAN 4 DIA T1F CL	EACH	30.000				
60225124	RD MAN 4 DIA T24F&G	EACH	1.000				
60225400	RD MAN 5 DIA T1F CL	EACH	10.000				
60226200	RD MAN 6 DIA T1F CL	EACH	2.000				
60228100	MAN SAN T1F CL	EACH	6.000				
60236200	INLETS TA 18G	EACH	3.000				

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 17
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
60237470	INLETS TA T24F&G	EACH	25.000 X	=			
60240345	INLETS TB TB24 F&G	EACH	5.000 X	=			
60248900	VV TA 5 DIA T1F CL	EACH	9.000 X	=			
60249400	VALVE BOXES 6	EACH	1.000 X	=			
60250200	CB ADJUST	EACH	1.000 X	=			
60255500	MAN ADJUST	EACH	4.000 X	=			
60265700	VV ADJUST	EACH	2.000 X	=			
60266500	VV REMOVED	EACH	9.000 X	=			
60500040	REMOV MANHOLES	EACH	27.000 X	=			
60500050	REMOV CATCH BAS	EACH	50.000 X	=			
60500060	REMOV INLETS	EACH	8.000 X	=			
60600095	CLASS SI CONC OUTLET	CU YD	9.000 X	=			
60603800	COMB CC&G TB6.12	FOOT	4,605.000 X	=			
60605000	COMB CC&G TB6.24	FOOT	20,622.000 X	=			
60618300	CONC MEDIAN SURF 4	SQ FT	1,019.000 X	=			

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 18
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
60624600	CORRUGATED MED	SQ FT	782.000	=			
66400505	CH LK FENCE 8	FOOT	525.000	=			
67100100	MOBILIZATION	L SUM	1.000	=			
70101800	TRAF CONT & PROT SPL	L SUM	1.000	=			
70300210	TEMP PVT MK LTR & SYM	SQ FT	1,660.000	=			
70300220	TEMP PVT MK LINE 4	FOOT	72,977.000	=			
70300230	TEMP PVT MK LINE 5	FOOT	54,200.000	=			
70300240	TEMP PVT MK LINE 6	FOOT	5,039.000	=			
70300260	TEMP PVT MK LINE 12	FOOT	800.000	=			
70300280	TEMP PVT MK LINE 24	FOOT	701.000	=			
70300500	PAVT MARKING TAPE T3	FOOT	18,802.000	=			
70300510	PAVT MARK TAPE T3 L&S	SQ FT	1,786.000	=			
70301000	WORK ZONE PAVT MK REM	SQ FT	34,397.000	=			
70400100	TEMP CONC BARRIER	FOOT	7,350.000	=			
70400200	REL TEMP CONC BARRIER	FOOT	3,660.000	=			

FAU 2647
99-00142-07-WR
LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 19
RUN DATE - 08/24/06
RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
72000100	SIGN PANEL T1	SQ FT	38.000		=	
72000200	SIGN PANEL T2	SQ FT	28.000		=	
73000100	WOOD SIN SUPPORT	FOOT	26.000		=	
73100100	BASE TEL STL SIN SUPP	EACH	10.000		=	
78000100	THPL PVT MK LTR & SYM	SQ FT	1,786.000		=	
78000200	THPL PVT MK LINE 4	FOOT	40,734.000		=	
78000300	THPL PVT MK LINE 5	FOOT	23,407.000		=	
78000400	THPL PVT MK LINE 6	FOOT	6,258.000		=	
78000600	THPL PVT MK LINE 12	FOOT	2,823.000		=	
78000650	THPL PVT MK LINE 24	FOOT	854.000		=	
78100100	RAISED REFL PAVT MKR	EACH	665.000		=	
78200100	MONODIR PRIS BAR REFL	EACH	1,123.000		=	
78300100	PAVT MARKING REMOVAL	SQ FT	15,467.000		=	
78300200	RAISED REF PVT MK REM	EACH	665.000		=	
81000600	CDN T 2 GALVS	FOOT	12,701.000		=	

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815
 ECMS002 DTGECM03 ECMR003 PAGE 20
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE
				DOLLARS	CENTS	
81000700	CON T 2 1/2 GALVS	FOOT	166.000	=		
81000800	CON T 3 GALVS	FOOT	158.000	=		
81001000	CON T 4 GALVS	FOOT	36.000	=		
81018500	CON P 2 GALVS	FOOT	2,004.000	=		
81018900	CON P 4 GALVS	FOOT	1,202.000	=		
81400100	HANDHOLE	EACH	28.000	=		
81400200	HD HANDHOLE	EACH	4.000	=		
81400300	DBL HANDHOLE	EACH	6.000	=		
81500200	TR & BKFIL F ELECT WK	FOOT	13,191.000	=		
81700215	EC C EPR RHW 2-1C 10	FOOT	1,657.000	=		
82103250	LUM SV HOR MT PC 250W	EACH	8.000	=		
85000200	MAIN EX TR SIG INSTAL	EACH	5.000	=		
85700205	FAC T4 CAB SPL	EACH	3.000	=		
86400100	TRANSCIEVER - FIB OPT	EACH	3.000	=		
87301215	ELCBL C SIGNAL 14 2C	FOOT	4,692.000	=		

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 21
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	CTS
				DOLLARS	CENTS		
87301225	ELCBL C SIGNAL 14 3C	FOOT	5,254.000	=			
87301245	ELCBL C SIGNAL 14 5C	FOOT	3,721.000	=			
87301255	ELCBL C SIGNAL 14 7C	FOOT	4,815.000	=			
87301305	ELCBL C LEAD 14 1PR	FOOT	2,342.000	=			
87301805	ELCBL C SERV 6 2C	FOOT	125.000	=			
87502480	TS POST GALVS 14	EACH	1.000	=			
87502490	TS POST GALVS 15	EACH	1.000	=			
87502500	TS POST GALVS 16	EACH	1.000	=			
87700200	S MAA & P 32	EACH	1.000	=			
87700280	S MAA & P 48	EACH	1.000	=			
87700300	S MAA & P 52	EACH	2.000	=			
87702940	STL COMB MAA&P 42	EACH	1.000	=			
87704080	STL COMB MAA&P 30 SPL	EACH	2.000	=			
87704100	STL COMB MAA&P 34 SPL	EACH	1.000	=			
87704110	STL COMB MAA&P 36 SPL	EACH	3.000	=			

FAU 2647
 99-00142-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 83815

ECMS002 DTGECM03 ECMR003 PAGE 22
 RUN DATE - 08/24/06
 RUN TIME - 113313

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	CENTS	TOTAL PRICE DOLLARS	CTS
87704140	STL COMB MA&P 42 SPL	EACH	1.000 X	=			
87704160	STL COMB MA&P 46 SPL	EACH	1.000 X	=			
87800100	CONC FDN TY A	FOOT	44.000 X	=			
87800200	CONC FDN TY D	FOOT	12.000 X	=			
87800400	CONC FDN TY E 30D	FOOT	15.000 X	=			
87800415	CONC FDN TY E 36D	FOOT	180.000 X	=			
87900200	DRILL EX HANDHOLE	EACH	2.000 X	=			
88200210	TS BACKPLATE LOU ALUM	EACH	28.000 X	=			
88500100	INDUCTIVE LOOP DETECT	EACH	10.000 X	=			
88600100	DET LOOP T1	FOOT	965.000 X	=			
88700200	LIGHT DETECTOR	EACH	8.000 X	=			
88700300	LIGHT DETECTOR AMP	EACH	3.000 X	=			
88800100	PED PUSH-BUTTON	EACH	19.000 X	=			
89000100	TEMP TR SIG INSTALL	EACH	2.000 X	=			
89502200	MOD EX CONTR	EACH	5.000 X	=			

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
89502375	REMOV EX TS EQUIP	EACH	2.000				
89502380	REMOV EX HANDHOLE	EACH	25.000				
89502385	REMOV EX CONC FDN	EACH	24.000				

TOTAL \$

NOTE:

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

RETURN WITH BID

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

I. GENERAL

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

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

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

II. ASSURANCES

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

B. Felons

1. The Illinois Procurement Code provides:

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

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

C. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

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

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

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

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

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

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

RETURN WITH BID

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

D. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

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

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

E. Inducements

1. The Illinois Procurement Code provides:

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

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

F. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

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

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

G. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

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

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

H. Confidentiality

1. The Illinois Procurement Code provides:

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

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

RETURN WITH BID

I. Insider Information

1. The Illinois Procurement Act provides:

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

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

III. CERTIFICATIONS

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

B. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

C. Educational Loan

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

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

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

D. Bid-Rigging/Bid Rotating

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

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

RETURN WITH BID

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

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

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

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

E. International Anti-Boycott

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

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

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

F. Drug Free Workplace

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

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

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

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

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

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

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

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

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

G. Debt Delinquency

1. The Illinois Procurement Code provides:

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

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

H. Sarbanes-Oxley Act of 2002

1. The Illinois Procurement Code provides:

Section 50-60(c).

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

I. ADDENDA

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

J. Section 42 of the Environmental Protection Act

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

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

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

NA - FEDERAL

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

TO BE RETURNED WITH BID

IV. DISCLOSURES

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

B. Financial Interests and Conflicts of Interest

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

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

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

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

C. Disclosure Form Instructions

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

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

CERTIFICATION STATEMENT

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

(Bidding Company)

Name of Authorized Representative (type or print)

Title of Authorized Representative (type or print)

Signature of Authorized Representative

Date

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

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

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

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

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

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

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

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

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

D. Bidders Submitting More Than One Bid

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

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

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 _____

RETURN WITH BID/OFFER

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

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

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

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

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

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

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

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

THE FOLLOWING STATEMENT MUST BE SIGNED

Name of Authorized Representative (type or print)	

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

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

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

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

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

RETURN WITH BID

**Contract No. 83815
LAKE County
Section 99-00142-07-WR
Project F-330(42)
Route FAU 2647 (Butterfield Road)
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. 83815
LAKE County
Section 99-00142-07-WR
Project F-330(42)
Route FAU 2647 (Butterfield Road)
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 326
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

NOTICE

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

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

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

**Contract No. 83815
LAKE County
Section 99-00142-07-WR
Project F-330(42)
Route FAU 2647 (Butterfield Road)
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., September 22, 2006. All bids will be gathered, sorted, publicly opened and read in the auditorium at the Department of Transportation's Harry R. Hanley Building shortly after the 10:00 a.m. cut off time.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 83815
LAKE County
Section 99-00142-07-WR
Project F-330(42)
Route FAU 2647 (Butterfield Road)
District 1 Construction Funds**

Project consists of the reconstruction and widening of Butterfield Road from 800 ft north of Harding Avenue extending north to Illinois Route 137, the reconstruction of Lake Street from Butterfield Road east for 417 ft, the reconstruction of Winchester Road for a total of 2,466 ft and 1,325 ft of reconstruction of the intersection of Illinois Route 137 at Butterfield Road located in Libertyville.

- 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 and LOCAL ROADS AND STREETS 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 Definition of Terms	1
105 Control of Work	2
205 Embankment	3
251 Mulch	4
281 Riprap	5
282 Filter Fabric for Use With Riprap	8
285 Concrete Revetment Mats	10
311 Granular Subbase	14
351 Aggregate Base Course	15
440 Removal of Existing Pavement and Appurtenances	16
442 Pavement Patching	17
449 Removal and Replacement of Prefomed Elastomeric Compression Joint Seal	18
481 Aggregate Shoulders	19
501 Removal of Existing Structures	20
503 Concrete Structures	21
505 Steel Structures	22
506 Cleaning and Painting Metal Structures	25
508 Reinforcement Bars	26
512 Piling	27
540 Box Culverts	28
589 Elastic Joint Sealer	30
602 Catch Basin, Manhole, Inlet, Drainage Structures and Valve Vault Construction, Adjustment and Reconstruction	31
603 Adjusting Frames and Grates of Drainage and Utility Structures	32
610 Shoulder Inlets with Curb	33
665 Woven Wire Fence	34
669 Removal and Disposal of Regulated Substances	35
671 Mobilization	36
702 Work Zone Traffic Control Devices	37
1003 Fine Aggregates	38
1004 Coarse Aggregate	39
1005 Stone, Concrete Blocks and Broken Concrete for Erosion Protection, Sediment Control and Rockfill	42
1006 Metals	46
1007 Timber and Preservative Treatment	49
1012 Hydrated Lime	50
1020 Portland Cement Concrete	51
1021 Concrete Admixtures	58
1022 Concrete Curing Materials	59
1024 Nonshrink Grout	61
1041 Brick	63
1043 Precast Reinforced Concrete Manhole Sections and Adjusting Rings	64
1056 Prefomed Flexible Gaskets and Mastic Joint Sealer for Sewer and Culvert Pipe	66
1059 Elastic Joint Sealers	67
1060 Waterproofing Materials	68
1069 Pole and Tower	69
1070 Foundation and Breakaway Devices	70
1077 Post and Foundation	72
1080 Fabric Materials	73
1081 Materials For Planting	76
1083 Elastomeric Bearings	77
1094 Overhead Sign Structures	78
1103 Portland Cement Concrete Equipment	79

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS and RECURRING LOCAL ROADS AND STREETS 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 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 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 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 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

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

	<u>PAGE NO.</u>
LRS 1 <input type="checkbox"/> Cooperation With Utilities (Eff. 1-1-99) (Rev. 1-1-02)	222
LRS 2 <input type="checkbox"/> Furnished Excavation (Eff. 1-1-99) (Rev. 1-1-02)	224
LRS 3 <input checked="" type="checkbox"/> Construction Zone Traffic Control (Eff. 1-1-99)	225
LRS 4 <input type="checkbox"/> Flaggers in Work Zones (Eff. 1-1-99)	226
LRS 5 <input type="checkbox"/> Reserved	227
LRS 6 <input type="checkbox"/> Bidding Requirements and Conditions for Contract Proposals (Eff. 1-1-02)	228
LRS 7 <input type="checkbox"/> Bidding Requirements and Conditions for Material Proposals (Eff. 1-1-03)	234
LRS 8 <input type="checkbox"/> Failure to Complete the Work on Time (Eff. 1-1-99)	240
LRS 9 <input type="checkbox"/> Bituminous Surface Treatments (Eff. 1-1-99)	241
LRS 10 <input type="checkbox"/> Reflective Sheeting Type C (Eff. 1-1-99) (Rev. 1-1-02)	242
LRS 11 <input type="checkbox"/> Employment Practices (Eff. 1-1-99)	243
LRS 12 <input type="checkbox"/> Wages of Employees on Public Works (Eff. 1-1-99)	245
LRS 13 <input type="checkbox"/> Selection of Labor (Eff. 1-1-99)	246

TABLE OF CONTENTS

STATE OF ILLINOIS SPECIAL PROVISIONS 1
LOCATION OF PROJECT 1
DESCRIPTION OF PROJECT 1

SECTION 105 – CONTROL OF WORK AND PROSECUTION AND PROGRESS 2
SECTION 105 – EXISTING UTILITIES 2
SECTION 105.09 – PAVEMENT MARKING PAINT 3
SECTION 107 - MAINTENANCE OF ROADWAYS 3
SECTION 107 - PROTECTION OF TREES AND SHRUBS 3
SECTION 107 – PROTECTION OF EXISTING DRAINAGE FACILITIES DURING CONSTRUCTION
..... 4
SECTION 107.09 – PUBLIC SAFETY AND CONVENIENCE 4
SECTION 107.11 – INSURANCE REQUIREMENTS FOR RAILROAD-HIGHWAY CROSSING 4
SECTION 107.25 – FINAL SIGN PLACEMENT ON CONSTRUCTION PROJECTS 5
SECTION 107.27 – INSURANCE 5
SECTION 107.28 – CONSTRUCTION SAFETY AND HEALTH STANDARDS 8
SECTION 107.30 – PARTNERS IN EXCELLENCE (PIE) 9
SECTION 108.09 – FAILURE TO REOPEN CLOSED ROADS ON TIME 9
CONSTRUCTION DEBRIS 10
20101100 - TREE TRUNK PROTECTION 11
20101200 - TREE ROOT PRUNING 12
20200100 – EARTH EXCAVATION 13
20700300 – POROUS GRANULAR EMBANKMENT, SPECIAL 14
20800250 – TRENCH BACKFILL, SPECIAL 15
21101615 –TOPSOIL FURNISH AND PLACE, 4" 16
21300010 – EXPLORATION TRENCH, SPECIAL 17
28000400 – PERIMETER EROSION BARRIER 18
40200800 –AGGREGATE SURFACE COURSE, TYPE B 19
40600100 – BITUMINOUS MATERIALS (PRIME COAT) 20
40600990 – TEMPORARY RAMP 21
42001300 - PROTECTIVE COAT 22
42400430 – PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH, SPECIAL 23
44000008 – BITUMINOUS SURFACE REMOVAL 2 ½ " 24
48100500 – AGGREGATE SHOULDERS, TYPE A 6" 25
50105220 – PIPE CULVERT REMOVAL 26
50300510 – RUSTICATION FINISH 27
56200XXX- WATER SERVICE LINE 29
5610XXXX – DUCTILE IRON WATER MAIN 30
5610XXXX – WATER VALVES 35
56106XXX – ADJUSTING WATER MAIN 37
56201600 – CORPORATION STOPS 38
56400400 – FIRE HYDRANTS TO BE RELOCATED 39
56400505 – FIRE HYDRANTS TO BE REMOVED, SPECIAL 40
56400820 – FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX 41
56500600 – DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED 42
56500800 – DOMESTIC WATER SERVICE BOXES 43
60201340 – CATCH BASINS, TYPE A, 4'- DIAMETER, TYPE 24 FRAME AND GRATE 44
602XXXXX – RESTRICTED DEPTH MANHOLES AND RESTRICTED DEPTH CATCH BASINS 45
60228100 - MANHOLES, SANITARY, WITH TYPE 1 FRAME, CLOSED LID 46
60248900 – VALVE VAULTS, TYPE A, TYPE 1 FRAME, CLOSED LID, SPECIAL 48
602449400 – VALVE BOXES 6" 49
60266500 – VALVE VAULTS TO BE REMOVED 50

6060XXXX - COMBINATION CONCRETE CURB AND GUTTER OR CONCRETE CURB	51
70101700 - TRAFFIC CONTROL AND PROTECTION (SPECIAL)	52
78100100 - RAISED REFLECTIVE PAVEMENT MARKER	66
K1005421 - SEEDING (SPECIAL).....	67
X0301701 - TEMPORARY SHEETING AND SHORING	69
X0320591 - SANITARY MANHOLES TO BE REMOVED	71
X0321193 - TEMPORARY CATCH BASINS	72
X0322464 - ABANDON AND FILL EXISTING SANITARY MANHOLE	73
X0322671 - STABILIZED CONSTRUCTION ENTRANCE	74
X0323XXX - STORM SEWERS, (WATER MAIN REQUIREMENTS).....	75
X0323426 - SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING	76
X0323622 - AGGREGATE BACKFILL.....	77
X0323656 - TEMPORARY RISER.....	78
X032XXXX - WATER MAIN REMOVAL	79
X0330200 - SANITARY MANHOLES TO BE ADJUSTED	80
XX006334 AGGREGATE BASE COURSE, TYPE A (SPECIAL)	81
X6013600 - PIPE UNDERDRAINS 4" (MODIFIED).....	82
X6700405 - ENGINEER'S FIELD OFFICE, TYPE A (MODIFIED).....	83
X7015000 - CHANGEABLE MESSAGE SIGN	85
X7030010 - TEMPORARY PAVEMENT MARKING TAPE, 6 INCH (BLACK).....	86
XX000610 - RELOCATE EXISTING MAILBOX.....	87
XX000882 - WOOD FENCE	88
XX001446 - PLUG AND BLOCK WATER MAIN.....	89
XX001607 - RETAINING WALL (SPECIAL)	90
XX002260 - STRUCTURES TO BE REMOVED	95
Z0070200 SURVEY MONUMENTS	96
XX002868 - TEMPORARY DITCH CHECK (SPECIAL)	97
XX003503 - FLARED END SECTION REMOVAL	98
XX003885 - IRRIGATION SYSTEM	99
XX004727 - CAST-IN-PLACE CONCRETE WALL	116
INTENTIONALLY LEFT BLANK	119-120
XX004960 - REMOVAL OF EXISTING STREET LIGHTING.....	121
XX004970 - TEMPORARY PAVEMENT SUPERPAVE	122
XX005651 - DRAINAGE BOARD	123
XX011700 - WATER MAIN FITTINGS	124
Z0001050 - AGGREGATE SUBGRADE, 12".....	126
Z0013798 - CONSTRUCTION LAYOUT	128
Z0019600 - DUST CONTROL WATERING	131
Z0022800 - FENCE REMOVAL	132
Z005XXXX - SANITARY SEWER	133
Z0077700 - WOOD FENCE TO BE REMOVED AND RE-ERECTED	135
- DUCTILE IRON PIPE INSTALLED IN STEEL CASING	136
- MANHOLE, TYPE A, NEENAH R-3303 FRAME AND LID (SPECIAL)	137
- DRILLED SOLDIER PILE RETAINING WALL.....	138
- SANITARY SEWER (DIRECTIONAL BORE).....	144
- STEEL CASING PIPE IN OPEN CUT	145
- TREATMENT STRUCTURES	146
- WETLAND PLANTS	149
- LANDSCAPING PLANTER:	152
- TEMPORARY STORM SEWER.....	155
- FURNISH WITNESS POST	156
- MEDIAN SIGN (.....)	158
- STAMPED COLORED PORTLAND CEMENT CONCRETE MEDIAN SURFACE 4 INCH (SPECIAL)	159
- MEDIAN SIGN (SPECIAL)	160
- FENCE (SPECIAL).....	161

- FLOCCULATION LOGS	162
- FLOCCULATION POWDER.....	162
IDOT TRAFFIC SIGNAL SPECIFICATIONS	TS-IDOT-1-TS-IDOT-34 164-197
LAKE COUNTY SIGNAL SPECIAL PROVISIONS	TS-LCDOT-1 - TS-LCDOT-44 198-240a.
STORM WATER POLLUTION PREVENTION PLAN	SWPPP-1 - SWPPP-7 241-247
METRA RAILROAD RIGHT-OF-ENTRY PERMIT	248-254
LAKE COUNTY STORMWATER MANAGEMENT COMMISSION WATERSHED DEVELOPMENT PERMIT	255-257
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY PERMIT	258-262
USE OF RAP (BMPP)	263-267
METRA - EXHIBIT "A"	268

INDEX LOCAL ROADS AND STREETS SPECIAL PROVISIONS

<u>LR#</u>	<u>TITLE</u>	<u>PAGE</u>
SD 16	"Slab Movement Detection Device" (Eff. 11-1-84).....	
SD 17	"Required Cold Milled Surface Texture" (Eff. 11-1-87).....	
105	"Cooperation with Utilities" (Eff 1/1/99) (Rev 1/1/06).....	
107-1	"Nationwide Permit No. 14" (Eff. 2-1-04) (Rev. 3-1-05). Developed by the Bureau of Local Roads and Streets..... to outline the necessary requirements to comply with No. 14 permits.	
107-2	"Railroad Protective Liability Insurance for Local Lettings" (Eff. 3-1-05). Developed by the Bureau of Local Roads & Streets to require insurance policies to be submitted to the letting agency rather than the department.	
107-3	"Wages of Employees on Public Works" (Eff 8-10-95).....	
108	"Combination Bids (Eff. 1-1-94)(Rev. 3-1-05). Developed by the Bureau of Local Roads & Streets to allow the revision of working days and calendar days. Revised to incorporate applicable portions of deleted Sections 102 & 103	
109	"Contract Claims" (Eff. 1-1-02) (Rev. 5-1-02). Developed by the Bureau of Local Roads..... and Streets to assist local agencies in handling contract claims.	
212	"Shaping Roadway" (Eff. 8-1-69) (Rev. 1-1-02).....	
302	Rescinded	
355-1	"Asphalt Stabilized Base Course, Road Mix or Traveling Plant Mix" (Eff. 10-1-73)(Rev. 1-1-02).....	
355-2	"Asphalt Stabilized Base Course, Plant Mix" (Eff. 2-20-63)(Rev. 1-1-02)	
355-3	"Bituminous Aggregate Mixture Base Course" (6-27-66)(Rev. 1-1-02). Developed by the..... Bureau of Materials and Physical Research and the Bureau of Local Roads and Streets to construct a stabilized base course with paving grade asphalt.	
400	"Penetrating Emulsified Prime" (Eff. 4-1-84)(Rev. 1-1-02).....	
402	"Salt Stabilized Surface Course" (Eff. 2-20-63)(Rev. 1-1-02).....	
403-1	"Penetrating Emulsified Asphalt" (Eff. 1-1-94)(Rev. 1-1-02). Developed for bituminous..... surface treatments on roads that require flexibility and penetration due to low traffic volume.	
403-2	Bituminous Hot Mix Sand Seal Coat" (Eff. 8-1-69)(Rev. 1-1-02).....	
420	"PCC Pavement (Special)" (Eff. 5-12-64)(Rev. 1-1-02). Developed by the Bureau of Local Roads & Streets to allow local agencies to construct quality PCC pavements for low volume roads.	
430	"Paving Brick and Concrete Paver Pavements and Sidewalks" (Eff 1-1-04) Developed by the Bureau of Local Roads & Streets and the Bureau of Materials & Physical Research to provide statewide requirements for paving brick and concrete paver pavements and sidewalks.	
442	"Bituminous Patching Mixtures for Maintenance Use" (Eff 1-1-04). Developed by the Bureau of Local Roads & Streets to reference approved bituminous patching mixtures.	
451	"Crack Filling Bituminous Pavement with Fiber-Asphalt" (Eff. 10-1-91)(Rev. 1-1-02).....	
503-1	"Furnishing Class SI Concrete" (Eff. 10-1-73)(Rev. 1-1-02).....	
503-2	"Furnishing Class SI Concrete (Short Load)" (Eff. 1-1-89) (Rev. 1-1-02). Developed by the Bureau of Local Roads and Streets to allow a load charge to be added when short loads are expected during the contract.	
542	"Pipe Culverts, Type (Furnished)" (Eff. 9-1-64) (Rev. 1-1-02).....	
663	"Calcium Chloride Applied" (Eff. 6-1-58) (Rev. 1-1-02).....	
671	Rescinded	
701	"Flagger Certification" (Eff. 1-1-93) (Rev. 1-1-02).....	
702	"Construction and Maintenance Signs" (Eff 1-1-04) Developed by the Bureau of Local Roads & Streets to require florescent orange sheeting and a minimum sign size of 48" X 48" on construction and maintenance signs.	
1004	"Coarse Aggregate for Bituminous Surface Treatment" (Eff. 1-1-02). Developed by the Bureau of Materials & Physical Research, the Bureau of Local Roads & Streets, and Local Agencies to provide a coarser mix when aggregate producers have adjusted the CA-16 gradation according to the Aggregate Gradation Control System (AGCS) to a finer mix for Hot-Mix Asphalt.	
1013	"Rock Salt (Sodium Chloride)" (Eff. 8-1-69) (Rev. 1-1-02).....	

BDE SPECIAL PROVISIONS
For The August 4, and September 22, 2006 Lettings

The following special provisions indicated by an "x" are applicable to this contract. An * indicates a new or revised special provision for the letting.

<u>File Name</u>	<u>PG</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80099	269	X	Accessible Pedestrian Signals (APS)	April 1, 2003	
80156	271	X	Aggregate Shipping Tickets	Jan. 1, 2006	
80108			Asbestos Bearing Pad Removal	Nov. 1, 2003	
72541			Asbestos Waterproofing Membrane and Asbestos Bituminous Concrete Surface Removal	June 1, 1989	June 30, 1994
80128	272	X	Authority of Railroad Engineer	July 1, 2004	
80065			Bituminous Base Course/Widening Superpave	April 1, 2002	Aug. 1, 2005
80050	273	X	Bituminous Concrete Surface Course	April 1, 2001	April 1, 2003
80142	274	X	Bituminous Equipment, Spreading and Finishing Machine	Jan. 1, 2005	
80066			Bridge Deck Construction	April 1, 2002	April 1, 2004
50261			Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	Aug. 1, 2001
50481			Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	Aug. 1, 2001
50491			Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	Aug. 1, 2001
50531			Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	Aug. 1, 2001
80118	275	X	Butt Joints	April 1, 2004	April 1, 2005
80031			Calcium Chloride Accelerator for Portland Cement Concrete Patching	Jan. 1, 2001	
80077			Chair Supports	Nov. 1, 2002	Nov. 2, 2002
80051	276	X	Coarse Aggregate for Trench Backfill, Backfill and Bedding	April 1, 2001	Nov. 1, 2003
80094	283	X	Concrete Admixtures	Jan. 1, 2003	July 1, 2004
80112			Concrete Barrier	Jan. 1, 2004	April 2, 2004
80102			Corrugated Metal Pipe Culverts	Aug. 1, 2003	July 1, 2004
80114	288	X	Curing and Protection of Concrete Construction	Jan. 1, 2004	Nov. 1, 2005
80146	296	X	Detectable Warnings	Aug. 1, 2005	
80029	298	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	June 22, 2005
80144			Elastomeric Bearings	April 1, 2005	
31578			Epoxy Coating on Reinforcement	April 1, 1997	Jan. 1, 2003
80041			Epoxy Pavement Marking	Jan. 1, 2001	Aug. 1, 2003
80055	306	X	Erosion and Sediment Control Deficiency Deduction	Aug. 1, 2001	Nov. 1, 2001
80103	307	X	Expansion Joints	Aug. 1, 2003	
80101	308	X	Flagger Vests	April 1, 2003	Jan. 1, 2006
80079	309	X	Freeze-Thaw Rating	Nov. 1, 2002	
80072			Furnished Excavation	Aug. 1, 2002	Nov. 1, 2004
80054	310	X	Hand Vibrator	Nov. 1, 2003	
80147			Illuminated Sign	Aug. 1, 2005	
* 80109			Impact Attenuators	Nov. 1, 2003	Aug. 1, 2006
* 80110	311	X	Impact Attenuators, Temporary	Nov. 1, 2003	Aug. 1, 2006
80104	313	X	Inlet Filters	Aug. 1, 2003	
80080			Insertion Lining of Pipe Culverts	Nov. 1, 2002	Aug. 1, 2003
80150	315	X	Light Emitting Diode (LED) Pedestrian Signal Head	Nov. 1, 2005	April 1, 2006
80067	317	X	Light Emitting Diode (LED) Signal Head	April 1, 2002	Nov. 1, 2005
80081			Lime Gradation Requirements	Nov. 1, 2002	
80133			Lime Stabilized Soil Mixture	Nov. 1, 2004	April 1, 2006
80158			Manholes	April 1, 2006	
80045			Material Transfer Device	June 15, 1999	March 1, 2001
80137			Minimum Lane Width with Lane Closure	Jan. 1, 2005	
80138			Mulching Seeded Areas	Jan. 1, 2005	
80082	319	X	Multilane Pavement Patching	Nov. 1, 2002	
80129			Notched Wedge Longitudinal Joint	July 1, 2004	
80069			Organic Zinc-Rich Paint System	Nov. 1, 2001	Aug. 1, 2003

<u>File Name</u>	<u>PG</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
	<u>#</u>				
80116	320	X	Partial Payments	Sept. 1, 2003	
80013			Pavement and Shoulder Resurfacing	Feb. 1, 2000	July 1, 2004
53600			Pavement Thickness Determination for Payment	April 1, 1999	Jan. 1, 2004
80022	321	X	Payments to Subcontractors	June 1, 2000	Jan. 1, 2006
80155	323	X	Payrolls and Payroll Records	Aug. 10, 2005	
80130	325	X	Personal Protective Equipment	July 1, 2004	
80148	326	X	Planting Woody Plants	Jan. 1, 2006	
80134			Plastic Blockouts for Guardrail	Nov. 1, 2004	
80073			Polymer Modified Emulsified Asphalt	Nov. 1, 2002	
80119			Polyurea Pavement Marking	April 1, 2004	
80124	327	X	Portable Changeable Message Signs	Nov. 1, 1993	April 2, 2004
80139	328	X	Portland Cement	Jan. 1, 2005	Nov. 1, 2005
80083	329	X	Portland Cement Concrete	Nov. 1, 2002	
80036			Portland Cement Concrete Patching	Jan. 1, 2001	Jan. 1, 2004
419	330	X	Precast Concrete Products	July 1, 1999	Nov. 1, 2004
80120			Precast, Prestressed Concrete Members	April 1, 2004	
80084	331	X	Preformed Recycled Rubber Joint Filler	Nov. 1, 2002	
80015			Public Convenience and Safety	Jan. 1, 2000	
80121			PVC Pipeliner	April 1, 2004	April 1, 2005
80159			Railroad Flaggers	April 1, 2006	
80122			Railroad, Full-Actuated Controller and Cabinet	April 1, 2004	
34261	332	X	Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157			Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80105			Raised Reflective Pavement Markers (Bridge)	Aug. 1, 2003	
80011			RAP for Use in Bituminous Concrete Mixtures	Jan. 1, 2000	April 1, 2002
* 80160			Reflective Crack Control Treatment	April 1, 2006	Aug. 1, 2006
80151	334	X	Reinforcement Bars	Nov. 1, 2005	Nov. 2, 2005
* 80164			Removal and Disposal of Regulated Substances	Aug. 1, 2006	
80032			Remove and Re-Erect Steel Plate Beam Guardrail and Traffic Barrier Terminals	Jan. 1, 2001	Jan. 1, 2005
80085			Sealing Abandoned Water Wells	Nov. 1, 2002	
* 80131	336	X	Seeding and Sodding	July 1, 2004	Aug. 1, 2006
80152	339	X	Self-Consolidating Concrete for Cast-In-Place Construction	Nov. 1, 2005	
80132	345	X	Self-Consolidating Concrete for Precast Products	July 1, 2004	Nov. 1, 2005
80096			Shoulder Rumble Strips	Jan. 1, 2003	
80140			Shoulder Stabilization at Guardrail	Jan. 1, 2005	
80135			Soil Modification	Nov. 1, 2004	April 1, 2006
80070	347	X	Stabilized Subbase and Bituminous Shoulders Superpave	April 1, 2002	Aug. 1, 2005
80127			Steel Cost Adjustment	April 2, 2004	July 1, 2004
* 80153			Steel Plate Beam Guardrail	Nov. 1, 2005	Aug. 1, 2006
80143	353	X	Subcontractor Mobilization Payments	April 2, 2005	
80086	354	X	Subgrade Preparation	Nov. 1, 2002	
80136	355	X	Superpave Bituminous Concrete Mixture IL-4.75	Nov. 1, 2004	
80010	359	X	Superpave Bituminous Concrete Mixtures	Jan. 1, 2000	April 1, 2004
80039			Superpave Bituminous Concrete Mixtures (Low ESAL)	Jan. 1, 2001	April 1, 2004
80075			Surface Testing of Pavements	April 1, 2002	Nov. 1, 2005
80145			Suspension of Slipformed Parapets	June 11, 2004	
80092	366	X	Temporary Concrete Barrier	Oct. 1, 2002	Nov. 1, 2003
80087	369	X	Temporary Erosion Control	Nov. 1, 2002	
80008			Temporary Module Glare Screen System	Jan. 1, 2000	
80106			Temporary Portable Bridge Traffic Signals	Aug. 1, 2003	
80098			Traffic Barrier Terminals	Jan. 1, 2003	
57291	371	X	Traffic Control Deficiency Deduction	April 1, 1992	Jan. 1, 2005
80161	372	X	Traffic Signal Grounding	April 1, 2006	
20338	373	X	Training Special Provisions	Oct. 15, 1975	

<u>File Name</u>	<u>PG</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80107	376	X	Transient Voltage Surge Suppression	Aug. 1, 2003	
80123	378	X	Truck Bed Release Agent	April 1, 2004	
80154			Turf Reinforcement Mat	Nov. 1, 2005	
80162			Uninterruptable Power Supply (UPS)	April 1, 2006	
80149			Variable Spaced Tining	Aug. 1, 2005	
80163	379	X	Water Blaster with Vacuum Recovery	April 1, 2006	
80048	380	X	Weight Control Deficiency Deduction	April 1, 2001	Aug. 1, 2002
80090			Work Zone Public Information Signs	Sept. 1, 2002	Jan. 1, 2005
80125	382	X	Work Zone Speed Limit Signs	April 2, 2004	Jan. 1, 2006
80126	383	X	Work Zone Traffic Control	April 2, 2004	Nov. 1, 2005
80097	385	X	Work Zone Traffic Control Devices	Jan. 1, 2003	Nov. 1, 2004
80071	387	X	Working Days	Jan. 1, 2002	

The following special provisions have been **deleted** from use:

80141 Additional Award Criteria This special provision is no longer required.

80113 Curb Ramps for Sidewalk Warnings. This special provision has been replaced by the BDE Special Provision, "Detectable Warnings".

The following special provisions require additional information from the designer. The additional information needs to be included in a separate document attached to this check sheet. The Project Development and Implementation section will then include the information in the applicable special provision. The Special Provisions are:

- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Training Special Provisions
- Working Days

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the specifications listed in the table below, which apply to and govern the proposed improvement designated as Lake County Section 99-00142-07-WR and in case of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and govern.

SPECIFICATION	ADOPTED/DATED
Standard Specifications for Road and Bridge Construction	January 1, 2002
Manual on Uniform Traffic Control Devices for Streets and Highways	2000 Edition
Supplemental Specifications and Recurring Special Provisions (indicated on the Check Sheet included herein)	March 1, 2005
Manual of Test Procedure of Materials	Current
Standard Specifications for Water & Sewer Main Construction in Illinois	May 1996

LOCATION OF PROJECT

This project begins on F.A.U. 2647, County Highway 57 (Butterfield Road), 800 feet north of Harding Avenue and extends north to F.A.P 352, IL Rte. 137 (Buckley Road). The total project length along Butterfield Road is 8,793.5 ft. The project also includes 417 feet on Lake Street, 2,466 ft. on Winchester Road and 1,325 ft. on IL Rte 137. There is a omission of 13.01 feet (Sta. 185+83.87) at the Metra operated railroad tracks.

DESCRIPTION OF PROJECT

The project includes the reconstruction and widening of Butterfield Road, Lake Street and Winchester Road, resurfacing of portion of Butterfield Road and IL Rte. 137, and median adjustments to IL Rte. 137.

The work consists of earth excavation, construction of storm sewers, drainage structures, combination curb and gutter, full-depth bituminous pavement, bituminous base course widening, resurfacing with binder and surface courses, construction and modernization of traffic signals, detention storage, landscaping and a landscape median and all incidental and collateral work necessary to complete the project as shown on the plans and described herein.

SECTION 105 – CONTROL OF WORK AND PROSECUTION AND PROGRESS

It is the intent of the County that this project be constructed in an orderly and timely manner. Toward this end, the CONTRACTOR shall take special note of the provision of Article 105.06, Article 108.01 paragraph 2, and Article 108.02 of the Standard Specifications which shall be adhered to.

SECTION 105 – EXISTING UTILITIES

The CONTRACTOR shall be aware of the location of all utilities and structures that may be found in the vicinity of the construction. The CONTRACTOR shall conduct construction operations to avoid damage to the above-mentioned utilities or structures. The CONTRACTOR shall be aware of the location of vehicle detector loops cut into the pavement. Should any damage occur due to the CONTRACTOR'S negligence, repairs shall be made at the CONTRACTOR'S at expense in a manner acceptable to the ENGINEER. The CONTRACTOR shall notify all utility owners of the construction schedule and shall coordinate construction operations with the utility owners so that relocation of utility lines and structures may proceed in an orderly manner. Notification shall be in writing with copies transmitted to the ENGINEER.

Effective: 01/30/87

Revised: 07/01/94

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

<u>Name of Utility</u>	<u>Type</u>	<u>Location</u>	<u>Relocation or Adjustments</u>
ComEd	OH & Underground	Parkways, As noted on Utility Plan and on Utility Profile Sheets	As noted on Utility Plan and on Utility Profile Sheets
NI Gas	Underground	Parkways, As noted on Utility Plan and on Utility Profile Sheets	As noted on Utility Plan and on Utility Profile Sheets
Ameritech	OH & Underground	Parkways, As noted on Utility Plan and on Utility Profile Sheets	As noted on Utility Plan and on Utility Profile Sheets
Central Lake County JAWA	Underground	Parkways, As noted on Utility Plan and on Utility Profile Sheets	As noted on Utility Plan and on Utility Profile Sheets

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

SECTION 105.09 – PAVEMENT MARKING PAINT

In addition to the requirements of Article 105.09 of the Standard Specifications, the CONTRACTOR shall furnish, at their expense, white, pink or purple pavement marking paint in aerosol cans, for use by the ENGINEER. The quality of the marking paint shall be as manufactured by Aervoe-Pacific Co. (distributed by Municipal Marking Distributors, Inc., Dundee, IL) or approved equal. The CONTRACTOR and SUBCONTRACTORS shall only use these same colors for their own markings, therefore, not using J.U.L.I.E. utility colors.

SECTION 107 - MAINTENANCE OF ROADWAYS

Beginning on the date that the CONTRACTOR begins work on this project, he 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 this work will be provided by the CONTRACTOR as required by the ENGINEER.

The work involved in maintaining the existing pavement and shoulders will not be paid for separately but shall be considered included to the contract unit prices for the various items of work involved, unless such item(s) of work have been provided for in the contract or otherwise specified for payment. Traffic Control and Protection required for this work shall be considered incidental to the contract.

If items of work have not been provided for 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.

SECTION 107 - PROTECTION OF TREES AND SHRUBS

Extra care shall be exercised when operating equipment around trees or shrubs. Injured branches or roots shall be pruned in a manner satisfactory to the ENGINEER and shall be painted where the cut was made. Roots exposed during excavating operations shall be neatly pruned and covered with topsoil. This work shall be done as soon as possible and shall be paid for at the contract unit price per each for TREE ROOT PRUNING.

A pay item for EROSION CONTROL BLANKET has been provided and shall be used for placement over cut slopes at trees. This work shall be done in conjunction with the other protective requirements.

SECTION 107 – PROTECTION OF EXISTING DRAINAGE FACILITIES DURING CONSTRUCTION

All existing drainage structures are to be kept free of any debris resulting from construction operations. All work and material necessary to prevent accumulation of debris in the drainage structures will be considered as incidental to the contract. Any debris in the drainage structures resulting from construction operations shall be removed at the CONTRACTOR'S own expense, and no extra compensation will be allowed. Should reconstruction or adjustment of a drainage structure be required by the ENGINEER in the field, the necessary work and payment shall be done in accordance with Section 602 and Article 104.02 respectively of the Standard Specifications.

During construction if the CONTRACTOR encounters or otherwise becomes aware of any sewers, underdrains or field drains within the right-of-way other than those shown on the plans, he shall so inform the ENGINEER who shall direct the work necessary to maintain or replace the facilities in service and to protect them from damage during construction if maintained. Existing facilities to be maintained that are damaged because of non-compliance with this provision shall be replaced at the CONTRACTOR'S own expense. Should the ENGINEER have directed the replacement of a facility, the necessary work and payment shall be done in accordance with Sections 550 and 601 and Article 104.02 respectively of the Standard Specifications.

SECTION 107.09 – PUBLIC SAFETY AND CONVENIENCE

The CONTRACTOR shall maintain entrances along the proposed improvement. Interference with traffic movements and inconvenience to owners of abutting property and the public shall be kept to a minimum. Any delays or inconveniences caused by the CONTRACTOR by complying with these requirements shall be considered as incidental to the contract and no additional compensation will be allowed.

The CONTRACTOR is to plan his work so that there will be no open holes in the pavement and that all barricades will be removed from the roadway during non-working hours, except where required for public safety.

SECTION 107.11 – INSURANCE REQUIREMENTS FOR RAILROAD-HIGHWAY CROSSING

The Contractor will provide insurance as stated in Section 107.27 of these Special Provisions and as follows.

The Contractor's liability insurance shall be written with limits of insurance not less than the following:

Commercial General Liability Insurance

*General Aggregate Limit (Other Than Products Completed Operations)	\$4,000,000
Products Completed Operations Aggregate Limit	\$4,000,000
Personal and Advertising Injury Limit	\$1,000,000
Each occurrence Limit	\$2,000,000

Employers Liability Insurance

Bodily Injury by Accident (Each Accident)	\$1,000,000
Bodily Injury by Disease (Each Employee)	\$1,000,000
Bodily Injury by Disease (Policy Limit)	\$1,000,000

Automobile Liability

Bodily Injury, Property Damage and Covered Pollution Cost or Expense (Each Occurrence Limit)	\$2,000,000
--	-------------

**The policy shall be endorsed for the general aggregate to apply on a "per project" basis.*

SECTION 107.25 – FINAL SIGN PLACEMENT ON CONSTRUCTION PROJECTS

1. All signs removed shall be reset 16 feet to 18 feet off the edge of pavement where possible. In curb sections this will vary and will be determined by the Lake County Division of Transportation.
2. All single sign installations shall be installed with the bottom of the sign 5 feet above edge of pavement. Installations having two or more signs, the bottom of the lowest sign shall be 4 feet above edge of pavement.
3. All signs replaced will be erected using new "Telespar" system metal bases cut 3.5 feet long from 2 ¼ inch square material. They are to be driven into solid ground using pneumatic driver.

This work will not be paid for separately but shall be considered incidental to the contract.

SECTION 107.27 – INSURANCE

Insurance shall be in accordance with Section 107.27 of the Standard Specifications and the following Special Provisions:

1.0 Hold Harmless Clause

The Provider agrees to indemnify, save harmless and defend the **County of Lake, Commonwealth Edison, an Exelon Company**, their agents, servants, and employees and each of them against and hold it and them harmless from any and all lawsuits, claims, demands, liabilities, losses and expenses, including court costs

and attorney's fees, for or on account of any injury to any person, or any death at any time resulting from such injury, or any damage to property, which may arise or which may be alleged to have arisen out of or in connection with the work covered by this contract. The foregoing indemnity shall apply except if such injury, death or damage is caused directly by the willful and wanton conduct of the **County of Lake Commonwealth Edison, an Exelon Company**, their agents, servants, or employees or any other person indemnified hereunder.

2.0 Liability Insurance

The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the state of Illinois such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

2.1 Commercial General Liability

Commercial General Liability in a broad form on an occurrence basis, to include but not be limited to, coverage for the following where exposure exists; Premises/Operations, Contractual Liability, Products/Completed Operations, Independent Contractor's coverage to respond to claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees as well as claims for damages insured by usual personal injury liability coverage which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the contractor, or (2) by another person and claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use therefrom.

2.2 Worker's Compensation

Worker's Compensation Insurance shall be maintained covering all liability of the contractor arising under the Worker's Compensation Act and Worker's Occupational Disease Act at limits in accordance with the laws of the State of Illinois.

2.3 Employer's Liability

Employer's Liability shall be maintained to respond to claims for damages because of bodily injury, occupational sickness or disease or death of the Contractor's employees.

2.4 Automobile Liability

Automobile Liability Insurance shall be maintained to respond to claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle. This policy shall be written to cover any auto whether owned, leased, hired or borrowed.

2.5 Minimum Limits of Liability

The Contractor's liability insurance as required by paragraphs 2.1, 2.3 and 2.4 shall be written with limits of insurance not less than the following:

2.5.1 Commercial General Liability Insurance

*General Aggregate Limit (Other Than Products Completed Operations)	\$5,000,000
Products Completed Operations Aggregate Limit	\$4,000,000
Personal and Advertising Injury Limit	\$1,000,000
Each occurrence Limit	\$2,000,000

**The policy shall be endorsed for the general aggregate to apply on a "per project" basis.*

2.5.2 Employers Liability Insurance

Bodily Injury by Accident (Each Accident)	\$1,000,000
Bodily Injury by Disease (Each Employee)	\$1,000,000
Bodily Injury by Disease (Policy Limit)	\$1,000,000

2.5.3 Automobile Liability

Bodily Injury, Property Damage and Covered Pollution Cost or Expense (Each Occurrence Limit)	\$2,000,000
--	-------------

2.6 Insurance Conditions

Lake County, Commonwealth Edison, an Exelon Company, their agents, officers and employees shall be named as additional insured under ISO (Insurance Services Office) additional insured endorsement CG 20 26, edition date 10/93 or its equivalent. The Contractor's insurance shall be primary and non-contributory. The contractual liability insurance coverage shall be broad enough to respond to the liability assumed by the Contractor in the Hold Harmless Clause contained herein.

Coverage shall be provided for **Lake County, Commonwealth Edison, an Exelon Company**, their officers, agents and employees, all members of Boards, Commissions, Committees, Trustees and Organizations of the County, all volunteers and members of volunteer organizations and other non-paid personnel, including college and high school interns, while acting

on behalf of the County.

2.7 Certificates of Insurance

Certificates of Insurance with required endorsements acceptable to the County of Lake shall be filed with the County of Lake prior to commencement of the work, containing the following:

- 2.7.1 Be provided with a 30 day prior notice, in writing, of Notice of Cancellation, Non-Renewal, or material change specified within an endorsement by the insurance company.
- 2.7.2 Be provided with certificates of insurance evidencing the endorsement and endorsement as specified above and required insurance, prior to commencement of this contract and thereafter with certificates evidencing renewals, replacements and endorsements of said policies of insurance at least 15 days prior to expiration, cancellation or non-renewal of such policies.

2.8 Duration of Coverage

The insurance described herein shall be maintained for the duration of the contract, including warranty period.

2.9 Failure to Comply

In the event the Contractor fails to obtain or maintain any insurance coverages required under this agreement, Lake County may purchase such insurance coverages and charge the expense thereof to the Contractor.

3.0 Payment

All costs for insurance as specified herein will be considered as included in the cost of the contract.

SECTION 107.28 – CONSTRUCTION SAFETY AND HEALTH STANDARDS

It is a condition of this contract and shall be made a condition of each subcontract entered into pursuant to this contract that the CONTRACTOR and any SUBCONTRACTOR shall not require any laborer or mechanic employed in performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to his health or safety, as determined under Federal Construction Safety and Health Standards.

SECTION 107.30 – PARTNERS IN EXCELLENCE (PIE)

The CONTRACTOR shall be eligible for Lake County's **Partners in Excellence** award program to recognize premier suppliers to Lake County. In order to qualify, CONTRACTORS must provide on-time delivery of products/services, meeting or exceeding time allowed; provide value added assistance, i.e. trouble shooting, suggestions for operational improvements/efficiencies, new product information, etc., and; be rated Excellent (a score of 5) by a using department after one year of service.

SECTION 108.09 – FAILURE TO REOPEN CLOSED ROADS ON TIME

The CONTRACTOR shall not exceed the closure time specified in this contract. If the CONTRACTOR fails to open the road at the time specified, then the CONTRACTOR shall be liable for the calendar day amount shown in the schedule of liquidated damages in Article 108.09 of the "Standard Specifications."

Liquidated damages for failure to complete the work on time, and the penalty for deficiency charge as specified in the special provision for "Traffic Control and Protection" included herewith may be assessed in addition to liquidated damages due to failure to reopen a road.

This section is not applicable to the Butterfield Road Closure for Metra railroad track reconstruction.

CONSTRUCTION DEBRIS

Effective October 18, 1999

Add the following to the third paragraph of Article 202.03 of the Standard Specifications:

"The Contractor shall not conduct any generation, transportation, or recycling of construction or demolition debris, clean or general or uncontaminated soil generated during construction, remodeling, repair, and demolition of utilities, structures, and roads that is not commingled with any waste, without the maintenance of documentation identifying the hauler, generator, place of origin of the debris or soil, the weight or volume of the debris or soil, and the location, owner, and operator of the facility where the debris or soil was transferred, disposed, recycled or treated. This documentation must be maintained by the Contractor for 3 years."

20101100 - TREE TRUNK PROTECTION

Prior to construction, the CONTRACTOR shall install a snow fence or other highly visible barrier around designated trees in a manner meeting the ENGINEER'S approval. Visual barriers, such as single strand wire or plastic flagging, are not acceptable for this purpose. The barrier shall be maintained in the proper location and in good repair until the completion of construction. Removal and disposal of the barrier shall be the CONTRACTOR'S responsibility. TREE TRUNK PROTECTION will be paid for at the contract unit price per each designated tree.

20101200 - TREE ROOT PRUNING

Before any trenching or excavation in the area of a tree, tree roots shall be cut with appropriate root pruning equipment to a minimum of 24 inches deep. The cuts shall be made 6 to 12 inches closer to the tree than the construction limit. This allows for root regeneration (within the 6 to 12 inch area) during the construction period. Pruning shall not be done at the construction limit, since the cut surfaces of the roots remain exposed resulting in root dieback. TREE ROOT PRUNING will be paid for at the contract unit price per each tree.

20200100 – EARTH EXCAVATION

This work shall conform to the requirements of Section 202 of the "Standard Specifications", except that overhaul will not be paid for. In addition to items specified in Section 202 and as noted in the Plans and Special Provisions, Earth Excavation shall consist of:

1. Retaining Wall excavation to the lines shown.
2. Excavation to subgrade elevation.
3. Excavation for topsoil placement.
4. Placing and compacting suitable excavated material for fill areas in accordance with Section 205 of the "Standard Specifications".

Earth moved more than once due to construction staging and/or procedures selected by the CONTRACTOR will not be paid for separately but shall be considered included in the cost of Earth Excavation.

A soil survey and report is available for bidder's review at the office of the Lake County Division of Transportation, 600 West Winchester Road, Libertyville, IL (847) 362-3950.

This work shall be paid for at the contract unit price per cubic yard for EARTH EXCAVATION.

20700300 – POROUS GRANULAR EMBANKMENT, SPECIAL

POROUS GRANULAR EMBANKMENT, SPECIAL shall be used at all undercut locations as directed by the Engineer and along the back face of retaining wall from Station 154+00 to Station 157+00.

The work at undercut locations shall conform to Section 207 of the "Standard Specifications" and as follows.

The gradation shall be Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete

Sieve Size	Percent Passing
* 6" (150mm)	90 +/- 10
2" (50mm)	45 +/- 25
#200 (75 μ m)	5 +/- 5

* For undercut less than 6" (150mm), sieve size may be 4" (100mm).

Rolling each lift of the porous granular material with a vibratory roller meeting the requirements of Article 1101.01 (g) of the "Standard Specifications" should be sufficient to obtain the desired keying or interlock and necessary compaction. The Engineer shall verify that keying has been obtained.

Undercut and PGE placement in addition to the plan thickness will be done as field conditions warrant. No adjustment in unit price will be allowed for an increase or decrease in quantities from the estimated quantities shown in the plans. Any amount of POROUS GRANULAR EMBANKMENT, SPECIAL quantity not placed shall be deleted from the contract without any additional compensation to the Contractor.

The work along the back face of retaining wall from Station 154+00 to Station 157+00 undercut locations shall conform to Section 207 of the "Standard Specifications" except that the gradation shall be CA-5.

This work shall be paid for at the contract unit price per ton for POROUS GRANULAR EMBANKMENT, SPECIAL.

20800250 – TRENCH BACKFILL, SPECIAL

This work shall conform to the requirements of Section 208 of the "Standard Specifications" except that the aggregate may be a local material meeting the approval of the ENGINEER and the requirements outlined in the "Standard Specifications". For additional requirements and method of measurement refer to the LCDOT Standard Drawing LC6009.

This work will be paid for at the contract unit price per cubic yard for TRENCH BACKFILL, SPECIAL.

21101615 –TOPSOIL FURNISH AND PLACE, 4"

This item shall conform to Section 211 of the Standard Specifications. The CONTRACTOR shall provide all topsoil from outside the right of way. Plan quantities reflect 4" thick topsoil placement in all disturbed areas. The CONTRACTOR shall place the topsoil in such a manner as to prevent it from spilling into ditches or wetland areas.

TOPSOIL FURNISH AND PLACE, 4" will be paid for at the contract unit price per square yard.

21300010 – EXPLORATION TRENCH, SPECIAL

This item shall consist of excavating a trench at the locations directed by the ENGINEER for the purpose of locating existing tile lines within the construction limits of the proposed improvement. This work shall conform to the requirements of Section 213 of the "STANDARD SPECIFICATIONS" except as herein modified.

The trench shall be deep enough to expose the tile line, and the width of the trench shall be sufficient to allow proper investigation to determine if the tile line needs to be replaced.

The exploration trench shall be backfilled with trench backfill meeting the requirements of the "Standard Specifications", the cost of which shall be included in the item of Exploration Trench.

An estimated length of exploration trench as been shown in the summary of quantities to establish a unit price only, and payment shall be based on the actual length of trench explored without a change in unit price because of adjustment in plan quantities.

This work shall be paid for at the contract unit price per foot for EXPLORATION TRENCH, SPECIAL, and no extra compensation will be allowed for any delays, inconveniences or damage sustained by the CONTRACTOR in performing the work.

28000400 – PERIMETER EROSION BARRIER

This item of work shall be in accordance with section 280 of the "Standard Specifications" except that only silt filter fence shall be used.

This work shall be paid for at the contract unit price per linear foot for PERIMETER EROSION BARRIER.

40200800 – AGGREGATE SURFACE COURSE, TYPE B

The CONTRACTOR shall maintain ingress and egress to all abutting properties during construction operations. Temporary driveways and entrances shall be constructed of aggregate in accordance with the applicable portions of Section 351 of the "Standard Specifications for Road and Bridge Construction" and to the dimensions determined by the ENGINEER. The coarse aggregate shall be crushed stone or crushed gravel, gradation shall be CA-6.

Maintenance shall consist of placing and compacting additional aggregate of the same type and gradation as the base aggregate.

After these driveway aprons have served their purpose, the suitable aggregate shall be removed, and, at the direction and approval of the ENGINEER, utilized for other purposes, such as granular subbase, aggregate base course, and embankment construction or other driveway aprons or otherwise disposed of as specified in Article 202.03 of the Standard Specifications.

This work will be paid for at the contract unit price per ton for AGGREGATE SURFACE COURSE, TYPE B which price shall be payment in full for furnishing, transporting, placing, maintaining and removing, reusing or disposing of the aggregate, as herein specified and as directed by the ENGINEER.

Payment for aggregate will be determined by weight tickets and will be paid for its initial use only regardless of the number of times the aggregate is moved.

40600100 – BITUMINOUS MATERIALS (PRIME COAT)

Prime coat shall meet the specifications of Article 406.06 (b) of the "Standard Specifications for Road and Bridge Construction" with the following revisions and additions:

Emulsified asphalt shall only be used between the dates of May 15th and September 1st. On or before May 15th and on or after September 1st, RC-70 asphalt shall be used in lieu of emulsified asphalt.

On days between May 15th and September 1st, when the air temperature is in question, the exact type of priming asphalt shall be determined by the ENGINEER.

Shields, covers or other suitable equipment shall be provided by the CONTRACTOR to protect the motoring public, adjoining pavement, curbs, or structures during the application of prime coat. The CONTRACTOR will be required to present a weight ticket of the truckload prior to applying the prime coat. After application the truck shall then be weighed again in order to determine the net weight of prime coat that has been placed. Both tickets shall be stamped by the certified weighmaster.

The CONTRACTOR shall erect (to the ENGINEER's satisfaction) 36 inch by 36 inch minimum FRESH OIL AHEAD signs prior to the prime coat application. Prime Coat material shall be SS-1 on existing bituminous surfaces and MC30 on aggregate surfaces (subject to the date and temperature restrictions indicated above). This work shall be paid for at the contract unit price per gallon for BITUMINOUS MATERIALS (PRIME COAT).

40600990 – TEMPORARY RAMP

This work shall consist of constructing and removing a bituminous concrete ramp at locations required to provide access during construction. In general, temporary ramps shall be constructed at access points, stage construction limits with grade differences of 1 1/2 inches or greater or at locations as directed by the ENGINEER.

Temporary ramps shall be constructed at a minimum width of 8 feet and at a maximum slope of 8%.

Ramps shall be placed and compacted in one lift. Compaction shall be completed with a roller or a mechanical tamper.

Temporary ramps will be measured and paid for at the contract unit price per square yard for TEMPORARY RAMP.

42001300 - PROTECTIVE COAT

This work shall conform to the requirements of Articles 420.21 and 1023.01 of the "Standard Specifications," except that the protective coat shall be applied in all cases regardless of the calendar date limitations contained in Article 420.21. The protective coating shall be applied to the exposed surfaces of the concrete curb and gutter, sidewalk, and concrete headwalls and retaining walls. Concrete curing shall be limited to methods specified in Article 1020.13 (a) [1], [2], and [3]. PROTECTIVE COAT will be paid for at the contract unit price per square yard.

42400430 – PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH, SPECIAL

This work shall consist of the installation of a Portland Cement Concrete Sidewalk with a compacted stone base to be performed in accordance with Section 311, 424 and 440 of the STANDARD SPECIFICATIONS. Sidewalks shall be placed on 4 inches of Compacted Aggregate Base Course, Type A (Special). Expansion joints shall be placed at intervals of not more than 50 feet. At driveway apron locations, the depth of concrete shall be increased to 6 inches. All required removal and excavation shall be included. The removal of existing sidewalk is not included in this work. Sidewalk ramps shall be constructed according to the Americans with Disabilities Act Accessibility Guidelines (ADAAG)

This work will be paid for at the contract unit price per square foot for PORTLAND CEMENT CONCRETE SIDEWALK, SPECIAL, of the thickness specified which price shall include all required expansion joints, variable height edge treatment at sidewalk ramps, compacted Aggregate Base Course, sidewalk ramps and required removal and excavation. Detectable warnings (per BDE 80146) will be paid for as DETECTABLE WARNINGS.

44000008 – BITUMINOUS SURFACE REMOVAL 2 1/2”

This work shall be done in accordance with the applicable portions of Section 440 of the “Standard Specifications” and shall consist of milling bituminous pavement to the depths, locations, and limits specified in the plans. If the milling machine cuts too deep or tears out areas of the existing pavement which were to be saved, the holes shall be filled with leveling binder at the CONTRACTOR’S expense. Temporary ramps at butt joints must be provided in accordance with 406.18 of the “Standard Specifications.”

This item of work will be paid for at the contract unit price per square yard for BITUMINOUS SURFACE REMOVAL of the depth specified.

48100500 – AGGREGATE SHOULDERS, TYPE A 6”

This work shall conform to the requirements of Section 481 of the “Standard Specifications” with the exception that the material shall be limited to crushed gravel, crushed stone or crushed concrete. The plasticity index requirements and the requirements for adding water at the central mixing plant will be waived.

This work shall be paid for at the contract unit price per ton for AGGREGATE SHOULDERS, TYPE A.

50105220 – PIPE CULVERT REMOVAL

This work shall consist of the removal of reinforced concrete pipe culverts and corrugated metal pipe culverts in accordance with Section 501 and as modified herein.

Existing pipe culverts shall be removed so that all pipe and flared end sections considered suitable by the ENGINEER for future use shall be salvaged. The location and manner of storage of salvaged material shall be as directed by the ENGINEER. Any of the material having salvage value which has been damaged by the CONTRACTOR shall be replaced by the CONTRACTOR, at his/her own expense, with new pipe of the same kind and size. Material not suitable for salvage shall be disposed of by the CONTRACTOR in accordance with Article 202.03 of the Standard Specifications.

Trenches resulting from the removal of pipe culverts shall be backfilled in accordance with the applicable requirements of Article 550.07.

Pipe culvert removal will be paid for at the contract unit price per foot for PIPE CULVERT REMOVAL, regardless of diameters, which price shall include all excavation and backfilling, and removing and salvaging the pipe and flared end sections.

50300510 – RUSTICATION FINISH

This work consists of providing a rustication finish on concrete surfaces and conforms to Section 503 of the "Standard Specifications" and the following:

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

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 1/8 inch +/-, the location of the rustication joints shall be within 1/2 inch +/-, the maximum variation of a joint from a straight line shall be 1 ¼ inch +/- in 10 feet.

The Contractor shall submit to the Engineer proposed construction procedures to achieve the approved rustication finish. The Contractor's method of obtaining the surface texture specified on the plans shall be subject to approval by the Engineer.

The Lake County Division of Transportation prefers the Pattern No. 12010 - Minnehaha Blend (Custom Rock International) and has approved the following form liner suppliers for the rustication finish:

Custom Rock International
1156 Homer Street
St. Paul, Minnesota 55116
(800) 637-2447
www.custom-rock.com

Pattern No. 12010 Minnehaha Blend

Fitzgerald Formliners
1341 East Pomona Street
Santa Ana, California 92705
(714) 547-6710
www.formliners.com

Greenstreak
3400 Tree Court Industrial Boulevard
St. Louis, Missouri 63122
(800) 325-9504
www.greenstreak.com

The Contractor shall submit to the Engineer for approval a 2 foot x 2 foot sample panel prior to casting the structure to receive the rustication finish. The sample panel shall be cast using the concrete mix and aggregate proposed for use in the work. Concreting and formwork operations, in preparation of the sample panel, shall follow actual work procedures in so far as practical. In any event, the approved panel shall be used as the control for the appearance of the finished work. Any work found to be unsatisfactory to the Engineer shall be corrected as required by the Engineer, at no additional cost.

The Contractor shall notify the Engineer at least 48 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. The area of Rustication Finish will be dimensions indicated on the plans or as directed by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per square feet for RUSTICATION FINISH, which shall include all work as specified herein.

56200XXX- WATER SERVICE LINE

This item consists of furnishing and installing new Type K copper water service lines of the same diameter (1" diameter minimum) as the existing water service lines, in accordance with Section 562 of the STANDARD SPECIFICATIONS and Section 41-2.11 of the WATER AND SEWER SPECIFICATIONS and as detailed in the plans.

Some existing service lines are lead or galvanized steel. The CONTRACTOR shall provide the proper couplings between copper and lead or galvanized steel. No couplings will be allowed beneath the proposed pavement. All service line shall be replaced through the curb stop and reducer, if necessary, shall be considered incidental to the price for WATER SERVICE LINE. Where new domestic water service boxes are installed, water service line shall be 1" diameter.

The work specified above, including all labor, equipment, materials, fittings and couplings necessary to provide complete water service to the properties, shall be paid for at the contract unit per foot for WATER SERVICE LINE, of the diameter specified. New corporation stops and water service boxes will be paid for separately.

5610XXXX – DUCTILE IRON WATER MAIN

This item shall be constructed in accordance with the applicable portions of Section 561 of the STANDARD SPECIFICATIONS and with the applicable portions of Section 41 of the WATER AND SEWER SPECIFICATIONS except as modified herein.

The water main shall be ductile iron, cement-mortar lined, push-on joint, pressure class 350, thickness class 52, of the size as designated in the plans, and shall conform to the latest ANSI/AWWA. C151/A21.51. Ductile iron pipe for water main shall be Tyton Joint Pipe as manufactured by U.S. Pipe or an approved equal.

Wherever water is encountered in the trench, it shall be removed during pipe laying and jointing operations. Provisions shall be made to prevent floating of the pipe. Any dewatering of the trenches shall be considered incidental. At no time shall trench water be allowed to enter the water main. Water main shall be installed to provide a minimum of 5.5' of cover.

All types of pipe shall be handled in such a manner as to prevent damage to the pipe or coating. Accidental damage to the pipe or coating shall be repaired to the satisfaction of the ENGINEER, or be removed from the job, and the methods of handling shall be corrected to prevent further damage when called to the attention of the CONTRACTOR.

The pipe shall be inspected by the ENGINEER for defects while suspended above grade.

Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations, and any pipe or fitting that has been installed with dirt or foreign material therein shall be removed, cleaned and re-laid. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug, or by other means subject to the review of the ENGINEER, to ensure absolute cleanliness inside the pipe. All cutting of existing water main pipe for the insertion of valves, tees or other fittings shall be performed without damage to the pipe or pipe lining, and so as to leave a smooth end at right angles to the axis of the pipe. Any damaged water main shall be re-cut and replaced by the CONTRACTOR at his sole expense.

All mechanical joints at any valve, bend, reducer, cross, tee or wye shall be restrained using an approved retainer gland. Also, any joint where the proposed water main ties into the existing water main shall be restrained with retainer glands. Retainer glands shall be Series 1200, Mechanical Joint Ductile Iron Retainer Glands by EBAA Iron, or an equal approved by the ENGINEER. Also all bends, crosses and tees shall be additionally restrained with thrust blocks as shown on the details in the plans. The cost of thrust blocks shall be considered included in the cost of the ductile iron water main. The cost of retainer glands shall be considered included in the cost of the associated water main fitting, of weight shown.

PRESSURE TESTING OF WATER MAINS

After the pipe has been laid and partially backfilled as specified herein, all newly-laid pipe or any valved sections of it shall, unless otherwise expressly specified, be subjected to a hydrostatic pressure of 150 psi at the lowest elevation of the pipe section. The duration of each pressure test shall be not less than one hour. Water main testing shall be in accordance with the applicable portions of AWWA Standards C600 and C603, or as otherwise modified herein.

Procedure for Test - The CONTRACTOR shall notify the VILLAGE OF LIBERTYVILLE Utilities Division Personnel at least forty-eight hours prior to the pressure test. Valves will be turned on only under the supervision of Village Utilities Division Personnel who will witness all pressure testing.

Each section of pipe to be tested, as determined by the ENGINEER, shall be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. The pump must be disconnected for the duration of the pressure test. The pump pipe connection and all necessary apparatus, including gauges and meters, shall be furnished by the CONTRACTOR. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevations and afterwards tightly plugged. Any cracked or defective pipes, fittings, valves, or hydrants discovered in consequence of this pressure test shall be removed and replaced by the CONTRACTOR with sound material, and test shall be repeated until satisfactory to the ENGINEER and the VILLAGE. The provisions of AWWA C600 and C603, where applicable, shall apply.

The pressure testing shall be accomplished with fire hydrant auxiliary valves open.

Leakage Test: After completion of the pressure test, a leakage test shall be conducted to determine the quantity of water lost by leakage under the specified test pressure.

1. Test pressure is defined as the maximum operating pressure of the section under test, and is based on the elevation of the lowest point in the line or section under test corrected to the elevation of the test gauge. Applicable provisions of AWWA C600 and C603 shall apply. The minimum duration of each leakage test shall be one (1) hour in addition to the pressure test period.
2. Allowable leakage in gallons per hour for cast iron water main shall not be greater than that determined by the following formula:

$$L = \frac{ND \sqrt{P}}{7400}$$

Note: L = Allowable leakage in gallons per hour

N = Number of joints in length of pipeline tested.

D = Nominal diameter of the pipe in inches.

P = Average test pressure during leakage test in pounds per square inch gauge.

3. Leakage is defined as the quantity of water to be supplied in the newly laid pipe or any valved section under test, which is necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

Immediately after a passed test the pressure shall be drained through a fire hydrant until it is below the potable system pressure.

DISINFECTION OF WATER MAINS

The VILLAGE OF LIBERTYVILLE Utilities Division Personnel shall be notified at least forty-eight hours before the disinfection procedure. Representatives of the Utilities Division Personnel must be present during the procedure.

A. Flushing

Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. If no hydrant is installed at the end of the main, then a tap should be provided large enough to develop a velocity of at least two and five-tenths (2.5) feet per second in the main. One two and one-half (2 1/2) inch hydrant opening will, under normal pressures, provide this velocity in pipe sized up to and including twelve (12) inches.

All taps required for chlorination or flushing purposes, or for temporary or permanent release of air, shall be provided for by the CONTRACTOR as part of the construction of water mains.

B. Requirement of Chlorine

A free chlorine residual of at least 50 ppm and no more than 400 ppm must be reached throughout the entire length and branch lines of the water main. After the super-chlorinated water has sat in the main for twenty-four hours, a chlorine residual test shall be taken to insure the residual has not dropped by over one-half.

C. Form of Applied Chlorine

Chlorine shall be applied by the method which follows, subject to the review of the ENGINEER.

Chlorination shall be made by the use of chlorine gas only. The dry gas shall be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding the chlorine gas must provide means for preventing the backflow of water into the chlorine. The chlorine gas shall be injected into the main at intervals of no more than 1,000 feet.

D. Point of Application

The preferred point of application of the chlorine gas is at the beginning of the pipe line extension or any valved section of it, and through a corporation stop inserted in the pipe. The water injector for delivering the chlorine-bearing water into the pipe should be supplied from a tap made on the pressure side of the gate valve controlling the flow into the pipe line extension. Alternate points of application may be used subject to the review of the ENGINEER.

E. Preventing Reverse Flow

Valves shall be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. Check valves may be used if desired.

F. Retention Period

Treated water shall be retained in the pipe at least twenty-four (24) hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least twenty-five (25) mg/l.

G. Chlorinating Valves and Hydrants

In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipe line is filled with the chlorinating agent and under normal operating pressure.

H. Final Flushing and Testing

Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its entire length shows, upon test, a chlorine residual of less than one (1) mg/l. In the event chlorine is normally used in the source of supply, then the test shall show a residual of not in excess of that carried in the system.

At this time a water sample will be taken by the CONTRACTOR or his representative and sent to a state-certified water lab of his choice. Also at this time certified water personnel from VILLAGE will witness the sampling. The CONTRACTOR shall take two (2) samples, 24 hours apart with satisfactory results or the procedure shall be repeated. One sample from representative points, the Village of Libertyville shall collect and have samples analyzed.

I. Repetition of Flushing and Testing

Should the initial treatment result in an unsatisfactory bacterial test, two consecutive day satisfactory samples must be collected. If either samples are unsatisfactory, after water main passes chlorination testing, the corporation stop used to chlorinate the main shall be shut off and any piping removed.

Basis of Payment. This work will be paid for at the contract unit price per foot for DUCTILE IRON WATER MAIN, of the diameter specified, measured in place. This price shall include the cost of all pipe, joint materials, thrust blocks, hydrostatic pressure tests, leakage tests, disinfecting of the water main and excavation.

This item shall also include any and all items such as corporation stops (for testing), water pumps, gauges, meters and laboratory test costs, and all other items necessary to complete this work as specified. Fittings such as tees, bends, reducers, and corporation stops for water service lines, shall be paid for separately, as specified elsewhere herein.

5610XXXX – WATER VALVES

Water valves shall be of the gate valve type suitable for ordinary water-works service, intended to be installed in a normal position on buried pipe lines for water distribution systems.

As a minimum, all gate valves shall, in design, material and workmanship, conform to the standards of the latest AWWA C500 and AWWA C509. All materials used in the manufacture of waterworks gate valves shall conform to the AWWA standards designed for each material listed.

Materials

1. **Manufacturer and Marking** - The gate valves shall be standard pattern and shall have the name or mark of the manufacturer, size and working pressure plainly cast in raised letters on the valve body. Gate valves shall be American Flow Control, Series 500, Resilient Wedge Valve or American Flow Control, Series 2500, Ductile Iron Resilient Wedge Valve or equal approved by the VILLAGE OF LIBERTYVILLE.
2. **Type and Mounting** - The valve bodies shall be mounted with approved non-corrosive metals. All wearing surfaces shall be bronze or other approved non-corrosive material and there shall be no moving bearing or contact surfaces of iron in contact with iron. Contact surfaces shall be machined and finished in the best workmanlike manner, and all wearing surfaces shall be easily renewable. All trim bolts shall be 300 series stainless steel.

The resilient-seated disc wedge shall be of the resilient wedge fully-supported type. Solid guide lugs shall travel within channels in the body of the valve. The disc and guide lugs shall be fully (100%) encapsulated in SBR (styrene butadiene) rubber.

Disc wedges that are not 100% fully encapsulated shall not be acceptable. Guide caps of an acetal copolymer bearing material shall be provided to protect the rubber-encapsulated solid guide lugs from abrasion for long life and ease of operation.

All internal and external exposed ferrous surfaces of the valve shall be coated with a fusion-bonded, thermosetting powder epoxy coating conforming to AWWA C550 and certified to NSF 61. Coating shall be non-toxic and shall impart no taste to water. Coating thickness shall be nominal 10 mils.

The stem shall be of high tensile strength bronze or other approved non-corrosive metal, providing 70,000 PSI tensile strength with 15% elongation and a yield strength of 30,000 PSI. All nonferrous bushings shall be of substantial thickness, tightly fitted and pressed into machine seats. All valves shall open by turning to the left (counterclockwise), unless otherwise specified.

3. End Connections - End connections of gate valves shall consist of Mechanical Joints.

All gate valves are to be installed in concrete valve vaults as detailed in the plans. The valves shall be wrapped with polyethylene film, as specified in the Special Provision for "Ductile Iron Water Main", included elsewhere herein. Valves shall be installed using stainless steel bolts.

This work will be paid for at the contract unit price each for WATER VALVES, of the size specified. This price shall include the cost of all labor, materials and equipment necessary to install the gate valve in a valve vault, as detailed in the plans and to the satisfaction of the ENGINEER. The valve vault will be paid for separately.

56106XXX – ADJUSTING WATER MAIN

This work shall consist of adjusting water main in conflict with sewer to be constructed.

Materials for adjusting water main shall be ductile iron pipe, Class 52, conforming to ANSI/AWWA C151/A21.51-86, Standard for Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand Lines Molds, for Water or Other Liquids. Ductile iron pipe shall be cement lined in accordance with AWWA C104, Standard for Cement Mortar Lining and Ductile Iron and Gray Iron Pipe and Fittings for Water. Fittings shall be ductile iron or cast iron in accordance with AWWA C110, Standard for Ductile Iron and Gray Iron Fittings, 3-in. through 48-in., for Water and Other liquids, and AWWA 151. Pipe joints shall be mechanical or push-on in accordance with AWWA C111, Standard for Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings. Refer to the latest revision for the above AWWA standards. All mechanical joint fittings shall be installed with corten bolts. All joints shall be restrained using Mega Lugs by EBAA Iron or an approved equal. A maximum of a 45 degree bend is permitted unless approved by the ENGINEER.

Installation requirement shall be in accordance with Section 561 of the STANDARD SPECIFICATIONS, and shall be completed within the work hours designated by the ENGINEER.

This work shall be measured and paid for at the contract unit price per linear foot, as measured along the centerline of the pipe, for ADJUSTING WATERMAIN, of the diameter specified. Said price shall include the cost of all pipe, fittings, joint materials, retainer glands, hydrostatic test, disinfection of water main, removal and disposal of old water main and all excavation. Trench backfill will be measured and paid for as specified in the SPECIAL PROVISION for TRENCH BACKFILL, SPECIAL, included elsewhere herein.

56201600 – CORPORATION STOPS

This work shall consist of furnishing and installing corporation stops for new water service lines connected to new or existing water mains, in accordance with Section 562 of the STANDARD SPECIFICATIONS, Section 41-2.11 of the WATER AND SEWER SPECIFICATIONS, and as detailed on the plans.

The corporation stops shall be Ford or McDonald Compression Type or equal approve by the Village of Libertyville.

This work shall be paid for at the contract unit price each for CORPORATION STOPS 1 1/2", which price shall be payment in full for all labor, equipment, and material required to complete the work as specified herein.

56400400 – FIRE HYDRANTS TO BE RELOCATED

This work shall be performed in accordance with Section 564 of the Standard Specifications, with applicable portions of Section 45 of the Water and Sewer Specifications, with applicable portions of AWWA C502 and with the following alterations.

564.02 General. Add the following:

This work shall consist of removing existing hydrant, valve, and valve box and installing the hydrant, valve, and valve box at the proposed location. A minimum of 1/2 cubic yard of coarse aggregate shall be placed at and around the base of the hydrant and valve to insure proper drainage of the hydrant after use. The hydrant shall be set on a thrust block to insure firm bearing for the hydrant base. The hydrant, valve, and tee shall be interconnected with steel tie rods. The Contractor shall submit his method of construction of the tie rods to the Engineer for prior review. Stainless steel bolts shall be used at all fittings.

External above-grade surfaces of fire hydrants shall be coated by the manufacturer with one coat of alkyd based, lead and chrome-free buff primer and two coats of alkyd based, chain-stopped gloss enamel conforming to Waterous M4182, Federal Safety Yellow Hydrant Enamel. Hydrants having been coated with any other coating or color shall not be accepted.

564.03 Basis of Payment. Adjusting fire hydrants and valves and moving fire hydrants and valves will be paid at the contract unit price per each FIRE HYDRANTS TO BE RELOCATED accordingly, which price shall include all excavation; furnishing all appurtenances, including tie rods, thrust blocks and extensions authorized by the Engineer; connections to existing water mains, backfilling, including coarse aggregate; and disposal of excavated materials, labor and material necessary to complete the work as shown on the plans and as specified herein.

56400500 – FIRE HYDRANTS TO BE REMOVED.

This work shall consist of the removal of existing fire hydrants, including auxiliary valves and plugging and blocking of abandoned water main as indicated on the plans or required by the ENGINEER. The existing fire hydrants are not to be removed until after the new fire hydrants have been installed, tested and approved. The fire hydrants to be removed shall become the property of the VILLAGE OF LIBERTYVILLE and shall be delivered to the Public Works Facility. If the VILLAGE OF LIBERTYVILLE does not want the removed fire hydrants, they shall become the property of the CONTRACTOR.

This work will be paid for at the contract unit price each for FIRE HYDRANTS TO BE REMOVED, which price shall be payment in full for all labor, equipment and material necessary to complete the work as specified herein.

56400820 – FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX

As a minimum, the design, materials and workmanship of all fire hydrants shall conform to the applicable portions of AWWA C502 as well as Section 45 of the WATER AND SEWER SPECIFICATIONS.

All fire hydrants shall be Clow Medalion. All hydrants must have a safety break flange no more than 2" above finished grade. The depth of bury on all hydrants shall be 5.5'. The finished grade on all hydrants shall be no more than 20" from finished grade to the center of the pumper cap. All fire hydrants shall be equipped with an attached auxiliary valve and cast iron valve box. The auxiliary valve shall be in accordance with the WATER VALVE special provision included elsewhere herein. The water main from the hydrant to the water main shall be a six (6) inch ductile iron water pipe conforming to AWWA Standards C151, C111, and C104. The valve boxes shall be the adjustable type, shall be set at finished grade, and shall have the valve box covers stamped "Water".

Fire hydrants shall be installed as shown on the details included in the plans. A minimum of 2 cubic yard of coarse aggregate shall be placed at and around the base of the hydrant to insure proper drainage of the hydrant after use. The hydrant shall be set on a concrete block to insure firm bearing for the hydrant base. The hydrant, valve and tee shall be interconnected with steel tie rods. The CONTRACTOR shall submit his method of construction of the tie rods to the ENGINEER for prior review. All joints shall be restrained using retainer glands. Thrust blocks will not be required at the base of the hydrant. Ductile Iron bolts shall be used at all fittings.

Fire hydrants shall be placed at the locations as shown on the plans or as directed by the ENGINEER:

All fire hydrants must be installed in accordance with Village of Libertyville Specifications and must be inspected by the Utilities Division Personnel prior to any backfilling.

This work will be paid for at the contract unit price each for FIRE HYDRANTS WITH AUXILIARY VALVE AND VALVE BOX, which price shall include the cost of all labor, materials, and equipment necessary to install the fire hydrant with auxiliary valve and valve box, as detailed in the plans and to the satisfaction of the ENGINEER. The cost of all tie rods shall be incidental to this item.

56500600 – DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED

This work shall be performed in accordance with the requirements of Section 565 of the "Standard Specifications". Domestic Water Service Boxes will be adjusted at locations shown on the plans and as directed by the ENGINEER

The top of the box shall be adjusted and set flush with the proposed ground surface grade.

This work will be paid for at the contract unit price each for DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED. This price shall include all labor, equipment and materials necessary to perform the work as herein specified.

56500800 – DOMESTIC WATER SERVICE BOXES

All corporation and curb stops shall be fabricated of brass and shall be provided with outlets suitable for copper connections.

The McDonald 1 1/2" Minneapolis Pattern B-Box 5615 with a 5614L lid.

The cast iron service box shall be installed over the curb stop and held in a truly vertical position until sufficient backfill has been placed to ensure permanent vertical alignment of the box. The top of the box shall be adjusted and set flush with the established ground surface grade.

Domestic Water Service Boxes shall be installed at all locations where meter vaults and 5614L B-boxes have been removed or at locations as directed by the ENGINEER.

Furnishing and installing curb stops, curb boxes, and any couplings and service line required to connect to the existing service shall be paid for at the contract unit price each for DOMESTIC WATER SERVICE BOXES. This price shall include all labor, equipment and materials necessary to perform the work as herein specified.

60201340 – CATCH BASINS, TYPE A, 4'- DIAMETER, TYPE 24 FRAME AND GRATE

This work shall be performed in accordance with the requirements of Section 602 of the "Standard Specifications", and Standard Drawing 602001. The half trap option as shown on Standard Drawing 602001 will not be required, and a 24" sump shall be provided. CATCH BASINS, TYPE A will be paid for at the contract unit price per each for the diameter specified, and frame and grate or frame and lid specified.

602XXXXX – RESTRICTED DEPTH MANHOLES AND RESTRICTED DEPTH CATCH BASINS

This work shall be in accordance with Section 602 of the "Standard Specifications" and Standard Drawings 602001 or 602401 and LCDOT 1007, except that the half-trap as shown on Standard Drawing 602001 shall be omitted and an 18-inch sump will be provided on the Catch Basin.

For structures having Type 8 grates, a 2 foot by 4-inch (minimum) high riser shall be installed on the flat slab.

This work shall be paid for at the contract unit price each for RESTRICTED DEPTH MANHOLE or RESTRICTED DEPTH CATCH BASINS of the diameter and with the frame and lid or grate specified.

60228100 - MANHOLES, SANITARY, WITH TYPE 1 FRAME, CLOSED LID

Sanitary sewer manholes shall be of the precast reinforced concrete type and shall comply with ASTM C-478 and be provided with monolithically precast base, unless the requirements of the installation or the Drawings show otherwise. Each manhole shall be provided complete in accordance with the Drawings and the following:

1. Top: Precast concrete, of cone, top type, as indicated.
2. Base: Precast concrete, with base riser section and separate base slab, as indicated; except that separate base slab shall be provided as required for the application.
3. Steps: Ductile-iron Neenah 1981-1 integrally cast into manhole sidewalls.
4. Pipe Connectors: Resilient, complying with ASTM C 923.
5. Cast Iron Frames and Lids: All frame and lid castings shall conform to the requirements of gray iron castings ASTM A48 or ductile iron castings grade 60-40-18 proof loaded in accordance with Federal Specifications RR-F-621b, Section 3.8. All closed lids for sanitary applications shall be indented top design and have the word "SANITARY" and "VILLAGE OF LIBERTYVILLE" cast into the lid for each respective structure and shall be of the water proof, self-sealing type; and shall be Neenah R1772 Type "B" with self-sealing lid or EJIW 1022-1HD. Where noted on the Drawings, watertight, bolt down lids shall be installed.
- 6.
7. Chimney Seal: External Manhole Chimney Seal shall be provided and shall consist of a rubber sleeve, compression band and extension skirt. Rubber sleeve shall be high grade rubber compound conforming to ASTM C293 with a hardness of 45 plus or minus 5. Compression bands shall be 16 gauge Type 304 stainless steel with a minimum width of 1 inch. Extension skirt shall be fiberglass reinforced PVC, impervious to tear and puncture, with a minimum weight of 12 ounces per square yard. External manhole chimney seal shall be as manufactured by Canusa, Infishield or approved equal.
8. Vacuum Testing of Manholes: Manholes shall be tested before the ring and cover and grade adjustment rings are installed, and after backfill and compaction is complete. Tests shall be performed in accordance with ASTM C1244 and these Specifications.
 - a. Preparation for tests:
 - (1) All lift holes, joints and other imperfections shall be filled with an approved non-shrink grout, to provide a smooth finish appearance.

- (2) All pipes entering the manhole shall be temporarily plugged, taking care to securely brace the pipes and plugs to prevent them from being drawn into the manholes.

b. Test procedure:

- (1) The test head shall be placed at the top of the manhole in accordance with the manufacturer's recommendation.
- (2) A vacuum of 10-inches mercury shall be drawn in the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to 9-inches mercury.
- (3) The manhole shall pass if the time for the vacuum reading to drop from 10-inches mercury to 9-inches mercury meets or exceeds the values indicated in the following table:

Minimum Test Times for 48" Manhole	
Depth (ft)	Times(s)
8	20
10	25
12	30
14	35
16	40
18	45
20	50
22	55
24	59
26	64
28	69
30	74

- c. If the manhole fails any test, necessary repairs shall be made by an approved method and the manhole shall be retested until a satisfactory test is obtained.

The work shall be measured and paid for at the contract unit price for each MANHOLE SANITARY, WITH TYPE 1 FRAME CLOSED LID, of size and type specified, of frame and lid specified which price will include all excavation, materials, labor, backfilling and testing.

60248900 – VALVE VAULTS, TYPE A, TYPE 1 FRAME, CLOSED LID, SPECIAL

This work shall conform to the requirements of Section 602 of the STANDARD SPECIFICATIONS, plan details and IDOT Standard Drawing 602501.

Lids for valve vault shall have the words "VILLAGE OF LIBERTYVILLE" and "WATER" cast into them.

Removal of existing valve box, where applicable, will be considered incidental to this pay item.

This work will be paid for at the contract unit price each for VALVE VAULTS, TYPE A, TYPE 1 FRAME, CLOSED LID, SPECIAL, of the diameter specified, which price shall include all materials, labor and equipment required to complete the work as specified.

602449400- VALVE BOXES 6"

Description. This work shall consist of constructing valve boxes for water mains and water services in accordance with Section 44 of the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois" and Section 602 of the latest edition of the "Standard Specifications for Road and Bridge Construction" except as modified herein.

In addition to the requirements of Sections 44-2.01 and 44-3.02 valve boxes shall meet the following requirements:

1. Adjustable valve boxes shall be provided on buried valves:
 - a. Valve boxes shall be compatible with size and type of valve protected.
 - b. Valve boxes shall be extended to finished grade.
 - c. Valve box cover shall be marked "VILLAGE OF LIBERTYVILLE" and "WATER".
 - d. Bituminous coated carbon steel valve extension stems and 2-inch square operating nuts 2 inches below the cover shall be provided.
 - e. Two valve operating tee wrenches with 2-inch square socket, 24-inch long, 1-1/2 inch pipe handle, and 48-inch long 1-1/2 inch pipe stem shall be provided.

This work will be paid for at the contract unit price each for VALVE BOXES which price shall include all cast iron valve boxes, valve extensions, operating wrenches and all excavation and backfill.

VALVES shall be paid for separately.

60266500 – VALVE VAULTS TO BE REMOVED

This item shall be performed in accordance with applicable provision of Section 605 of the "Standard Specifications for Road and Bridge Construction".

Add "valve vaults" after the words "catch basins" to the following Articles: 605.01, 605.03, 605.05, and 605.06

This work will be paid for at the contract unit price each for VALVE VAULTS TO BE REMOVED.

6060XXXX – COMBINATION CONCRETE CURB AND GUTTER OR CONCRETE CURB

This work shall be in accordance with Section 606 of the "Standard Specifications" and Standard Drawing 606001 with the following exceptions:

In addition to the requirements of Standard Drawing 606001, 1" expansion joints shall be constructed at maximum intervals of 150 feet.

Concrete curing methods shall be limited to methods as specified in Article 1020.13 (a) [1], [2] and [3].

The end treatments as specified in the plans shall conform to the special details. Where no end treatment is specified, curb and gutter endings shall be transitioned to a flat section in 6 feet.

Transitions between Type B-6.24 and Type M-4.24 Curb and Gutter, and between Type B-6.24 and Type B-6.12 Curb and Gutter will be paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24.

This work will be paid for at the contract unit price per foot for COMBINATION CONCRETE CURB AND GUTTER, of the type specified, or CONCRETE CURB of the type and size shown in the plans.

70101700 - TRAFFIC CONTROL AND PROTECTION (SPECIAL)

Traffic Control Plan (L.C.-T- Section 700), Effective 08/08/2005

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, Millennium Edition" "Quality Standard for Work Zone Traffic Control Devices", any special details and Highway Standards contained in the plans and the special provisions contained herein.

Special attention is called to Articles 105.05, and 107.09, and to Sections 701, 702, 704, and 782 of the "Standard Specifications", and to the following Highway Standards, Details, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The Contractor shall contact the Engineer at least 72 hours in advance of beginning work.

Detours

Detours and Road Closures on County Maintained Roads within Lake County, Illinois 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", the Lake County Division of Transportation's Detour Procedures and Guidelines, any special details and Highway Standards contained in the Detour Plan and the Special Provisions contained herein. The LCDOT's Detour Procedures and Guidelines is available from the LCDOT, Traffic Engineering Section upon request.

Standards

LC7001, LC7003, LC7005, LC7006, LC7007, LC7008, TC10, TC 11, TC 13, TC 16, TC 22, 701421-01, 701422-01, 701426-02, 701502-01, 701606-04, 701801-03, 702001-05, 704001-02.

Associated Special Provisions

80101	FLAGGER VESTS
80092	TEMPORARY CONCRETE BARRIER
80087	TEMPORARY EROSION CONTROL
80097	WORK ZONE TRAFFIC CONTROL DEVICES

Traffic Control and Protection (L.C.-T- Section 700), Effective 08/08/2005

The Traffic Control and Protection shall meet the requirements of Section 700. Work

Zone Traffic Control, Signing and Pavement Marking of the "Standard Specifications" except as follows:

Article 701.01 "Description" shall be replaced with the following:

701.01 Description. This item of work shall include furnishing, installing, maintaining, replacing, relocating and removing all traffic control devices used for the purpose of regulating, warning or directing traffic during the construction or maintenance of this improvement.

Traffic Control and Protection shall be provided as called for in the plans, these special provisions, applicable Highway Standards, applicable sections of the "Standard Specifications", or as directed by the Engineer.

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 along the roadway through the construction zone. The Contractor shall arrange his/her operations to keep the closing of any lane of the roadway to a minimum.

Traffic control devices include signs and their supports, signals, pavement markings, barricades and their approved weights, channeling devices, warning lights, arrow boards, flaggers, or any other device used for the purpose of regulating, detouring, warning or guiding traffic through or around the construction zone.

Article 701.04 "General", section (b) "**CONTRACTOR'S Operations and Equipment**", paragraph (4) shall be replaced with the following:

(4) The Contractor is required to conduct routine inspections of the work site at a frequency that will allow for the timely replacement of any traffic control device that has become displaced, worn or damaged to the extent that it no longer conforms to the shape, dimensions, color and operational requirements of the MUTCD, the Traffic Control Standards or will no longer present a neat appearance to motorists. A sufficient quantity of replacement devices, based on vulnerability to damage, shall be readily available to meet this requirement.

The Contractor shall be responsible for the proper location, installation and arrangement of all traffic control devices. Special attention shall be given to advance warning signs during construction operations, in order to keep lane assignments consistent with barricade placement at all times. The Contractor shall immediately remove, cover or turn from the view of motorists all traffic control devices which are inconsistent with the detour, lane assignment patterns or conflicting conditions created during the transition from one construction stage to another. When the Contractor elects to cover conflicting or inappropriate signing, the materials used shall totally block out the reflectivity of the sign and shall cover the entire sign. The method used for covering the signing shall meet with the approval of the Engineer.

The Contractor shall coordinate all traffic control work on this project with any adjoining or overlapping projects. The coordination will include any barricade placements necessary to provide a uniform traffic detour pattern. When directed by the Engineer, the Contractor shall remove all traffic control devices that he/she furnished, installed and maintained under the contract. Such devices shall remain the property of the Contractor. All traffic control devices shall remain in place until the Engineer specifically authorizes their relocation or removal.

The Contractor shall ensure that all the traffic control devices he/she installs are operational, functional and effective 24 hours a day, 7 days a week, including holidays.

Article 701.04 "General" shall be modified by adding the following sections:

(g) **Public Safety and Convenience:**

The Contractor shall provide a telephone number for a responsible individual who can be contacted 24 hours a day, 7 days a week, to receive notification of any deficiencies in traffic control and protection. The Contractor shall dispatch men, materials, and equipment to correct any such deficiencies. The Contractor shall respond to any call from LCDOT concerning any request for improving or correcting traffic control devices and begin making the requested repairs within two (2) hours from the time of notification.

Personal vehicles shall not park within the right-of-way except in specific areas designated by the Engineer. All roads shall remain open to traffic. The Contractor may close one lane on two lane roads, because of construction, between the hours of 9:00 AM and 3:00 PM only. The Contractor shall maintain one-way traffic during these restricted hours with the use of signs and flagmen as shown on the Traffic Control Standards. Two lanes of traffic will be maintained between the hours of 3:00 PM and 9:00 AM and when no construction activities are being carried out. The restricted lane closure time provision may be waived at the Resident Engineer's discretion. The Contractor shall maintain at least one lane in each direction on roads with four or more lanes. The Contractor shall also maintain entrances and side roads along the proposed improvement. Interference with traffic movements and inconvenience to owners of abutting property and the public shall be kept to a minimum. Any delays or inconveniences incurred by the Contractor while complying with these requirements shall be considered incidental to the contract, and no additional compensation will be allowed.

On two lane roads, the Contractor will plan his/her work so that there will be no open holes in the pavement and so that all barricades will be removed from the pavement during non-work hours.

On highways with four or more lanes, the Contractor will plan his/her work so that there shall be no open holes in the pavement being used by the traveling public. Lane

closures, if allowed, will be in accordance with the applicable standards, staging details shown in the plans and any other applicable contract documents.

The Contractor shall remove all equipment from the shoulders and medians after work hours.

The Contractor shall not institute any road closures or restrictions except those covered by the plans and specifications of this contract without written approval from the Engineer.

(h) **Traffic Control Deficiency Charge:**

The primary concern of LCDOT is to maintain a safe travel way for the public and a safe environment for the worker in the construction zone. The Contractor is expected to comply with the "Standard Specifications", contract plans, these special provisions, and directions from the Engineer concerning traffic control and protection. The Contractor shall provide a telephone number for a responsible individual who can be contacted 24 hours a day, 7 days a week, to receive notification of any deficiencies in the traffic control and protection.

When the Engineer is notified or determines a traffic control deficiency exist, the Engineer will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be $\frac{1}{2}$ (one half) hour to 8 (eight) hours based upon the urgency of the situation and the nature of the deficiency. The Engineer will be the sole judge.

The deficiency may be any lack of repair, maintenance of, or non-compliance with the traffic control plan.

If the Contractor fails to correct the deficiency within the specified time, a traffic control deficiency shall be imposed for each calendar day or fraction thereof the deficiency exists. The calendar day(s) will begin with the notification and end with the Engineer's acceptance of the correction. The traffic control deficiency charge shall be for the full amount per day for each day the deficiency existed. The daily monetary deduction per deficiency shall be either \$1,000.00 or 0.05 of one percent of the awarded contract value, whichever is greater.

In addition, if the Contractor fails to respond, the Engineer may correct the deficiency and the cost thereof shall be deducted from the cost of the contract. The charge shall be separate and in addition to the traffic control deficiency deduction.

The Contractor shall not be relieved of any contractual responsibilities by LCDOT's action.

(i) **In addition to the requirements for flaggers listed in Article 701.04 (c), all personnel under the direct supervision of the Contractor including Sub-**

Contractors working outside of a vehicle (car or truck) within 25 feet 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 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 manufacturer's tags identifying them as meeting the ANSI Class 2 requirement.

Article 701.04(c) "Flaggers", paragraph (1) "General" revise the first sentence to read:

The flagger shall be stationed to the satisfaction of the Engineer and shall 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). The flagger shall wear the above-mentioned vest in addition to any other type of garments labeled as meeting the ANSI Class 2 requirement.

Article 701.04(c) "Flaggers", paragraph (6) "Night Time Flagging" shall be revised to read:

The flagger station shall be lit by an overhead lighting source other than existing street lighting. The overhead light source shall provide a minimum vertical illuminance of 10 fc (108 lux) measured 1 foot (300 mm) out from the flaggers chest. The bottom of any luminaire shall be a minimum of 10 feet (3 m) above the pavement. Luminaire(s) shall be shielded to minimize glare to approaching traffic and trespass light to adjoining properties. The flagger shall be equipped with a fluorescent orange, or a combination of a fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification 107-1999 for Conspicuity Class 3 garments.

Article 701.05 "Specific Procedures", section (c) "Surface Course and Pavement" paragraph (1) will be replaced by the following:

(1) Prime Coat. "Fresh Oil" signs (W21-1) shall be used when the prime coat is applied to pavement that is open to traffic. The signs are to remain in place until tracking of the prime ceases. These signs shall be erected a minimum of 500 feet (150 m) preceding the start of the prime and on all side roads within the posted area. The signs on the side roads shall be posted a minimum of 200 feet (60 m) from the mainline pavement. These signs are excluded from the time requirements of Article 701.04 (h) "Deficiency Charge" (above). Non-compliance with the provisions of this section, by the Contractor, shall result in an immediate traffic control deficiency charge. All signs shall have an amber flashing light attached.

Article 701.05 "Specific Procedures", section (c) "Surface Course and Pavement"

paragraph (2) will be replaced by the following:

(2) Cold Milling. "Rough Grooved Surface" signs (W8-1107) shall be used when the road has been cold milled and is open to traffic. The signs shall remain in place until the milled surface condition no longer exists. These signs shall be erected a minimum of 500 feet (150 m) preceding the start of the milled pavement and on all side roads within the posted area. The signs on the side roads shall be posted a minimum of 200 feet (60 m) from the mainline pavement. All signs shall have an amber flashing light attached.

Article 701.05 "Specific Procedures", section (c) "Surface Course and Pavement" shall be modified by adding the following paragraph:

Area Reflective Crack Control Treatment Fabric. "Slippery When Wet" signs (W8-5) shall be used when crack control fabric is applied to pavement that is open to traffic. These signs shall remain in place until the binder course is laid. The signs shall be erected a minimum of 500 feet (150 m) preceding the start of the crack control treatment and on all side roads within the posted area. The signs on the side roads shall be posted a minimum of 200 feet (60 m) from the mainline pavement. These signs are excluded from the time requirements of Article 701.04 (h) "Deficiency Charge" (above). Non-compliance with the provisions of this section, by the Contractor, shall result in an immediate traffic control deficiency charge. All signs shall have an amber flashing light attached.

Article 701.06 "Highway Standards Application", section (b) "Standard 701316 and 701321" paragraph (2) g., shall be replaced with the following:

g. Microwave Vehicle Sensors. Microwave Vehicle Sensors shall be installed as directed by the Engineer. The installation of the microwave vehicle sensors shall meet the applicable requirements of Sections 849 and 850 of the "Standard Specifications". LCDOT shall approve the proposed microwave vehicle sensor before the Contractor may furnish or install it. The Contractor shall install, wire and adjust the alignment of the sensor in accordance to the manufacturer's recommendations and requirements. The Engineer shall approve the installation.

The microwave vehicle sensor shall meet the following requirements:

Detection Range: Adjustable to 60 feet (18 m)

Detection Angle: Adjustable, horizontal and vertical

Detection Pattern: 16 degree beam width minimum. [at 50 feet (15 m) the pattern shall be approximately 15.5 feet (4.7 m) wide]

Mounting: Heavy-duty bracket, predrilled and slotted for pole mounting

Article 701.06 "Highway Standards Application", section (g) "Standard 701521 and 701416" The second sentence in the third paragraph shall be revised to read:

When Standard 701416 is specified, vertical panels may be attached to the concrete

barriers where available space prohibits the use of Type II barricades.

Article 701.06 "Highway Standards Application", section (k) "Urban Traffic Control, Standards 701501, 701606, 701601, 701701, 701801" paragraph (1) General", shall be modified by adding the following paragraphs:

Whenever a lane is closed to traffic using Standard 701601, 701606, or 701701, the pavement width transition sign (W4-2R or W4-2L) shall be used in lieu of the "Workers" sign (W21-1 or W21-1a)

Whenever any vehicle, equipment, workers or their activities infringe on the shoulder or within 15 feet (4.5 m) of the traveled way, and the traveled way remains unobstructed, then the applicable Traffic Control Standard shall be 701006, 701011, 701101, or 701701. The "Shoulder Work Ahead" sign (W21-5(0)-48) shall be used in lieu of the "Workers" sign (W21-1 or W-21-1a).

All diamond shaped warning signs shall have a minimum dimension of 48 inches x 48 inches (1.2 m x 1.2 m). The Engineer may approve diamond shape warning signs measuring 36 inches x 36 inches (900 mm x 900 mm) when the posted speed limit is 30 M.P.H. or less.

Article 701.06 "Highway Standards Application" shall be modified by adding the following section:

- (l) Standard 701331. When Standard 701331 is specified on two-lane, two-way roadways, the "DETOUR AHEAD" sign shall be replaced with a "LANE SHIFT AHEAD" sign.

Article 701.07 "Method of Measurement" shall be replaced completely with the following:

701.07 Method of Measurement.

These items of work will be measured on a lump sum basis for furnishing installing, maintaining, replacing, relocating and removing the traffic control devices required in the plans and these special provisions.

Article 701.08 "Basis of Payment" shall be replaced completely with the following:

701.08 Basis of Payment

This work will be paid for at the contract unit price per lump sum for TRAFFIC CONTROL AND PROTECTION (SPECIAL). The payment will be in full for all labor, materials, transportation, and incidentals necessary to furnish, install, maintain, replace, relocate and remove all traffic control devices indicated in the plans and specifications, except for the following items, which will be paid for separately.

- (1) Temporary Bridge Traffic Signals
- (2) Temporary Rumble Strips [where each is defined as 25 feet (8 m)].
- (3) Temporary Raised Pavement Markers.
- (4) Construction Speed Limit Trailer
- (5) Sand module impact attenuators
- (6) Temporary Bridge Rail
- (7) Traffic Control Supervisor
- (8) Portable Changeable Message Signs (When not shown on the Standard)
- (9) Temporary Concrete Barrier
- (10) Monodirectional Prismatic Barrier Reflector

The salvage value of the materials removed shall be reflected in the bid price for this item.

Any delays or inconveniences incurred by the Contractor while complying with these requirements shall be considered incidental to TRAFFIC CONTROL AND PROTECTION (SPECIAL) and no additional compensation will be allowed.

Any traffic control devices required by the Engineer to implement the Traffic Control Plan as shown in the plans and specifications of the contract shall be considered incidental to the pay item TRAFFIC CONTROL AND PROTECTION.

If the Engineer requires additional work involving a substantial change of location and/or work which differs in design and/or work requiring a change in the type of construction, as stated in Article 104.02(d) of the "Standard Specifications" the standards and/or the designs, other than those required in the plans, 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 for the reasons listed above will be in accordance with Article 109.04 of the "Standard Specifications".

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. The Contractor shall submit revisions or modifications to the traffic control plan shown in the contract to the Engineer for approval. No additional payment will be made for a Contractor requested modification.

In the event the sum total of all 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 (SPECIAL) will be adjusted as follows:

Adjusted contract price = $0.25P + 0.75P [1 \pm (X - 0.1)]$
Where "P" is the contract price for TRAFFIC CONTROL AND PROTECTION (SPECIAL)

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 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 that require the use of TRAFFIC CONTROL AND PROTECTION (SPECIAL).

In the event LCDOT cancels or alters any portion of the contract that results in the elimination or incompleteness of any portion of the work, payment for partially completed work will be made in accordance with Article 104.02 of the "Standard Specifications". **Article 702.01 "Description"** shall be modified by adding the following paragraphs:

"All devices and combination 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 include small, lightweight, channelizing and delineation 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 demonstratable 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 Test Level 3.

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 this category and it is exempt from NCHRP 350 compliance requirement.

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

Article 702.02 "Materials" shall be modified by adding the following paragraph:

The Contractor shall use traffic control devices, which are "crash worthy" in accordance

with Manual of Uniform Traffic Control Devices and these special provisions. The Contractor shall provide proof of "crash worthiness" by submitting to the Engineer the appropriate "Letter of Certification" sent to the manufacturer of the device by the Federal Highway Administration. These "Letters of Certification" shall be given to the Engineer at the preconstruction conference.

Article 702.03 "Channeling Devices" section (b) "Barricades", the first paragraph shall be replaced with the following paragraphs:

(b) Barricades. Type II nonmetallic barricades shall be used at all locations that call for Type I, or Type II barricades. The reflective area of the top rail shall be at least 288 square inches.

Any drop off greater than 3 inches (75 mm), but less than 6 inches (150 mm), located within 8 feet (2.5 m) of the pavement edge shall be protected by Type II barricades equipped with mono-directional steady burn lights. The barricades shall be placed at a spacing of 100 feet (30 m) center to center. For any drop off within 8 feet (2.5 m) of the pavement edge that exceeds 6 inches (150mm), the Type II barricades equipped with mono-directional steady burn lights shall be placed at a spacing of 50 feet (15 m) center to center. Barricades that must be placed in excavated areas shall have leg extensions installed so that the top of the barricade is in compliance with the height requirements of Standard 702001.

All Type II barricades shall be equipped with a steady burn light when used during hours of darkness unless otherwise stated herein.

Extended Leg Type II Barricades. Extended leg type II barricades shall be required for any drop off within 8 feet (2.5 m) of the pavement edge that exceeds 6 inches (150 mm) in depth. Extended Leg Type II barricades shall be in compliance with the height requirements of Standard 702001. Type II extended leg barricades may be of an "A" frame type with either wood or plastic panels and metal or non-metallic legs and have no rigid stay bracing. The method of weighting the Extended Leg Type II barricades shall be in accordance with the manufacturer's guidelines and approved by the Engineer. Extended Leg Type II barricades shall be equipped with mono-directional steady burn lights and shall be placed at a spacing of 50 feet (15 m) center to center

Check barricades shall be placed in work areas perpendicular to traffic every 1,000 feet (300 m), at one per lane and one per shoulder, to prevent motorists from using work areas as a traveled way. Two additional check barricades shall be placed in advance of each patch excavation or any other hazard in the work area. The first will be placed at the edge of the open traffic lane and the second centered on the closed lane. Check barricades shall be Type II and equipped with a flashing amber light

All Type II Barricades shall be made of plastic, fiberglass or other non-metallic materials. The top panels will be 12 inches x 24 inches (300mm x 600 mm) and the bottom panels will be 8 inches x 24 inches (200 mm x 600 mm). The orange and white reflective sheeting will be Type A, meeting the initial minimum coefficient of reflection in Article 1084.02 of the "Standard

Specifications". All other requirements for Type II barricades will be met.

Direction Indicator Barricades shall be used exclusively in lane closure and lane shift tapers. They shall be used only when traffic is being merged with an adjacent through lane or flush median, shifted onto a median crossover or being diverted onto a construction run-around. The barricades shall be placed in series in a taper with the arrow panel directing traffic in the direction of the merge, crossover or run-around. The direction indicator barricades shall meet the requirements for Type II barricades as stated in this special provision. The top panel, which faces traffic, shall be 12 inches x 24 inches (300 mm x 600 mm) with fluorescent orange sheeting meeting the requirements of Article 1084.02(b) of the "Standard Specifications". The top panel indicator arrow shall be 21 inches (530 mm) long with a 9½-inch (240 mm) wide arrow barb and a 3½-inch (90 mm) wide arrow shaft. The top panel, facing away from traffic shall have a 12-inch x 24-inch (300 mm x 600 mm) orange and white diagonal panel. The bottom panels shall be 8 inches x 24 inches (200 mm x 600 mm) with orange and white diagonal sheeting, as shown in LCDOT's Special Detail LC7006. All sheeting shall meet the initial coefficient of retroreflection in Article 1084.02(a) of the "Standard Specifications", for Type A sheeting.

Article 702.03 "Channeling Devices, section (b) "Barricades" shall be modified by deleting the third, fourth, and fifth paragraphs.

Article 702.03 "Channeling Devices", section (c) "Vertical Panels" shall be modified by deleting third sentence of the first paragraph:

Article 702.03 "Channeling Devices", section (e) shall be replaced with the following:

(e) Drums. Type II barricades shall be used in lieu of drums.

Article 702.03 "Channeling Devices" shall be modified by adding the following section,

(g) Vertical barricades shall meet the requirements of Standard 702001-04. All vertical barricades shall be equipped with a steady burn light when used during the hours of darkness unless otherwise stated herein or in the plans. Non-metallic frame supported vertical barricades may be used in lieu of Type II non-metallic barricades in areas which preclude the use of the Type II barricade.

Article 702.05 "Signs", section (a) shall be modified by deleting paragraph (4).

Article 702.05 "Signs", section (a) shall be modified by revising paragraph (6) to read as follows:

"When the work operations exceed four days, all signs shall be post mounted unless

the signs are located on the pavement, paved median, other impervious surface, or define a moving or intermittent operation. When approved by the Engineer, a temporary sign stand may be used to support a sign at 5 feet minimum height where posts are impractical. Longitudinal dimensions shown on the plans for the placement of signs may be increased up to 100 feet to avoid obstacles, hazards or to improve sight distance, when approved by the Engineer. "Road Work Ahead" signs shall also be required on all side streets within the limits of the mainline "road Work Ahead" signs."

Article 702.05 "Signs", section (a) shall be modified by adding the following paragraphs:

Construction signs referring to daytime lane closures during working hours shall be removed, covered, or turned away from the view of motorists during non-working hours. Upon request, 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. The Contractor shall maintain all existing traffic signs throughout the duration of the project.

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.

Article 702.05 "Signs" section (c) shall be modified by deleting section (c).

Article 702.05 "Signs", section (d) "Work Zone Speed Limit Signing", shall be revised to read:

"(d) Work Zone Speed Limit Signs. The Lake County Division of Transportation's Traffic Engineering Department will specify whether a project meets the criteria for a Work Zone Speed Limit. When specified, the work zone speed limit signing shall be installed by county forces only.

All permanent "SPEED LIMIT" signs located within the work zone shall be removed or covered. If the speed limit sign is to be covered, it shall be done in a manner that no part of the legend shall be visible in any lighting condition. This work shall be completed by county forces only.

Article 702.05 "Signs" shall be modified by adding the following section (f),

(f) Portable Changeable Message Signs. This work shall consist of furnishing, placing and maintaining changeable message sign(s) at location(s) shown on the plans, standards or as directed by the engineer.

The sign(s) shall be trailer mounted. The message panel shall be at least 7 feet (2.1 m) 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 18 inches (450 mm).

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 an 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, cellular telephone, 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 1,320 feet (400 m) under both day and night conditions. The letters shall be legible from 750 feet (250 m).

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 the time allotted by Article 701.04 (h) of this special provision, a traffic control deficiency penalty can be imposed and 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 to 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 message signs are shown on the Standard, this work shall be considered as included in the lump sum payment for Traffic Control and Protection. 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, as stated in Article 701.08 of this special provision.

Article 702. 05 "Signs" shall be modified by adding the following section (g),

(g) Temporary Construction Information Signs. When indicated in the traffic control plan or as directed by the Engineer the Contractor shall furnish, install, maintain, relocate, and remove for various stages of construction Temporary Construction Information Signs. These signs shall include all Temporary Construction Information Signs needed by the road users to proceed safely through the work zone.

The following signs are considered Temporary Construction Information Signs:
Entrance White Legend on Green Background
Warning-New Lanes Open Black Legend on Orange Background

The signs shall be installed in accordance with the traffic control plan and as directed by the Engineer.

Article 704 "Temporary Concrete Barrier" shall be modified by adding the following: Monodirectional, Prismatic Barrier Reflectors as described in Article 782 of the Standard Specifications and the special provisions shall be installed one per barrier unit or one per terminal section.

Article 782 "Prismatic Reflectors" shall be modified by adding the following,

The Prismatic Reflector shall be centered 9 ½ inches (240 mm) below the top of the temporary concrete barrier on the side of the barrier, which faces traffic, one per temporary concrete barrier section or temporary concrete barrier terminal section. The Prismatic Reflector shall be reflective in the direction of approaching traffic only and shall match the color of the centerline or edge line, either amber or crystal, where the temporary concrete barrier is placed.

78100100 - RAISED REFLECTIVE PAVEMENT MARKER

This work shall be done in accordance with Section 781 of the "Standard Specifications" and the following:

Sawcutting the pavement for the installation of raised pavement markers shall be done by means of dry cutting the pavement. The Contractor shall maintain the pavement and the surrounding area in clean, dry condition and shall vacuum the dust and milling from the pavement surface.

The method of cutting the pavement may be altered by the Contractor provided the pavement surface and the surrounding area is cleaned to the satisfaction of the Engineer. Alternate methods of cutting the pavement shall be approved by the Engineer. All costs for cleaning the pavement, regardless of the method, shall be incidental to the unit price for RAISED REFLECTIVE PAVEMENT MARKER.

K1005421 - SEEDING (SPECIAL)

Description: The work shall consist of preparing the seed bed and placing the seed and other materials in the seed bed per planting plan seed lists as noted in plans.

The areas to be seeded shall be worked to a minimum depth of 3 inches with a disk tiller or other equipment approved by the ENGINEER, reducing all soil particles to a size not larger than 2 inches in the largest dimension. The prepared surface shall be relatively free from weeds, clods, stones, rivulets, gullies, crusting and caking.

No seed shall be sown during high winds or when the ground is not in proper condition for seeding, nor shall any seed be sown until the purity testing has been complete for the seeds to be used, and shows the seed meets the noxious weed requirements.

Seeding shall be accompanied by utilizing a "no till" attachment meeting the specifications of the ENGINEER or a rangeland type grass drill meeting the specifications of the Standard Specifications 1101.08(g). Grasses and sedge mixtures and forb mixtures will be seeded separately. The machine used to seed should be reset to drill the forbs at a depth recommended by the seed supplier or ENGINEER. ALL mixtures shall be as noted on the plans.

Hydraulic seeding or hand broadcast seeding shall only be allowed as approved by the ENGINEER and only for inaccessible areas where the use of the equipment as specified is physically impossible. Hydraulic seeding shall utilize tackifier and mulch as specified in Standard Specification 250.06 and is included in the cost of Seeding (Special).

Prior to starting work, seeders shall be calibrated and adjusted to sow seeds at the required seeding rate and to the proper depth. Equipment shall be operated in a manner to ensure complete coverage of the entire area to be seeded. The ENGINEER shall be notified 48 hours prior to beginning the seeding operations so that the ENGINEER may determine by trial runs that the seeder will provide uniform distribution.

Materials: The seed mixtures are designated in the plans. Seed mixtures specified to be installed in the same season shall be seeded within 3 days of each other. The ENGINEER must approve variations in seed mixture in writing. Seed quality must meet the applicable standards set forth in Standard Specification 1081.04.

Period of Establishment: The period of establishment shall be 90 days following seeding. Ninety percent aerial cover shall be evident at the end of the 90-day period of establishment. The ENGINEER shall make the cover determination.

Method of Measurement and Basis of Payment: SEEDING (SPECIAL), of the mixture specified, shall be measured in acres of surface area seeded. The work shall be paid for at the contract unit price per acre SEEDING (SPECIAL) of the mixture specified which price shall include all labor, tackifier, mulch, equipment and materials necessary to complete the work as specified. 90% of the contract unit price shall be payable upon

placement of the seed and delivery of "as planted" plans. 10% of the contract unit price shall be payable upon successfully meeting the performance requirement at the end of the first growing season.

X0301701 – TEMPORARY SHEETING AND SHORING

Description. This item shall consist of furnishing all labor, materials, tools and equipment required to install, remove, and dispose of all temporary sheeting and temporary shoring necessary to construct the water main and water main casing in the vicinity of the railroad. This work shall also include furnishing, installing and subsequent removal of all miscellaneous steel shapes, plates and connecting hardware. This work shall be in accordance with Section 2-2.08A of the Water and Sewer Main Specifications, applicable portions of Section 512 of the Standard Specifications, and Specifications set forth by Metra Railroad.

The Contractor shall design all temporary sheeting and shoring and prepare shop drawings. All design calculations, details and shop drawings shall be signed and stamped by a Registered Illinois Structural Engineer. All design calculations, details and shop drawings shall be submitted to the Engineer for review and approval. Approval shall be contingent upon acceptance and approval by Metra Railroad and acceptance by all involved utilities. This approval will not relieve the Contractor of responsibility for the safety of the excavation. The Contractor shall not install the temporary sheeting and shoring prior to receiving approval of shop drawings.

Material. The sheet piling shall be made of steel and may be new or used material, at the option of the Contractor. The sheet piling shall have a minimum section modulus as shown in the approved Contractor's design. The sheeting shall have a minimum yield strength of 265 MPa (38.5 ksi) or Metra Railroad requirements, whichever is greater. The sheeting, used by the Contractor, shall be identifiable and in good condition free of bends and other structural defects. The Contractor shall furnish a copy of the published sheet pile section properties to the Engineer for verification purposes. The Engineer's approval will be required prior to driving any sheeting. All driven sheeting not approved by the Engineer shall be removed at the Contractor's expense.

The Contractor shall be solely responsible for the maintenance, stability, strength, and safety of the temporary sheeting and shoring. Upon any indication of movement the Contractor shall provide corrective measures as required without additional compensation. Tolerances in movement shall be determined by Metra Railroad and shall be monitored and recorded by the Contractor every day that there is excavation within the Metra Right-of-Way.

The Contractor shall verify all locations of underground utilities before driving temporary supports and sheeting. Any damage or disturbance to an existing structure caused by the Contractor's operation shall be repaired by the Contractor in a manner satisfactory to the Engineer and the Metra Engineer. All temporary sheeting and shoring shall be removed by the Contractor after the completion of the work.

Construction. The Contractor shall verify locations of all underground utilities before driving any sheet piling. 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 the Contractor's expense. The

Contractor shall be responsible for determining the appropriate equipment necessary to drive the sheeting to the tip elevation(s) specified on the Contractor's approved design. The sheet piling shall be driven, as a minimum, to the tip elevation(s) specified, prior to commencing any related excavation. If unable to reach the minimum tip elevation, the adequacy of the sheet piling design will require re-evaluation by the Department prior to allowing excavation adjacent to the sheet piling in question. The Contractor shall not excavate below the maximum excavation line shown on the Contractor's approved design without the prior permission of the Engineer. The sheet piling and shoring shall remain in place until the Engineer determines it is no longer required. The sheet piling and shoring 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 sheet piling leaving the remainder in place. The remaining sheet piling shall be a minimum of 18 in. below the finished subgrade or as directed by the Engineer. Removed sheet piling 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.

All sheeting and shoring work will be performed on weekends only.

Method of Measurement and Basis of Payment. TEMPORARY SHEETING AND SHORING will be paid for at the contract unit price per lump sum which price shall include all work and materials necessary to complete this item as described herein.

X0320591 - SANITARY MANHOLES TO BE REMOVED

This work shall consist of removing sanitary sewer manholes, frames and lids at locations shown on the plans in accordance with Divisions II and III of the "Standard Specifications for Water and Sewer Main Construction in Illinois" and the applicable requirements of Section 605 of the "Standard Specifications for Road and Bridge Construction".

All sanitary pipes shown to be abandoned will be plugged per Article 605.03.

Basis of Payment. This work will be paid for at the contract unit prices per each for SANITARY MANHOLES TO BE REMOVED, which price will include all excavation, labor, backfill, materials and equipment.

X0321193 - TEMPORARY CATCH BASINS

Description: This work consists of furnishing, installing and removing catch basins at the locations shown on the plans or as directed by the Engineer, meeting the applicable portions of Section 602 and 605 of the Standard Specifications and as detailed in the plans.

When directed by the Engineer, the Contractor shall remove the temporary catch basin. It will then become the Contractor's property to be removed from the jobsite; the unit price shall reflect the salvage price of the temporary catch basin.

Temporary Catch Basins shall be type C with frames and grates as shown on the plans, or as directed by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price per each for TEMPORARY CATCH BASIN which price is to include all labor, equipment, excavation, backfill and materials necessary to complete the work as specified herein including any pipe removal required for installation of TEMPORARY CATCH BASIN.

X0322464 - ABANDON AND FILL EXISTING SANITARY MANHOLE

This work shall consist of filling and abandoning sanitary sewer manholes, at locations shown on the plans in accordance with Divisions II and III of the "Standard Specifications for Water and Sewer Main Construction in Illinois" and the applicable requirements of Section 605 of the "Standard Specifications for Road and Bridge Construction".

All sanitary pipes shown to be abandoned will be plugged per Article 605.03.

Basis of Payment. This work will be paid for at the contract unit prices per each for ABANDON AND FILL EXISTING SANITARY MANHOLE, which price will include all excavation, labor, backfill, materials and equipment.

X0322671 - STABILIZED CONSTRUCTION ENTRANCE

Description. This work shall consist of furnishing, installation, maintenance and removal of stabilized pad of aggregate underlain with filter fabric as shown on the plans or directed by the Engineer.

Materials. Materials shall conform to the following:

Aggregate size. IDOT Coarse Aggregate Graduation: CA-1, CA-2 CA-3, or CA-4.

Filter Fabric shall consist of synthetic polymers composed of at least 85 percent by weight polypropylene, polyesters, polyamides, polyethylene, polyolefins, or polyvinylidene-chlorides. The geotextile shall be free of any chemical treatment or coating that significantly reduces its porosity. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet lights.

Construction Requirements. The course aggregate shall be a thickness of 6 inches or more. The stone entrance should not be filled until the area has been inspected and approved by the Engineer.

The rock shall be dumped and spread into place in approximately horizontal layers not more than 3 feet in thickness. It shall be placed in a manner to produce a reasonable homogeneous stable fill that contains no segregated pockets or larger or small fragments or large unfilled space caused by bridging of larger fragments. No compaction will be required beyond that resulting from the placing and spreading operations.

The minimum width and length shall be 14 and 50 feet, respectively.

All surface water flowing or diverted toward the construction entrance shall be piped across the entrance. Any pipe used for this will be considered incidental to the STABILIZED CONSTRUCTION ENTRANCE. The stabilized construction entrance will have positive drainage away from the roadway.

The entrance shall remain in place and be maintained until the disturbed area is stabilized. Any sediment spilled onto public right-of-ways must be removed immediately.

Measurement and Payment. The work shall be paid for at the contract unit price per square yard for STABILIZED CONSTRUCTION ENTRANCE, which price shall be payment in full for all material, labor and any other items required to complete the work.

X0323XXX - STORM SEWERS, (WATER MAIN REQUIREMENTS)

Description. This work consists of constructing storm sewer of the specified diameter adjacent to or crossing water main, at the locations shown on the plans or as directed by the Engineer, 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 and as detailed in the plans.

Materials. Pipe materials shall be:

- a. Reinforced concrete pipe, steel cylinder type, with rubber and steel joints, or
- b. Reinforced concrete pressure pipe with rubber and steel joints.

Method of Measurement and Basis of Payment. This work shall be measured and paid for in accordance with Article 550.096 of the Standard Specifications, except the pay item shall be STORM SEWER (WATER MAIN REQUIREMENTS), of the type and diameter specified, and shall include all materials, labor, equipment, concrete collars and saddles and encasing pipe with seals.

**X0323426 - SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER
CLEANING**

Description. This work shall consist of cleaning sediment from each assembled inlet filter. The Engineer will designate the need for cleaning based on the rate of debris and silt collected at each inlet filter location.

Cleaning of the inlet filter shall consist of inspecting and 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.

X0323622 - AGGREGATE BACKFILL

Description. This work shall consist of backfilling in areas of Stamped Colored Portland Cement Concrete Median Surface 4 Inch (Special) where the width between the median planter and the curb is 12" or less.

Materials. Backfill shall be clean angular stone meeting IDOT Gradation requirements CA-7.

Construction Requirements. Stone shall be placed in maximum 1 foot lifts. Each lift shall be compacted to achieve proper interlocking as determined by the Engineer.

Basis of Payment. This work shall be measured and paid for at the contract unit price per ton for AGGREGATE BACKFILL.

X0323656 - TEMPORARY RISER

Description. This work consists of furnishing, installing, maintaining and removing temporary perforated risers at the locations shown on the plans or as directed by the Engineer, meeting the applicable portions of Section 280, 601 and 605 of the Standard Specifications and as detailed in the plans.

Earth excavation will be paid for separately.

When directed by the Engineer, the Contractor shall remove the temporary risers. It will then become the Contractor's property to be removed from the jobsite.

Basis of Payment. This work will be paid for at the contract unit price per each for TEMPORARY RISER which price is to include all labor, equipment, stone, concrete blocking, mortar, trash racks, backfill and materials necessary to complete the work as specified herein for TEMPORARY RISER.

X032XXXX - WATER MAIN REMOVAL

Description. This work shall consist of the removal of portions of the existing water main, of the diameter specified and capping of the portions that are to remain in place. This work shall be performed at locations shown on the plans and/or subject to the review of the Engineer. This work includes the removal of existing water main from the existing casing pipe located within the Metra ROW lines as shown in the plans.

Excavation required for water main removal shall be performed in accordance with the applicable portion of the Standard Specifications. Water main removal shall end either at a joint or at a location where the existing pipe has been saw cut so as to provide a smooth, even surface so as to allow a watertight joint. After removal of the existing pipe, the integrity of that portion which is to remain in place shall be checked to insure that the pipe end has not been damaged. Additional removal required by non-compliance with this Special Provision will be performed at the Contractor's expense and no additional compensation will be allowed. The existing water main shall be capped at all locations where removal is specified. Ductile iron mechanical joint caps shall be used. The valves that control the existing water distribution system may not be adequate to completely shut down the system and the Contractor should expect some residual pressure to be present when the cap is installed.

If the excavation required for the removal operation falls within a paved area (existing or proposed), it shall be backfilled with trench backfill. This work shall be performed in accordance with the applicable requirements of "Trench Backfill" in the Standard Specifications. Trench backfill will not be measured for payment but shall be considered incidental to the contract unit price per linear foot for water main removal.

Method of Measurement and Basis of Payment. This work will be paid for at the contract unit price per linear foot for WATER MAIN REMOVAL, of the diameter specified, measured as removed. This price shall include all labor, equipment, excavation, capping of existing water mains that remain in place, trench backfill and backfill as herein specified.

X0330200 - SANITARY MANHOLES TO BE ADJUSTED

This work shall consist of adjusting sanitary sewer manhole frames and lids at locations shown on the plans in accordance with Divisions II and III of the "Standard Specifications for Water and Sewer Main Construction in Illinois" and the applicable requirements of Section 602 of the "Standard Specifications for Road and Bridge Construction" and applicable portion of specification "MANHOLES, SANITARY, WITH TYPE 1 FRAME, CLOSED LID"

Basis of Payment. This work will be paid for at the contract unit prices per each for SANITARY MANHOLES TO BE ADJUSTED, which price will include all excavation, labor, materials and equipment.

XX006334 - AGGREGATE BASE COURSE, TYPE A (SPECIAL)

This work shall be done in accordance with Section 351 of the "Standard Specifications" with the exception that the material shall be limited to crushed gravel, crushed stone or crushed concrete. The plasticity index requirements and the requirements for adding water at the central mixing plant will be waived.

This work will be paid for at the contract unit price per ton as AGGREGATE BASE COURSE, TYPE A (SPECIAL)

X6013600 – PIPE UNDERDRAINS 4" (MODIFIED)

Pipe underdrain material shall be limited to:

- (l) perforated polyvinyl chloride (PVC) pipe [1040.09], (q) perforated corrugated polyvinyl chloride (PVC) pipe with a smooth interior [1040.15],
- (s) perforated corrugated polyethylene (PE) pipe with a smooth interior (1040.17), or
- (t) corrugated polyethylene (PE) pipe with a smooth interior (1040.20).

The pipe shall be wrapped with a fabric envelope meeting the requirements of Section 1080.01 in the "Standard Specifications".

Rodent shields and square concrete collars (where required) as shown on LC6010 in the plans, shall be incidental to PIPE UNDERDRAINS, 4" (MODIFIED)

PIPE UNDERDRAINS, 4" (MODIFIED) will be measured and paid for at the contract unit price per foot, which price shall include furnishing and placing all pipe, fittings, fabric envelope, connecting pipes, rodent shields, and concrete collars.

X6700405 – ENGINEER'S FIELD OFFICE, TYPE A (MODIFIED)

This item shall be in accordance with Article 670.02 of the "Standard Specifications" except for the following. Adequate all-weather parking spaces shall be provided to accommodate a minimum of 8 Vehicles. Electronic security system will not be required. The following shall be furnished and meet the approval of the ENGINEER.

- (a) 3 desks with minimum working surface 42" x 30" each, and 3 non-folding chairs with upholstered seat and back.
- (b) 1 four-post drafting table with minimum top size of 37 1/2" x 48". The top shall be basswood or equivalent and capable of being tilted through an angle of 50 degrees. An adjustable height drafting stool with upholstered seat and back shall also be provided.
- (c) 1 free standing legal size file cabinet with lock, and 4 drawers with Underwriters' Laboratories insulated file device, with a 350 degree one hour rating.
- (d) 4 folding chairs.
- (e) 1 equipment cabinet with lock of minimum inside dimension of 44" high x 24" wide x 30" deep. The walls shall be of steel with a 3/32" minimum thickness with concealed hinges and enclosed lock constructed in such a manner as to prevent entry by force. The cabinet assembly shall be permanently attached to the structural element of the field office in a manner to prevent theft of the entire cabinet.
- (f) 1 electric water cooler dispenser with hot/cold and refrigerator
- (g) 1 electric desk type tape-printing calculator.
- (h) 1 telephone with touch tone; telephone answering machine for exclusive use by the ENGINEER with time and date feature; and caller ID service and hardware.
- (i) 1 electric pencil sharpener
- (j) 1 copy machine capable of reproducing by dry process, prints up to legal size (8 1/2" x 14") from non-transparent master sheets as black or blue lines on white paper, including maintenance reproduction paper, activating agent and power source.

Penalty – Failure by the CONTRACTOR to meet the specified occupancy date for any field office or field laboratory shall be grounds for assessment of a penalty of \$100 per day for each calendar day thereafter that such facility remains incomplete in any respect. Failure by the CONTRACTOR to equip, heat, cool, power, supply or clean the field office shall be grounds for assessment of a penalty of \$100 per day for each calendar day that the field

office remains incomplete after receipt of written notification from the ENGINEER. Such penalty shall be deducted from monies due or to become due the CONTRACTOR under the Contract.

This item will be paid for at the contract unit price per calendar month for ENGINEER'S FIELD OFFICE, TYPE A (MODIFIED).

X7015000 – CHANGEABLE MESSAGE SIGN

This work consists 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 also 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 CONTRACTOR is required to 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). Whenever 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.

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

The CONTRACTOR is required to 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 shall 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 CONTRACTOR.

The furnishing, placing, and maintaining of Portable Changeable Message Sign(s) shall be paid for per calendar month for each sign as CHANGEABLE MESSAGE SIGN. Payment will be made in quarter month increments and the minimum payment will be 0.25 months

X7030010 – TEMPORARY PAVEMENT MARKING TAPE, 6 INCH (BLACK)

This work will consist of placing temporary pavement markings over existing pavement markings as required for traffic staging as well as removing the temporary pavement markings upon the direction of the ENGINEER. All work will be in accordance with Section 703 of the "Standard Specifications" and as directed by the ENGINEER, except that removal will not be paid for separately but will be included in the unit cost of TEMPORARY PAVEMENT MARKING TAPE, 6 INCH (BLACK).

The Contractor will remove the temporary pavement markings using a method approved by the ENGINEER which does not damage the underlying existing pavement markings.

Method of Measurement. This work will be measured in place in linear feet of TEMPORARY PAVEMENT MARKING TAPE, 6 INCH (BLACK) placed outside the limits of pavement resurfacing and outside the limits of pavement reconstruction.

Basis of Payment. This work will be paid for at the contract unit price per linear foot for TEMPORARY PAVEMENT MARKING TAPE, 6 INCH (BLACK), which price shall include all labor, materials, and equipment to complete the work as specified herein, including removal of the temporary pavement marking tape, 6 inch (black).

XX000610 – RELOCATE EXISTING MAILBOX

This work shall consist of relocating an existing mail box to a location shown on the plans. The new location of the mail box shall be subject to the approval of the ENGINEER. The relocated mailbox shall be installed on a new 4" x 4" square or 4 1/2" diameter round treated wood post. The new post shall be embedded no more than 24" into the ground. The old post shall be removed and disposed of in accordance with the requirements of Article 202.03 of the "Standard Specifications". The resulting hole shall be backfilled with suitable excavated material as approved by the ENGINEER. The removal and disposal of the old post and backfilling the hole shall be incidental to this item. RELOCATE EXISTING MAILBOX will be paid for at the contract unit price per each.

XX000882 – WOOD FENCE

This item consists of installing wood fences as shown on the plans, to be installed as per Section 641 and as directed by the Engineer.

The first paragraph in Article 641.03 is removed.

All openings in fence caused by fence removal will be closed and secured by the end of the day that fence is removed, as approved by the Engineer.

The fence will be of same height and style as adjoining fences. The fence will be of similar material as adjoining fences. Contractor will submit shop drawings and 4" by 6" picket/plank sample to Engineer for approval. If adjoining fence posts are set in concrete, all proposed fence posts will be installed per Article 664.04 and to a minimum depth of 30" below finished grade.

Method of Measurement. This work will be measured in place in linear feet of proposed fence.

Basis of Payment. This work will be paid for at the contract unit price per linear foot for WOOD FENCE, which price shall include all labor, materials, and equipment to complete the work as specified herein, including, excavation, concrete and hardware.

XX001446 - PLUG AND BLOCK WATER MAIN

After completion of the proposed water main, and the transfer of all water services to the new main, the existing water main is to be abandoned as shown on the plans.

The water main shall be cut, a mechanical joint cap installed and the end blocked with concrete.

All salvageable materials, including valves, shall become VILLAGE OF LIBERTYVILLE property, and shall be delivered to the VILLAGE OF LIBERTYVILLE Utilities Division Personnel. All other materials not salvageable shall be disposed of by the CONTRACTOR outside the limits of the project.

This work will be paid for at the contract unit price each for PLUG AND BLOCK WATER MAIN regardless of the diameter which price shall include the removal and delivery of all salvageable parts, cutting and blocking of the main being abandoned, backfilling the excavated area, and all materials, labor and equipment required to complete the work as herein specified.

XX001607 - RETAINING WALL (SPECIAL)

Description. This work shall consist of furnishing the design computations, shop plans, materials, equipment and labor to construct a Segmental Concrete Block Retaining Wall with a maximum height of 5 ft as measured from the top of block elevation to the finished grade line at the wall face.

General. The wall shall consist of a leveling pad, pre-cast concrete blocks, select granular backfill and, if required by the design, soil reinforcement. The materials, fabrication, and construction of the wall components are subject to approval by the Engineer. The Engineer reserves the right to obtain random samples for material testing. The wall shall be designed and constructed according to the lines, grades, and dimensions shown on the contract plans and approved shop plans.

Submittals. The wall supplier shall submit design computations and shop plans to the Engineer. The shop plans shall be sealed by an Illinois Licensed Professional Engineer and shall include all details, dimensions, quantities, and cross sections necessary to construct the wall and shall include, but not be limited to, the following items:

(a) Plan, elevation, and cross section sheet(s) for each wall showing the following:

(1) A plan view of the wall indicating the offsets from the construction centerline to the first course of blocks at all changes in horizontal alignment. These shall be calculated using the offsets to the front face of the block shown on the contract plans and the suppliers proposed wall batter. The plan view shall indicate bottom (and top course of block when battered), the excavation and select granular backfill limits as well as any soil reinforcing required by the design. The centerline of any drainage structure or pipe behind or passing through/under the wall shall also be shown.

(2) An elevation view of the wall, indicating the elevation and all steps in the top course of blocks along the length of the wall. The top of these blocks shall be at or above the theoretical top of block line shown on the contract plans. This view shall also show the steps and proposed top of leveling pad elevations as well as the finished grade line at the wall face specified on the contract plans. These leveling pad elevations shall be located at or below the theoretical top of leveling line shown on the contract plans. The location, size, and length of any soil reinforcing connected to the blocks shall be indicated.

(3) Typical cross section(s) showing the limits of the select granular backfill, soil reinforcement if used in the design. The right-of-way limits shall be indicated as well as the proposed excavation, cut slopes, and the elevation relationship between existing ground conditions and proposed grades.

(4) All general notes required for constructing the wall.

(b) All details for the leveling pads, including the steps, shall be shown. The theoretical top of the leveling pad shall either be below the anticipated frost depth or 1.5 ft below the finished grade line at the wall face, whichever is greater; unless otherwise shown on the plans. The minimum leveling pad thickness shall be 6 in.

(c) Cap blocks shall be used to cover the top of the standard block units. The top course of blocks and cap blocks shall be stepped to satisfy the top of block line shown on the contract plans.

(d) All details of the block and/or soil reinforcement placement around all appurtenances located behind, on top of, or passing through the wall shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular design arrangement shall also be submitted.

(e) All details of the blocks, including color and texture shall be shown. The exterior face shall preferably be straight, textured with a "split rock face" pattern, and dark gray in color unless otherwise stated on the plans.

(f) All block types (standard, cap, corner, and radius turning blocks) shall be detailed showing all dimensions.

(g) All blocks shall have alignment/connection devices such as shear keys, leading/trailing lips, or pins.

The details for the connection devices between adjacent blocks and the block to soil reinforcement shall be shown. The block set back or face batter shall be limited to 20 degrees from vertical, unless otherwise shown by the plans. The initial submittal shall include 3 sets of prints of the detail shop plans and 1 set of calculations. One set of plans will be returned to the Contractor with any corrections indicated.

After approval, the Contractor shall furnish the Engineer with 8 sets of corrected plan prints for distribution. No work or ordering of materials for the structure shall be done by the Contractor until the submittal has been approved in writing by the Engineer.

Materials. The materials shall meet the following requirements:

(a) Pre-cast Concrete Block: The block proposed for use shall be produced according to the Department's Policy Memorandum "Quality Control/ Quality Assurance Program for Precast Concrete Products", and shall satisfy the following: Conform to the requirements of ASTM C 1372 except as follows:

1. Fly ash shall be according to Articles 1010.01 and 1010.03.
2. Ground granulated blast-furnace slag shall be according Section 1016.
3. Aggregate shall be according to Articles 1003.02 and 1004.02, with the exception of gradation. Chert gravel may be used based on past in-service satisfactory performance, in the environment in which the product was used.

4. Water shall be according to Section 1002.

5. Testing for freeze-thaw durability will not be required. However, unsatisfactory field performance as determined by the Department will be cause to prohibit the use of the block on Department projects.

(b) Select Granular Backfill: The material behind the blocks and above a 1:1 slope extending upward from either the back of the bottom block or soil reinforcement (whichever is greater) shall consist of either a coarse aggregate according to Article 1004.06(a), or a fine aggregate according to the first sentence of Article 1003.04(a). The aggregate used shall also meet the following:

- Coarse Aggregate Gradation CA 6 thru CA 16 (Article 1004.01(c))
- Fine Aggregate Gradation FA 1, FA 2, or FA 20 (Article 1003.01(c))
- Coarse Aggregate Quality Minimum Class C (Article 1004.01(b))
- Fine Aggregate Quality Minimum Class C (Article 1003.01(b))
- Internal Friction Angle 34° minimum (AASHTO T 236)
- pH 4.5 to 9 (AASHTO T 289)

When a fine aggregate is selected, the rear of all block joints shall be covered by a nonwoven needle punch geotextile filter material according to Article 1080.05 of the Standard Specifications and shall have a minimum permeability according to ASTM D 4491 of 0.008 cm/sec. All fabric overlaps shall be 6 in. and non-sewn. As an alternative to the geotextile, a coarse aggregate shall be placed against the back face of the blocks to create a minimum 12 in. wide continuous gradation filter to prevent the select fill material from passing through the block joints.

(c) Leveling pad: The material shall be either Class SI concrete according to Article 1020.04 or compacted coarse aggregate according to Articles 1004.04, (a) and (b). The compacted coarse aggregate gradation shall be CA 6 or CA 10.

(d) Soil Reinforcement: If soil reinforcement is required by the approved design, the Contractor shall submit a manufacturer's certification for the soil reinforcement properties which equals or exceeds those required in the design computations. The soil reinforcement shall be manufactured from high density polyethylene (HDPE) uniaxial or polypropylene biaxial resins or high tenacity polyester fibers with a PVC coating, stored between -20 and 140° F. The following standards shall be used in determining and demonstrating the soil reinforcement capacities:

- ASTM D-638 Test Method for Tensile Properties of Plastic
- ASTM D-1248 Specification for Polyethylene Plastics Molding and Extrusion Materials
- ASTM D-4218 Test Method for Carbon Black Content in Polyethylene Compounds
- ASTM D-5262 Test Method for Evaluating the Unconfined Tension Creep Behavior of Geosynthetics
- GG1-Standard Test Method for Geogrid Rib Tensile Strength
- GG2-Standard Test Method for Geogrid Junction Strength

GG4-Standard Practice for Determination of the Long Term Design Strength of Geogrid
GG5-Standard Practice for Evaluating Geogrid Pullout Behavior

Design Criteria. The design shall be according to AASHTO Specifications and commentaries for Earth Retaining Walls or FHWA Publication No. HI-95-038, SA-96-071 and SA-96-072. The wall supplier shall be responsible for all internal stability aspects of the wall design.

Internal stability design shall insure that adequate factors of safety against overturning and sliding are present at each level of block. If required by design, soil reinforcement shall be utilized and the loading at the block/soil reinforcement connection as well as the failure surface must be indicated. The calculations to determine the allowable load of the soil reinforcement and the factor of safety against pullout shall also be included. The analysis of settlement, bearing capacity, and overall slope stability are the responsibility of the Department. External loads such as those applied through structure foundations, from traffic or railroads, slope surcharge etc., shall be accounted for in the internal stability design. The presence of all appurtenances behind, in front of, mounted upon, or passing through the wall volume such as drainage structures, utilities, structure foundation elements, or other items shall be accounted for in the internal stability design of the wall.

Construction Requirements. The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include all costs related to this technical assistance in the unit price bid for this item.

The foundation material for the leveling pad and select granular backfill volume shall be graded to the design elevation and compacted according to Article 205.05, except the minimum required compaction shall be 95 percent of the standard laboratory density. Any foundation soils found to be unsuitable shall be removed and replaced as directed by the Engineer and shall be paid for according to Article 109.04.

The select granular backfill lift placement shall closely follow the erection of each course of blocks. All aggregate shall be swept from the top of the block prior to placing the next block lift. If soil reinforcement is used, the select granular backfill material shall be leveled and compacted before placing and attaching the soil reinforcement to the blocks. The soil reinforcement shall be pulled taut, staked in place, and select fill placed from the rear face of the blocks outward. The lift thickness shall be the lesser of 10 in. loose measurement or the proposed block height.

The select granular backfill shall be compacted according to Article 205.05, except the minimum required compaction shall be 95 percent of the standard laboratory density. Compaction shall be achieved using a minimum of 3 passes of a lightweight mechanical tamper, roller, or vibratory system. The top 12 in. of backfill shall be a cohesive, impervious material capable of supporting vegetation, unless other details are specified on the plans. The blocks shall be maintained in position as successive lifts are

compacted along the rear face of the block. Vertical, horizontal, and rotational alignment tolerances shall not exceed 1/2 in. when measured along a 10 ft straight edge.

Color. Color shall be determined by the Lake County Division of Transportation.

Protective Coat. This work shall conform to the requirements of Article 503.19 of the "Standard Specifications.

Method of Measurement. Quantity of retaining wall as shown on the plans may be increased or decreased at the direction of the ENGINEER based on construction procedures and actual site conditions. Segmental Concrete Block Wall will be measured by the square foot of wall face from the top of block line to the theoretical top of the leveling pad for the length of the wall in a vertical plane, as shown on the contract plans.

Method of Payment. The accepted quantities of RETAINING WALL (SPECIAL) will be paid for per square foot in place of wall installed. PROTECTIVE COAT will be measured and paid for as specified elsewhere in the specifications.

XX002260 - STRUCTURES TO BE REMOVED

This work shall consist of removing and backfilling existing booster station at the location as shown on the plans, as per Section 605, as per Article 501.02 and as directed by the ENGINEER.

Contractor will contact Village of Libertyville prior to removal of any portion of booster station.

Booster station will be removed to a depth of one foot below proposed elevation of subgrade or of unsuitable material removal.

All water main pipes, valves and appurtenances will be removed within the booster station prior to backfilling. All open ends of water main will be plugged and blocked as described in the Special Provisions; this work will not be paid for separately, but will be included in the unit cost of STRUCTURES TO BE REMOVED. All openings in booster station walls to remain will be sealed per Article 605.04. Material for backfilling will be placed and compacted in 8 inch maximum lifts.

Backfill material will be place up to proposed elevation of subgrade or of unsuitable material removal.

Method of Measurement and Basis of Payment. Measurement of and Payment for STRUCTURES TO BE REMOVED as detailed in specifications will be made at the contract unit price per each for STRUCTURES TO BE REMOVED which payment shall constitute full compensation for excavation, removal and disposal of materials, plug and block water main, backfill materials and backfilling, and for all labor, tools and incidentals necessary to complete the work as specified.

Z0070200 - SURVEY MONUMENTS

The Contractor shall install survey monuments at the locations indicated on the plans. LCDOT will supply the monuments.

The Engineer, after the final surface course has been placed, will install four PK™ nails for each point to be monumented.

1. At each location there are four PK™ nails in the surface. Each nail is one foot (0.3 m) from the center and in direct line with an opposite nail to be used for setting the new monument.
2. By the use of a drilling machine mounted with a 4 or 6 inch (100 or 150 mm) diamond core bit, center the core bit within the four PK™ nails.
3. Cut a hole in the pavement 4 or 6 inches (100 or 150 mm) in diameter by 4 inches (100 mm) deep. Remove the core and existing monument (if any) and discard it.
4. Fill the hole with compacted aggregate to within 3½ " of the top of the hole. Fill the remaining portion of the hole to within 3/8" of the top with two-component epoxy adhesive meeting all requirements of the ASTM Specification C881, Type IV, Grade 3 if temperature is at or above 50 degrees F (10 degrees C) or AASHTO Specification M237-90, Table 2 Type III for the two component, epoxy adhesive if the temperature is between 31 degrees F (-0.56 degrees C) and 50 degrees F (10 degrees C) with the approval by the Engineer before installation.
5. Place a new monument in the center of the hole. Set the monument so that the legend top is 3/8 inch (10 mm) below the pavement surface.
6. By using the four PK™ nails and a string line or 1/8 inch (3 mm) chalk line, center the monument in the hole to the nearest 0.005 foot (0.002 meters). This can be accomplished by drawing the string across two diagonally opposite PK™ nails.
7. Using a line level, check the monument to make sure it is level.
8. When the hole around the monument is filled to capacity, recheck the monument with string and level in accordance with instructions 6 and 7.
9. Each monument shall be protected from traffic for a minimum of 90 minutes.

This work will be paid for at the contract unit price each for SURVEY MONUMENTS; which shall include all work and materials to complete the installation.

Rev. 10/31/02 SH ;12/1/04GNW

XX002868 – TEMPORARY DITCH CHECK (SPECIAL)

This work shall conform to Section 280 and Section 1080 of the "Standard Specifications", and the Triangular Silt Dike™ detail included in the plans. Temporary Ditch Check (Special) shall be limited to Triangular Silt Dikes™ or an approved equal.

Manufacturer

Triangular Silt Dike Company, Inc.
608 Greenwood
Midwest City, OK 73110-1632
(405) 741-7406

Area Representative/Dealer

GSI Geosynthetics, Inc.
428 N. Pewaukee Road
Waukesha, WI 53188
(800) 444-5523

Each dike shall consist of an approximate 7 foot long triangular section of urethane foam covered with a geotextile fabric, and installed on a geotextile fabric apron. Triangular Silt Dikes™ shall be installed at the locations specified on the Erosion Control Plan, or as directed by the ENGINEER, and in accordance with the detail included in the plans and the manufacturer's recommendations.

The geotextile fabric shall conform to Article 1080.05 of the "Standard Specifications" for Geotechnical Fabric for French Drains.

This work shall be paid for at the contract unit price each for TEMPORARY DITCH CHECK (SPECIAL), and shall include all labor, equipment and material necessary for installation and removal. The ditch checks shall become the property of the CONTRACTOR upon their removal. The maintenance of this item is included with and paid for as part of the contract lump sum price for MAINTENANCE OF TEMPORARY EROSION CONTROL SYSTEMS.

XX003503 – FLARED END SECTION REMOVAL

Description. This work shall consist of the removal of existing concrete flared end sections to be disposed of properly. The resulting disturbed ditch area shall be regraded appropriately according to the plans including restoration with seeding or sodding.

Basis of Payment. This work shall be paid for at the contract unit price each for FLARED END SECTION REMOVAL. This price shall include the cost of all labor, materials and equipment necessary to perform this work in addition to all disposal costs.

XX003885 - IRRIGATION SYSTEM

PART 1- GENERAL

1.01 SCOPE

- A. Provide labor, materials, equipment and services necessary to complete the irrigation work as defined herein and as indicated on the Irrigation Plan and Details. Work shall include, but is not limited to:
1. Complete irrigation system as shown on drawings.
 2. Verify underground utility locations.
 3. The CONTRACTOR shall coordinate work of this section with work of all related trades and SUBCONTRACTORS to assure smooth progression of work.
 4. Protection and/or restoration of all existing improvements.
 5. Trenching and backfilling for all pipes, valves and drain pits specified.
 6. Furnishing and installing all mains, laterals, risers and fittings, sprinkler heads, quick coupling valves, gate valves, control valves, controllers, electric wire, controls, etc., and all necessary specialties and accessories.
 7. Furnishing & installing all sleeves beneath walkways, roads, and driveways where required.
 8. Testing of irrigation system.
 9. Regulating and adjusting sprinkler heads, time sequence control devices and section valves.
 10. Maintenance as defined in Specifications.
 11. A fully automatic irrigation system that provides complete coverage (100%) of all plantings and lawn areas indicated in the irrigation plans shall be provided.

1.02 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
1. All work and materials shall be in full accordance with the latest rules and regulations, including any local plumbing & electrical codes.

2. Should the Contract documents be at variance with the aforementioned rules and regulations, notify Owner's Representative for instructions before proceeding with work affected.

B. Testing:

1. Preliminary review of completed installation will be made prior to backfilling of trenches and during hydrostatic testing.
2. Final review shall be made in conjunction with the final review of lawn, shrub and tree planting.

C. Permits and Inspections:

1. Any permits for the installation or construction of any work included under this contract, which are required by any of the legally constituted authorities having jurisdiction, shall be obtained and paid for by the CONTRACTOR, each at the proper time.
2. The CONTRACTOR shall also arrange for and pay all costs in connection with any inspection and examination required by these authorities.

1.03

SUBMITTALS

A. Certificate of Qualification:

Prior to bid acceptance submit certification of installer's experience identifying a minimum four (4) previous projects with names of Owners and Landscape Architects to the Owner for approval.

- B. CONTRACTOR shall furnish one (1) Manufacturer's service manual each to the Owner and Owner's Construction Representative. Manuals may be loose-leaf and shall contain complete exploded drawings of all equipment installed showing components and catalog numbers together with the manufacturer's name and address.

C. Loose Equipment to Furnish:

Loose sprinkler equipment, operating keys and spare parts shall be furnished by the Irrigation CONTRACTOR in quantities as shown on the plans.

1. Two (2) keys for each controller.
2. Two (2) sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.

3. Two (2) cover lifting tools for valve boxes.

D. Record Drawings

The CONTRACTOR shall maintain one record set of blueline prints of the irrigation system in good condition at the site and mark on them the exact "Record". The CONTRACTOR shall make a daily record of all work installed during each day. Plans shall indicate the exact location of check valves, gate valve, wire locations, head layout, automatic valves, quick couplers, all irrigation and drainage piping etc., shall be shown on the prints. Locations should be shown by the triangular system of measurements from easily identified permanent features, such as buildings, curbs, fences, walks, etc. Drawings shall show approved substitutions, if any, of material including Manufacturer's name and catalogue number. Upon completion all information noted on the prints shall be transferred to a reproducible mylar by the CONTRACTOR. Drawings shall be to scale and all information shall be recorded in a neat, orderly way.

1. At the time of the irrigation mainline test, the CONTRACTOR shall provide a preliminary set of "Record" drawings to the Owner's Construction Representative.
2. On or before the date of final inspection, the CONTRACTOR shall deliver one (1) reproducible mylar and two (2) sets of blueline prints of the "Record" drawings to the owner and Owner's Construction Representative.
3. The delivery of prints shall not relieve the CONTRACTOR of the responsibility of furnishing required information that may have been omitted.

E. Substitutions:

1. The CONTRACTOR shall use materials as specified on the irrigation plan. Material other than that specified will be permitted only after written application by CONTRACTOR and written approval by the Owner's Representative.
2. Substitutions will only be allowed when in the best interest of the Owner.
3. Installation of any approved substitution is the CONTRACTOR'S responsibility. Any changes required for installation of any approved substitution must be made to the satisfaction of the Owner's Representative and without additional cost to Owner.

1.04 JOB CONDITIONS

A. Examination of Site:

The bidder acknowledges that he has examined the site, plans and specifications and the submission of a quotation shall be considered evidence that examinations have been made.

B. Field Conditions:

The CONTRACTOR shall verify drawing dimensions with actual field conditions and inspect related work and adjacent surfaces. The CONTRACTOR shall report to the Owner's Representative all conditions which prevent proper execution of his work.

C. The exact location of all existing utilities, structures and underground utilities, which may not be indicated on the drawings, shall be determined by the CONTRACTOR and he shall conduct his work so as to prevent interruption of service or damage to them. The CONTRACTOR shall protect existing structures and utility services and be responsible for their replacement if damaged by him.

D. The CONTRACTOR shall verify the correctness of all finish grades within the work area to insure the proper soil coverage of the sprinkler system pipes.

1.05 MATERIALS, STORAGE AND CLEAN-UP

A. The CONTRACTOR shall keep the premises free from rubbish and all debris at all times and shall arrange his material storage so as not to interfere with the operation of the project. All unused materials, rubbish and debris shall be removed from the site.

1.06 COMPLETION AND ACCEPTANCE

A. The completion of the contract will be accepted and Notice of Completion recorded only when the entire contract is completed to the satisfaction of the Owner's Representative.

B. Within Ten (10) days of the CONTRACTOR'S notification that the installation is complete, the Owner's Representative will inspect the installation and, if final acceptance is not given, will prepare a "punch list".

C. Final Acceptance

Work under this Section will be accepted by the Owner's Representative upon satisfactory completion of all work including "punch list" items.

1.07 WARRANTY

- A. The entire irrigation system shall be unconditionally guaranteed by the CONTRACTOR as to material and workmanship, including settling of backfilled areas below grade for a period of one (1) year following the date of final acceptance of work and he hereby agrees to repair or replace any such defects occurring within that year at his expense.
- B. It shall be the Irrigation CONTRACTOR'S responsibility to insure complete coverage as specified herein of the areas to be irrigated. During the warranty period the Irrigation CONTRACTOR shall make any adjustments as necessary to maintain proper coverage.
- C. If, within one year from the date of completion, settlement occurs, and adjustments in pipes, valve and sprinkler heads, lawn areas or paving are necessary to bring the system, grade or paving to the proper level of the permanent grades. The CONTRACTOR, as part of the work under his Contract, shall make all adjustments without extra cost to the Owner or Owner including the restoration of all damaged planting, paving or other improvements of any kind.

Should any operational difficulties in connection with the irrigation system develop within the specified guarantee period, which, in the opinion of Owner may be due to inferior material and/or workmanship, said difficulties shall be immediately corrected by the CONTRACTOR to the satisfaction of the Owner at no additional cost to the Owner or Owner, including any and all other damages caused by such defects.

1.08 OPERATION AND MAINTENANCE-IRRIGATION SYSTEM

- A. Important: It is the Landscape CONTRACTOR'S responsibility to determine water application rates and time cycling. The irrigation CONTRACTOR will instruct the Landscape CONTRACTOR on the operation and programming of the controller and will assist the Landscape CONTRACTOR as necessary in such operations throughout the one year maintenance period. Any adjustments, repairs, etc., other than programming are the total responsibility of the Irrigation CONTRACTOR.
- B. The Irrigation CONTRACTOR shall maintain the irrigation system including winterization of the system by the use of compressed air for a period of not less than one (1) year commencing from the time the installation is complete to the satisfaction of the Owner's Representative.

PART 2 PRODUCTS

2.01 GENERAL

All materials to be incorporated in this system shall be new and without flaws or defects and of quality and performance as specified and meeting the requirements of this system.

2.02 BACKFLOW PREVENTOR & ENCLOSURE

Febco 825Y or approved equal in enclosure. Installation shall be as shown on detail sheet. Enclosure shall be hot box model no. LB2ST or equal, mounted on a concrete pad. CONTRACTOR to install Village supplied meter in enclosure.

2.03 PIPE

All piping shall be from virgin parent material. The pipe shall be homogeneous throughout and free from visible cracks, holes, foreign materials, blisters, deleterious wrinkles and dents. All pipe shall be National Sanitation Foundation (NSF) approved.

A. Piping on pressure side of irrigation control valves:

1. Shall be Polyvinyl Chloride (PVC) 1120 with a minimum class rating of 160, sized to maintain a flow velocity of less than five feet (5') per second (FPS).
2. Type I, Grade I, Pressure Rated Pipe.
3. Materials shall meet the requirements set forth in ASTM-D-1784-60T.
4. Outside diameter of pipe shall be same size as iron pipe.
5. Pipe shall be marked at intervals (not to exceed 5') with the following information: Manufacturer's name or trademark, nominal pipe size, schedule. PVC type and grade (i.e. PVC 1120), SDR rating class, working pressure at 73 degrees F and (NSF) approval.
6. PVC Type I shall not be threaded.
7. Caution should be utilized in handling Type I pipe due to the possibility of cracking or splitting when dropped or handled carelessly.
8. When connection is plastic to metal, male adapters shall be used. The male adapter shall be hand tightened, plus one turn with a strap wrench.

B. Piping on non-pressure side of irrigation control valves shall be one of the following:

1. Polyvinyl Chloride (PVC) 1120 with a minimum class rating of 160, NFS approved, sized to maintain a flow velocity of less than five feet (5') per second (FPS).

C. Piping for Sleeving:

High impact type pipe, polyvinyl chloride (PVC) 1120 class rating 160 or as shown on the Drawings.

2.04 SOLVENT

Solvent for PVC shall be #705 Gray NSF approved as manufactured by Industrial Polychemical Service, Gardena, CA (213) 321-6515 or equal.

2.05 FITTINGS

A. Fittings for Solvent-Weld PVC Pipe:

1. Schedule 80, polyvinyl chloride (PVC), Type 1, to meet ASTM D246-73 and D-2467-73 NSF approved.
Manufactured by the following:
Lasco, Anaheim, CA (714) 993-1220
Spears, Sylmar, CA (818) 364-1611
2. Threaded PVC nipples shall be schedule 80.

2.06 QUICK COUPLING VALVES

- A. Valve and key shall be Toro 400 Series.
- B. Furnish two valve keys fitted with three-quarter inch (3/4") swivel hose ends.
- C. All quick coupling valve keys and hose swivels shall be of the same manufacturer as the quick couplers.

2.07 VALVE BOXES

To be injection-molded of polyesters and fibrous inorganic temperature resistant components. Box and lid to be green, manufactured by one of the following:

Ametek, Sheboygan, WI (414) 457-9435
Carson Industries, Inc., Laverne, CA (818) 332-6225

- A. For Remote Control Valve: Shall be 10" circular and sized to provide adequate clearance to operate and service valve.

- B. For Quick Coupler Valves: Shall be round, approximately six inches (6") inside diameter by ten inches (10").

2.08 AUTOMATIC CONTROLLER

The irrigation system controller shall use dial hybrid control technology and be capable of automatic, semi-automatic and manual operations. All programming shall be accomplished by use of a simple programming dial and selection buttons with a large LCD for ease of programming. It shall be housed in a metal weatherproof, locking enclosure suitable for indoor or outdoor use. It shall have a manufacturer's limited warranty of 5 years.

The controller shall have 24 stations with four independent programs that can run simultaneously and with each stations watering time independently variable from one minute to 10 hours in one-minute increments. The controller shall have 16 total start times assignable to any program(s). The controller shall stack (put on hold) start times to prevent overlap within a program. If two (or more) start times are programmed, causing watering times to overlap, the controller will stack the additional start time and run it when the first cycle finishes.

The controller shall have a seven-day calendar, odd/even day or interval options of one to 30 days. The controller shall have a 365-day calendar for true unattended odd/even day programming with excluded day option when used with the odd/even day option and shall have automatic leap year compensation. Time-of-day, day-of-week, programming and operational status information shall be shown in a large LCD display. The master valve shall be programmable by program. The controller shall be year-2000 compliant.

The controller shall have a Season Adjust feature that allows the independent adjustment of each irrigation program from 10% to 200% in 10% increments without permanently altering the program. The controller shall have a programmable Off/Rain Delay setting to allow all programs to be disabled permanently or for a specified period of one to seven days. At the end of the specified rain delay period, the controller will automatically resume normal operation. The controller shall have a Rain Off position on the dial, which will immediately turn off station watering and prevent future automatic watering to occur while the dial is set in this mode. The controller shall have a program erase feature which erases all programmed station run times, start times, water days, resets season adjust to 100% and resets the master valve to On for a selected program.

The controller shall have a manual-start feature that allows all or independently selected stations to be run on a program. The controller shall also have true manual single station On/Off capability. When a program is

running (automatic or manually started), the controller will display the currently running program, the currently running station, time remaining on the running station and status of the master valve. While operating in the manual mode, the user may adjust the run time of the current station, pause and resume the current station, advance directly to the next station or cancel the cycle. Run-time adjustments made while a program is operating in the manual mode shall not affect normal program memory.

The controller shall have a sensor port compatible with normally open, switch-type sensors. The controller will suspend automatic program operation when the sensor is active. The controller shall have an integrated bypass switch on the front panel to allow the operation of automatic programs while the sensor is active (open).

The controller shall have a self-diagnostic electronic circuit breaker with valve-short detection that identifies and overrides an electrical malfunction and shall continue to operate all other stations in the program in sequence. The controller shall display the problem station until the operator resets the controller. The controller shall have the SurgePro^a System, which consists of heavy-duty surge protection consisting of MOVs and inductors.

The controller shall use a standard 9-volt alkaline battery for real-time clock retention in the event of a power failure. The battery will be included with the clock. The controller shall maintain the real-time clock and date for 90 continuous days with a fully charged alkaline battery. The battery saving option places the controller in a shut down mode while maintaining the real time clock. Program data shall be stored in non-volatile memory that will be retained faithfully for a minimum of thirty years without power. The controller shall have a snap-out program module for off-site programming when battery is installed.

The controller shall have a Valve Test Terminal (Hot Post). The controller shall have a power input of 120 V a.c. ($\pm 10\%$) or 220 V a.c. + 10% and be capable of operating up to two 24 V a.c. solenoids per station at 0.50 amperes (12 VA). In addition, the controller shall be capable of running a 24 V a.c. Pump/Master Valve output circuit at 0.5 amperes (12 VA). The controller shall be capable of running up to four 24 V a.c. solenoids plus a master valve at 1.24 amperes. The controller shall allow the selective use of the Pump/Master Valve circuit by station. Total controller output load shall not exceed 1.25 amperes (30 VA) at 24 V a.c.

The controller shall be developed and manufactured by an ISO 9001-certified facility. The controller, model number CC-M-24, shall be manufactured by The Toro Company, Irrigation Division, Riverside, California, USA. or equal.

Wire: Solid copper wire. U.L. approved for direct burial in ground. Minimum gauge: #14 UF. (#12 UF for runs over 1,000 LF.) Common ground wire shall be white.

2.10 SPLICING MATERIAL

Splicing Materials: 3M Direct Bury (DBY) splice kits by 3M Corporation, Austin, TX (812) 984-5657.

2.11 REMOTE CONTROL VALVES

The 252 Series valve shall be of globe configuration with a female-threaded inlet and outlet. The valve cap shall be constructed of glass-filled Zytel[®] for stability under pressure. The 1 ½" and 2" valves shall have a stainless-steel valve seat for maximum durability. The diaphragm shall be of single-piece rubber construction to retain flexibility and provide maximum sealing throughout its area. The valve shall have a fabric-reinforced diaphragm on 1 ½" and 2" models and a rubber diaphragm on 1" models. The diaphragm assembly shall form a solid-piece component.

The valve shall have a forward-flow design and an external manual downstream bleed/flush. The valve shall have manual flow control with a hand-operated, rising-type flow-control stem with a control wheel/handle. For 1" models, friction loss at 40 GPM shall not exceed 7.5 PSI on electric, angle valves and 9.5 on electric, globe valves. For 1 ½" models, friction loss at 120 GPM shall not exceed 11.0 PSI on hydraulic, angle valves; 13.5 PSI on hydraulic, globe valves; 9.0 PSI on electric, angle valves; and 15.0 PSI on electric, globe valves. For 2" models, friction loss at 180 GPM shall not exceed 6.0 PSI on hydraulic, angle valves; 11.0 PSI on hydraulic, globe valves; 7.0 PSI on electric, angle valves; and 11.0 PSI on electric, globe valves. The burst pressure safety rating shall be 750 PSI.

An effluent flow-control knob and BSP threads shall be available options.

The valve shall be normally closed by internal water pressure. A 24" solenoid lead wire shall be attached to a removable 24 V a.c., 50/60 Hz solenoid with a waterproof coil. The valve shall have a self-cleaning, stainless-steel metering pin to protect bleed ports and purge contaminants.

PART 3 EXECUTION

3.01 GENERAL

- A. The Irrigation CONTRACTOR shall carefully schedule his work with the Landscape CONTRACTOR and all other site developments.

- B. Sleeves are required wherever piping or electrical wires are placed under paved surfaces. Install sleeves prior to commencement of paving.
- C. No consideration will be given to any design changes. Should any changes be deemed necessary after award of contract, for proper installation and operation of the system, such changes shall be negotiated by the Owner's Representative.
- D. Lay out work as accurately as possible to drawings. Drawings are diagrammatic to the extent that swing joints (QCV), offsets and all fittings are not shown.
- E. Full and complete coverage is required. CONTRACTOR shall make any necessary minor adjustments to layout as required to achieve full coverage of irrigated areas at no additional cost to the Owner.
- F. Where piping is shown on drawings to be under paved areas but running parallel and adjacent to planted areas, the intent is to install piping in planted areas. Do not install directly over another line in same trench.
- G. It shall be the CONTRACTOR'S responsibility to establish the location of all sprinkler heads in order to assure proper coverage of all areas. In no case shall spacing of sprinkler heads exceed distances shown on the drawings and/or those specified. Pipe sizes shall conform to those shown on the drawings. No substitutions of smaller pipe sizes will be permitted, but substitutions of larger sizes may be reviewed. All pipe damaged or rejected because of defects shall be removed from the site at the time of said rejection.
- H. Install irrigation system after completion of site grading, the irrigation system shall be installed and completely operational three days prior to the installation of any planting operations.

3.02

TRENCHING

- A. Perform all excavations as required for installation of work included under this Section, including shoring of earth banks, if necessary. Restore all surfaces, existing underground installation etc., damaged or cut as a result of the excavations, to their original condition.
- B. Should utilities not shown on the plans be found during excavations, CONTRACTOR shall promptly notify Owner's Representative for instructions as to further action. Failure to do so will make CONTRACTOR liable for any and all damage thereto arising from his operations subsequent to discovery of such utilities. Indicate such utility crossings on the record drawings promptly.

- C. Trenches shall be open, vertical sided construction wide enough to provide free working space around work installed and to provide space for backfilling and compacting.
- D. When two (2) pipes are to be placed in the same trench, a three inch (3") space is to be maintained between the pipes. The CONTRACTOR shall not install two pipes with one directly above the other.
- E. Trenches located under paving shall be backfilled with sand (a layer six inches (6") below the pipe and three inches (3") above the pipe) and compacted in layers of 95% compaction. Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe as follows:
 - 12" over non-pressure lateral lines
 - 18" over non-pressure lateral lines under paving
 - 18" over control wires
 - 18" over sprinkler main line
 - 24" over sprinkler main line under paving
- F. The CONTRACTOR shall cut trenches for pipe to required grade lines and compact trench bottom to provide accurate grade and uniform bearing for the full length of the line.
- G. All laterals and mainline shall be sufficiently sloped to provide positive drainage through drain valves.
- H. The CONTRACTOR shall be held responsible for any damage caused by these operations and shall immediately repair or replace damaged parts.

3.03

PIPE LINE ASSEMBLY

- A. General
 - 1. Install pipes and fittings in accordance with manufacturer's latest period instructions.
 - 2. Clean all pipes and fittings of dirt, scales and moisture before assembly.
 - 3. All pipe, fittings and valves, etc., shall be carefully placed in the trenches. Interior of pipes shall be kept free from dirt and debris and when pipe laying is not in progress, open ends of pipe shall be closed by approved means.
 - 4. All lateral connections to the mainline as well as all other connections shall be made to the side of the mainline pipe. No connections to the top of the line shall be allowed.

B. Solvent-Weld Joints for PVC Pipes:

1. Use solvents and methods by pipe and solvent manufactures.
2. Cure joint a minimum of one hour before applying any external stress on the piping and at least twenty-four (24) hours before placing the joint under water pressure, unless otherwise specified by manufacturer.

C. Threaded Joints for PVC Pipes:

1. Use Teflon Tape on all threaded PVC fittings.
2. Use strap-type friction wrench only. Do not use metal jawed wrench.
3. When connection is plastic to metal, male adapters should be used. The male adapter shall be hand tightened, plus one turn with a strap wrench.

D. Laying of Pipe:

1. Pipes shall be bedded in at least two inches (2") of finely divided material with no rocks or clods over one inch (1") diameter to provide a uniform bearing.
2. Pipe shall be snaked from side to side of trench bottom to allow for expansion and contraction. One additional foot per 100 feet of pipe is the minimum allowance for snaking.
3. Do not lay PVC pipe when there is water in the trench.
4. Plastic pipe shall be cut with PVC pipe cutters or hacksaw, or in a manner so as to ensure a square cut. Burrs at cut ends shall be removed prior to installation so that a smooth unobstructed blow will be obtained.
5. All plastic to plastic joints will be solvent-weld joints or slip seal joints. All plastic pipe fittings shall be installed as outlined and instructed by the pipe manufacturer and it shall be the CONTRACTOR'S responsibility to make arrangements with the pipe manufacturer for any field assistance that may be necessary. The CONTRACTOR shall assume full responsibility for the correct installation.

E. PVC Sleeves and Electrical Conduit:

1. All PVC sleeves shall be a minimum of twice (2x) the diameter of the

pipe to be sleeved.

2. All PVC electrical conduit shall be of sufficient size to hold the required quantity of wires. Electrical wires are not to be placed in the same sleeve with water pipes.

F. Thrust Blocks:

1. Concrete thrust blocks must be provided on the thrust side of the mainline pipe wherever the pipe line:
 - a. Changes direction, as at tees or bends.
 - b. Dead ends.
 - c. Any other spot where thrust is to be expected.

3.04

IRRIGATION CONTROL VALVES

- A. Install control valves in valve boxes grouping together where practical. Place no closer than twelve inches (12") to walk edges, buildings and walls.
- B. Remote control valves shall be adjusted so that the most remote sprinkler heads operate at the pressure specified.
- C. Valves shall be installed as shown in details and in accordance with manufacturer's instructions and specifications.

3.05

QUICK COUPLING VALVES

- A. Shall be set a minimum of twelve inches (12") from walks, curbs, or paved areas where applicable or as otherwise noted. Quick cooling valves shall be housed in valve boxes.
- B. Valves shall be installed on a three (3) elbow PVC Schedule 80 swing joint assembly as detailed on the drawings.

3.06

VALVE BOXES

Valve boxes shall be set flush with finish grade lawn areas and one half inch (1/2") above finish grade in ground cover and shrub bed areas.

3.07

DRAIN VALVES

- A. All laterals shall be provided with automatic valves.
- B. Drain valves are to be provided at sufficient intervals, to provide complete drainage of all piping at a minimum of every 200'.

3.08

AUTOMATIC CONTROLLER

- A. The automatic controller shall be installed at the approximate location shown on the plan. Suitable power supply shall be supplied by CONTRACTOR.
- B. All local and other applicable codes shall take precedence in connecting the 110 volt electrical service to the controller.
- C. Install per local code, manufacturers latest printed instructions.
- D. Connect remote control valves to controller in sequence to correspond with station setting beginning with stations 1, 2, 3, etc.
- E. Affix controller name (i.e. "Controller A") on inside of controller door with letters minimum of one inch (1") high. Affix a non-fading copy of irrigation diagram to cabinet door below controller name. Irrigation diagram to be scaled between two sheets of 20 mil (minimum) plastic. Irrigation diagram shall be a reduced copy of the as-built drawing and shall show clearly all valves operated by the Controller, showing station number, valve size and type of planting irrigated.

3.09

TESTING

- A. Make hydrostatic tests when welded PVC joints have cured as per manufacture's instructions.
 - 1. Pressurized Mains:
 - a. Completely install mains, isolation valves and control valves. Do not install laterals.
 - b. Open all isolation valves.
 - c. Fill all lines with water and shut off at meter.
 - d. Pressurize the main with air to 70 PSI. monitor gauge for pressure loss for four (4) hours.
 - e. Leave line and fittings exposed throughout testing period.
 - f. Leaks resulting from test shall be repaired and test repeated until the system passes.
 - g. Test all isolation valves for leakage.
 - 2. Non-pressure Laterals:
 - a. Test piping after laterals and risers are installed and system is fully operational. Leave trenches open to detect possible leaks.

3.10

INSPECTION

- A. The CONTRACTOR shall maintain proper facilities and provide access for inspection to all parts of the work.
- B. Irrigation inspection shall consist of a minimum of:
 - 1. Mainline pressure test
 - 2. Coverage Test
 - 3. Final irrigation inspection
- C. If the specifications, the Owner's Representative's instructions, laws, ordinances or any public authority requires any work to be specifically tested or approved, the CONTRACTOR shall give the Owner's Representative three (3) days notice of its readiness for inspection.
- D. The CONTRACTOR shall be solely responsible for notifying Owner's Representative where and when such work is in readiness for testing.
- E. If any work should be covered up without approval or the Owner's Representative, it must be uncovered, if required, for examination at CONTRACTOR'S expense.
- F. No inspection will commence without "Record" drawings and without completing previously noted corrections, or without preparing the system for inspection.

3.11

BACKFILLING AND COMPACTING

- A. After system is operating and required tests and inspections have been made, backfill excavations and trenches.
- B. Backfill for all trenches, regardless of the type of pipe covered, shall be compacted to minimum 95 percent density under pavements, 85 percent under planted areas.
- C. Backfill material shall be approved soil. Unsuitable material, including clods and rocks over two inches (2") in size shall be removed from the site.
- D. A fine granular material shall be placed initially on all lines with a minimum of three inches (3") cover. Loose, granular topsoil from excavated material may be used provided that no foreign matter larger than one-half inch (1/2") in size shall be permitted in the initial backfill.
- E. Trenches located under paving shall be backfilled with sand (a layer six inches (6") below the pipe and three inches (3") above the pipe) and compacted in layers of 95 percent compaction in accordance with ASTM-D-1557.

- F. Compact trenches in areas to be planted, by thoroughly flooding the backfill.
- G. Within all planting and lawn areas the existing four inch (4") layer of topsoil shall be restored to its original condition and finish grade.
- H. The CONTRACTOR shall dispose of surplus earth remaining after backfilling off-site.

3.12

MAINTENANCE

CONTRACTOR shall drain irrigation system the fall after installation & activate the following spring as part of this contract work.

4.0

MEASUREMENT AND PAYMENT

4.01

MEASUREMENT

Measurement will not be made for Irrigation System.

4.02

PAYMENT

- A. Payment for the work specified in this Section will be made at the lump sum price for Irrigation System, in the Schedule of Prices. Irrigation System shall include but not be limited to the following items of work.
 - 1. Fixed spray sprinkler head & misc. fittings
 - 2. Electrical Valve & Box Complete
 - 3. 1" PVC Pipe
 - 4. 1 ½" PVC Pipe
 - 5. 2" PVC Pipe
 - 6. Irrigation Controller
 - 7. RPZ backflow preventor & enclosure
 - 8. Irrigation Control Cable

These prices shall be full compensation for furnishing, and installing all materials and for all preparation, excavation, installation and backfilling; and for all labor, equipment, tools, and incidentals necessary to complete the items.

XX004727 - CAST-IN-PLACE CONCRETE WALL

Description. This work shall consist of constructing a cast-in-place concrete median wall with an architectural concrete form liner and precast stone cap in accordance with Sections 503 and 508 of the "Standard Specifications" and as specified herein.

Materials. Concrete shall meet the requirements of IDOT Class SI with a minimum cement weight per cubic yard of 605 lbs and a minimum 14 day compressive strength of 3,500 psi. The CONTRACTOR shall use one brand of cement and one concrete supplier throughout the project.

Architectural concrete form liner shall be Pattern No. 12010 - Minnehaha Blend (Custom Rock International) or an equal approved by the ENGINEER. **This form liner will create a wall finish matching that of the planters on Butterfield Road from Huntington Drive to Ridgewood Lane.** For additional requirements see the special provision for RUSTICATION FINISH contained elsewhere herein. A rustication strip at the top and bottom of the form liner is required. The use of a manufacturer recommended form-release agent will be required. The CONTRACTOR shall supply the County an unused form liner a minimum size of 1.5' high by 10' long for future repairs. A custom form liner will be required at the angled median wall ends and at the precast stone median signs that are to be incorporated into the walls.

Reinforcement bars shall be epoxy coated with $f_y \text{ min} = 60,000$ psi in accordance with Section 508 of the "Standard Specifications".

Architectural precast stone shall consist of Portland cement and fine aggregate to simulate natural cut limestone. Precast stone shall have a minimum compressive strength of $f'_c = 6,500$ psi.

- A. Portland Cement shall conform to ASTM-C150 Type I or Type III. All cement shall be from the same source throughout the project.
- B. White Portland Cement shall conform to ASTM-C150 Type I or Type III. All cement shall be from the same source throughout the project.
- C. Fine Aggregate to be carefully graded, washed natural Gravel or (crushed and graded) stones such as granite, quartz, limestone or other durable stone meeting ASTM-C33 except that gradation may vary to achieve the desired finish and texture.
- D. Color – shall be inorganic (natural or synthetic) iron oxide pigments meeting ASTM-C979 excluding the use of a cement grade of carbon black pigment, and shall be guaranteed by the pigment manufacturer to be lime-proof. The amount of pigment shall not exceed 10% by weight of cement used. The color shall match the color of the cast-in-place concrete.
- E. Reinforcement:
 1. Standard bars: ASTM A615, Grade 60.
 2. Welded wire fabric: ASTM A185.
 3. All reinforcement located within 1 inch of weather-exposed surface shall be

hot-dip galvanized after fabrication, ASTM A123.

- F. Finish: Finish shall be smooth-honed free of protruding exposed aggregate.

Submittals. A mock-up wall section with form liner and precast stone cap will be required a minimum of 10 feet in length. If the mock-up is approved by the County, the mock-up may be incorporated into the final structure. If the mock-up is rejected, it must be removed and a new mock-up with the necessary adjustments shall be constructed for review by the County.

Construction Requirements. Concrete placement shall be in accordance with Section 503 of the "Standard Specifications". Concrete shall be properly vibrated to achieve proper consolidation, but not over vibrated to cause aggregate segregation. Any honeycombing or unconsolidated concrete shall be removed and replaced at no cost to the County. All exposed surfaces shall be free of defects and fins and other projects shall be ground smooth. Grind over seam marks until smooth. Upon completion of grinding, CONTRACTOR shall apply a 5 to 10 percent concentration of hydrochloric acid wash to clean the exposed surfaces. Thoroughly neutralize and flush acid from finished surfaces with water under pressure. Precast stone caps shall be mortared to the top of the concrete wall and set on stainless steel pins cast into the concrete wall (min. 2 per cap).

Curing.

- A. General: Comply with ACI 308 "Standard Practice for Curing Concrete". Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacture's instructions after screeding and bull floating, but before power floating and troweling.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- C. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified.
- D. Provide moisture curing by the following methods:
1. Keep concrete surface continuously wet by covering with water.
 2. Use continuous water-fog spray.
 3. Cover concrete surface with specified absorptive cover, thoroughly water cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4-inch lap over adjacent absorptive covers.
- E. Provide moisture-retaining cover curing as follows:

1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- F. Apply curing compound on exposed interior slabs and on exterior slabs as follows:
1. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hour and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
- G. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue during by methods specified above, as applicable.
- H. Curing Unformed Surfaces: Cure unformed surfaces, including slabs, floor topping and other flat surfaces, by applying the appropriate curing methods.
1. Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed.

Expansion Joints. Expansion joints shall be constructed at 60' maximum spacing. 4' long smooth dowels at same size and spacing as continuous reinforcement shall be placed through the joint. A ½" preformed joint filler shall be placed at the joint.

Protective Coat. Upon completion of curing, grinding and washing, CONTRACTOR shall apply two coats of boiled linseed oil mixture as per Article 503.19 of the "Standard Specifications." This item will not be paid for separately, but will be included in the unit cost of CAST-IN-PLACE CONCRETE WALL.

Basis of Payment. Cast-in-place concrete median walls shall be paid at the contract unit price per square foot for CAST-IN-PLACE CONCRETE WALL, which price shall include any special finishes or special forming required, reinforcement, precast stone cap, curing compounds, and protective coat to complete the work as shown on the plans and as specified herein.

THIS PAGE INTENTIONALLY LEFT BLANK

THIS PAGE INTENTIONALLY LEFT BLANK.

XX004960 - REMOVAL OF EXISTING STREET LIGHTING

This work shall consist of furnishing all labor, equipment and materials necessary to remove the existing lighting units shown on the plans. Removal to include the pole, mast arm, brackets, wiring, luminaire, exposed conduits, connectors, etc. and delivering removed units intact to the Village of Libertyville.

This work shall be paid for at the contract unit price each for REMOVAL OF EXISTING STREET LIGHTING :

XX004970 – TEMPORARY PAVEMENT SUPERPAVE

This work shall include the construction and removal of temporary pavement at the locations shown on the plans or as directed by the ENGINEER.

Temporary pavement shall consist of 1-3/4" of Bituminous Concrete Surface Course, Superpave, Mix "D", N50; over 6-1/4" of Bituminous Base Course, Superpave; constructed and compacted in accordance with Section 406 of the Standard Specifications. The temporary pavement shall be placed on a compacted sub-grade with a 2 1/4" lift over the initial 4" lift of Base Course.

The contractor will use bituminous concrete according to Section 355, 356, 406 of the Standard Specifications, and the BDE special provisions for Superpave Bituminous Concrete Mixtures. The bituminous mixtures to be used are specified in the plans.

Articles 355.10 and 406.21 of the Standard Specifications shall not apply.

The removal of the Temporary Pavement Superpave shall conform to Section 440 of the Standard Specifications.

Method of Measurement: Temporary pavement will be measured in place and the area computed in square yards. Removal of Temporary Pavement Superpave will not be measured.

Basis of Pavement: This work will be paid for at the contract unit price per ton for TEMPORARY PAVEMENT SUPERPAVE.

Removal of temporary pavement will not be paid for separately, but will be included in the contract unit price per ton for TEMPORARY PAVEMENT SUPERPAVE.

XX005651 - DRAINAGE BOARD

Description. This work shall consist of furnishing and installing a geocomposite drainage system on the inside of cast-in-place concrete median walls.

Materials. Sheet Drain as manufactured by Greenstreak (800) 325-9504 or an approved equal.

All Greenstreak standard Drain Panels are manufactured using a High-Impact Polystyrene Core (HIPS) with UV stabilizers to inhibit ultraviolet degradation. Each panel is covered on one side with a polypropylene geotextile filter fabric.

Drainage Systems must meet or exceed AASHTO/AGC/ARTBA guidelines per their joint publication titled Task Force 25 "Guide Specifications for Geotextiles in Separation Applications."

Construction Requirements. The filter fabric faces out toward the backfill (the direction from which the water will come).

Panels should lap a minimum of two rows of dimples on all edges. Both the core and the filter fabric should be shingled in the direction of the water flow.

Attach the drain using a general construction grade adhesive, pressure-sensitive adhesive or a mastic used for membrane applications. The membrane and drain core should be clean and dry. Care should be taken to be sure the adhesive is compatible with the dampproofing material or waterproofing material or waterproofing membrane and the drain core. Check with the waterproofing manufacturer and Greenstreak before making a final decision.

Method of Measurement and Basis of Payment. This work shall be measured and paid for at the contract unit price per square foot for DRAINAGE BOARD.

XX011700 – WATER MAIN FITTINGS

This work shall consist of furnishings and installing all caps, sleeves, tees, bends, crosses, reducers and retainer glands necessary to complete the water main installation as shown on the plans.

All fittings shall be ductile iron, mechanical joint in accordance with AWSI/AWWA C153/A21.53 and ANSI/AWWA C111/A 21.11 installed using Corten T-bolts and nuts. Fittings shall be cement-lined and seal coated in accordance with ANSI/AWWA C104/A21.4. The working pressure rating shall be 350 psi. All joints between the water main pipe and fitting shall be restrained using Megalue Retainer Glands or an approved equal.

Testing and disinfecting of fittings shall be as specified elsewhere herein.

Water main fittings will be measured by weight in pounds of actual fittings installed. The cost of retainer glands will not be paid for separately, but will be included in the unit cost per pound of the associate fitting, of weight shown.

In lieu of weighing the fittings at the job site, the fittings may be delivered with a letter from the manufacturer certifying the weight of each type and size of fitting, subject to the review of the ENGINEER.

The weight per fitting allowable for payment shall not exceed the following:

45° bend, 6" - 39 lbs	45° bend, 16" - 204 lbs.
45° bend, 8" - 56 lbs.	11° bend, 8" - 45 lbs.
45° bend, 10" - 78 lbs.	22° bend, 10" - 66 lbs
45° bend, 12" - 102 lbs.	22° bend, 16" - 178 lbs
Tee, 8"x6" - 81 lbs.	Tee, 12"x8" - 146 lbs.
Tee, 10"x4" - 92 lbs.	Tee, 12"x12" - 198 lbs.
Tee, 10"x6" - 116 lbs.	Tee, 16"x16" - 324 lbs.
Tee, 12"x6" - 133 lbs.	
Cross, 12"x12" - 202 lbs.	Reducers, 10"x8" - 54 lbs.
Reducers, 12"x10" - 63 lbs.	Reducers, 16"x12" - 120 lbs.
Cut-In Sleeve, 6" - 50 lbs	
Cut-In Sleeve, 8" - 67 lbs.	Cut-In Sleeve, 12" - 157 lbs.
Cut-In Sleeve, 10" - 122 lbs.	Cut-In Sleeve, 16" - 172 lbs.
8" Cap - 26 lbs.	12" Cap - 46 lbs.
10" Cap - 32 lbs.	16" Cap - 94 lbs.

Ductile iron fittings and accessories will be measured in pounds as installed. Any fittings not shown on the plans, but, in the opinion of the ENGINEER, are found necessary to be installed due to unanticipated underground obstructions will also be measured for payment. The CONTRACTOR will be required to maintain a list of all items used and provide an

invoiced weight for payment purposes.

This work will be paid for at the contract unit price per pound for WATER MAIN FITTINGS, which price shall be payment in full for all labor, equipment, materials, retainer glands, testing and disinfecting, to complete the work as specified herein.

Z0001050 - AGGREGATE SUBGRADE, 12"

This work shall consist of the construction of a 12" thick aggregate subgrade. The subgrade shall be placed in two (2) lifts. The lifts shall be constructed according to the following:

- 1) The first lift shall be 8" thick. The work shall be done in accordance with the applicable portions of Section 207 of the "Standard Specifications". The material shall meet the requirements of Article 1004.06 of the "Standard Specifications", except as follows.
 - a) Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete will be permitted. Steel slag and other expansive materials will not be permitted.

Sieve Size	Percent Passing
6" (150mm)	97 +/- 3
4" (100mm)	90 +/- 10
2" (50mm)	45 +/- 25
#200 (75µm)	5 +/- 5

- b) Gravel and Crushed Gravel

Sieve Size	Percent Passing
6" (150mm)	97 +/- 3
4" (100mm)	90 +/- 10
2" (50mm)	55 +/- 25
#4 (4.75mm)	30 +/- 20
#200 (75µm)	5 +/- 5

- 2) The second lift shall be a 4" (nominal) thick capping aggregate. The work shall be done in accordance with the applicable portions of Section 351 of the "Standard Specifications". The material shall be limited to the following:
 - a) Crushed Stone, Crushed Blast Furnace Slag, Crushed Concrete, Gravel, and Crushed Gravel having a gradation CA 6 in accordance with the requirements of article 1004.01 of the "Standard Specifications". Steel slag and other expansive materials will not be permitted.
 - b) Reclaimed asphalt pavement (RAP) meeting the requirements of article 1004.07 of the Standard Specifications", and the following:
 - i) 100% passing the 3 inch (75mm) sieve.
 - ii) Well graded down through fines.
 - iii) RAP shall not contain steel slag or other expansive material. RAP proposed for use as a capping aggregate shall be tested by the Department. The

results of the tests will determine if the material is considered expansive (not allowed) or not (allowed).

- 3) A vibratory roller meeting the requirements of Article 1101.01(g) of the "Standard Specifications", shall be used to roll each lift of material to obtain the desired keying or interlock and necessary compaction. The Engineer will verify that adequate keying has been obtained.

This work shall be paid for at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE, 12", which price shall include the furnishing and placing of both materials described above.

Z0013798 - CONSTRUCTION LAYOUT

The Contractor shall be required to furnish and place construction layout stakes for this project. The County will provide adequate reference points to the centerline of survey and bench marks as shown in the plans and listed herein. Any additional points set by the Division of Transportation will be identified in the field to the Contractor and all field notes will be kept in the office of the Resident Engineer.

The Contractor shall provide field forces, equipment, and material to set all additional stakes for this project, which are needed to establish offset stakes, reference points, and any other horizontal or vertical controls, including supplementary bench marks, necessary to secure a correct layout of the work. Stakes for line and grade of pavement and/or curb shall be set at sufficient station intervals (not to exceed 50 ft.) to assure substantial conformance to plan line and grade. The Contractor will not be required to set additional stakes to locate a utility line which is not included as a pay item in the contract or to determine property lines between private properties.

The Contractor shall be responsible for having the finished work conform to the lines, grades, elevations, and dimensions called for in the plans. Any inspection or checking of the Contractor's layout by the Division of Transportation Engineer and the acceptance of all or any part of it shall not relieve the Contractor of his/her responsibility to secure the proper dimensions, grades, and elevations of the several parts of the work. The Contractor shall exercise care in the preservation of stakes and bench marks and shall have them reset at his/her expense when any are damaged, lost, displaced, or removed or otherwise obliterated.

Responsibility of the County.

- (a) The Division of Transportation will locate and reference the centerline of all roads and streets except interchange ramps. The centerline of private entrances and short street intersection returns may not be located or referenced by the Division of Transportation.

Locating and referencing the centerline of survey will consist of establishing and referencing the control points of the centerline of surveys such as PC's, PT's and as many POT's as are necessary to provide a line of sight.

- (b) Bench marks will be established along the project outside of construction lines not exceeding 1000 ft intervals horizontally and 20 ft. vertically.
- (c) Stakes set for (a) and (b) above will be identified in the field to the Contractor.
- (d) The Division of Transportation will make random checks of the Contractor's staking to determine if the work is in conformance with the plans. Where the Contractor's work will tie into work that is being or will be done by others, checks will be made to determine if the work is in conformance with the proposed overall grade and horizontal alignment.

- (e) The Division of Transportation will set all stakes for utility adjustments and for* building fences along the right of way line by parties other than the Contractor.
- (f) The Division of Transportation will make all measurements and take all cross sections from which the various pay items will be measured.
- (g) Where the Contractor, in setting construction stakes, discovers discrepancies, the Division of Transportation will check to determine their nature and make whatever revisions are necessary in the plans, including the recross sectioning of the area involved. Any additional restaking required by the Engineer will be the responsibility of the Contractor. The additional restaking done by the Contractor will be paid for according to 109.04 of the Standard Specifications.
- (h) The Division of Transportation will accept responsibility for the accuracy of the initial control points as provided herein.
- (i) It is not the responsibility of the Division of Transportation, except as provided herein, to check the correctness of the Contractor's stakes; any errors apparent will be immediately called to the Contractor's attention and s(he) shall be required to make the necessary correction before the stakes are used for construction purposes.
- (j) Where the plan quantities for excavation are to be used as the final pay quantities, the Division of Transportation will make sufficient checks to determine if the work has been completed in conformance with the plan cross sections.

Responsibility of the Contractor,

- (a) The Contractor shall establish from the given survey points and bench marks all the control points necessary to construct the individual project elements. The Contractor shall provide the Engineer adequate control in close proximity to each individual element to allow adequate checking of construction operations. This includes, but is not limited to, line and grade stakes, line and grade nails in form work, and/or filed or etched marks in substantially completed construction work.

It is the Contractor's responsibility to tie in centerline control points in order to preserve them during construction operations.

It is the Contractor's responsibility to set right-of-way stakes prior to the installation of Silt Filter Fence(s) or disturbance of any soil. These stakes shall be set at 25m (100 ft) station intervals and maintained throughout the project.

- (b) At the completion of the grading operations, the Contractor shall set stakes at 100ft. station intervals along each profile grade line. These stakes will be used for final cross sectioning by the Division of Transportation.

- (c) The Contractor shall locate the right of way points for the installation of right-of-way markers. The Contractor shall set all line stakes for the construction of fences by the Contractor.
- (d) All work shall be in accordance with normally accepted self-checking surveying practices. Field notes shall be kept in standard survey field notebooks and those books shall become the property of the Division of Transportation at the completion of the project. All notes shall be neat, orderly and in accepted form.
- (e) For highway structure staking, the Contractor shall use diligent care and appropriate accuracy. Points shall be positioned to allow reuse throughout the construction process. Prior to the beginning of construction activities, all structure centerlines and pier lines are to be established by the Contractor and checked by the Engineer. The Contractor shall provide a detailed structure layout drawing showing span dimensions, staking lines and offset distances.

Method of Measurement and Basis of Payment. This item will be paid for at the contract lump sum price for CONSTRUCTION LAYOUT.

Z0019600 - DUST CONTROL WATERING

Description. This work shall be performed in accordance with Section 107 of the Standard Specifications with the following alterations.

107.36 Dust Control. Delete section (d) of paragraph 4 and add the following: Dust shall be controlled by the uniform application of sprinkled water and shall be applied only when directed and in a manner approved by the Engineer. All equipment used for this work shall meet with the Engineer's approval and shall be equipped with adequate measuring devices for determining the exact amount of water discharged. All water used shall be properly documented by ticket or other approved means.

Delete paragraph 6 in its entirety. The intent of dust control watering is to supplement the Village's dust control program. The Village applies a dust control suppressant as necessary. The dust suppressant is applied regularly until pavement is restored. The cooperation of the contractor regarding this activity is addressed in Section 105.08 of the Standard Specifications.

Method of Measurement. This work will be measured in units of gallons of water applied. One unit is equivalent to 1,000 gallons of water applied. The Contractor's attention is called to Article 107.18 of the Special Provisions.

Basis of Payment. This work will be paid for at the contract unit price per unit for DUST CONTROL WATERING, which price shall include all labor, water and equipment for controlling dust as herein specified.

Z0022800 – FENCE REMOVAL

This work shall consist of removing existing fences, of all materials, in conflict with the proposed improvements as shown on the plan and as directed by the Engineer.

The Contractor will dispose of all removed fence and appurtenances per Article 202.03.

All openings in fence caused by fence removal will be closed and secured by the end of the day that fence is removed, as approved by the Engineer.

This work shall be measured and paid for at the contract unit price per foot for FENCE REMOVAL.

Z005XXXX – SANITARY SEWER

This work shall consist of constructing ductile iron sanitary sewers of the size specified at locations shown on the plans in accordance with Divisions II and III of the "Standard Specifications for Water and Sewer Main Construction in Illinois" and the applicable requirements of Section 550 of the "Standard Specifications for Road and Bridge Construction."

Materials:

1. Ductile Iron Pipe
Ductile iron pipe shall comply with ANSI A21.51, thickness CLASS 52, with joints complying with ANSI A21.11.
Ductile iron pipe shall be cement lined complying with ANSI A21.4 or AWWA C205, standard thickness.
2. Fittings
Ductile iron fittings shall be mechanical joint complying with ANSI A21.10 or A21.53.
Ductile iron fittings shall be cement lined complying with ANSI A21.4, standard thickness.

Construction requirements.

The excavation, bedding, pipe laying, backfilling, and clean up shall be completed in accordance with the applicable portions of Divisions II and III of the WATER AND SEWER SPECIFICATIONS. The bedding for the pipe shall be CA-11 or CA-13 coarse aggregate, and shall be placed from 4" below the pipe to 12" over the top of the pipe. The cost for the bedding shall be included in the contract unit price for the SANITARY SEWER. Trench bracing/protection shall be in accordance with Article 550.04 of the STANDARD SPECIFICATIONS and shall be included in the unit price for SANITARY SEWER.

Excavations may require dewatering due to subsurface water, seepage and/or surface precipitation. All dewatering necessary to keep the sewer trench dry shall be included in the unit price for SANITARY SEWER.

The CONTRACTOR will be required to televise the new sanitary sewer. Payment for the new sanitary sewer will not be made until the OWNER has reviewed and approved the condition of the new sewer. This work will not be paid for separately but shall be included in the cost for SANITARY SEWER of the diameter specified.

Testing of sanitary sewers and manholes for acceptability shall be conducted for leakage (by means of a low pressure air test), infiltration and exfiltration in accordance with the WATER AND SEWER SPECIFICATIONS. The ENGINEER and/or the OWNER shall be present during testing procedures. This work will not be paid for separately but shall be included in the cost for SANITARY SEWER of the diameter specified.

Basis of Payment. The contract unit price shall include all labor, material, and equipment necessary to complete the work as specified. This work will be paid for at the contract unit prices per foot for SANITARY SEWERS of the type of pipe, diameter, and type of joint specified. Trench backfill will be paid for separately at the contract unit price for TRENCH BACKFILL, SPECIAL.

Z0077700 – WOOD FENCE TO BE REMOVED AND RE-ERECTED

This item consists of removing existing wood fences within limits of the existing ROW, as directed by the Engineer. The Contractor will detach fence from brick/concrete pillars and store the fence materials. The Contractor shall exercise care so as not to damage existing fence and brick/concrete pillars.

All openings in fence caused by fence removal will be closed and secured by the end of the day that fence is removed, as approved by the Engineer.

The fence will be reinstalled in accordance with Section 664 and as directed by the Engineer. All hardware not salvageable during removal of fence shall be replaced with new hardware. Contractor will submit method of re-attaching fence to brick/concrete pillars to Engineer, upon approval, Contractor will re-erect fence.

Method of Measurement. This work will be measured in place in linear feet of fence to be removed.

Basis of Payment. This work will be paid for at the contract unit price per linear foot for WOOD FENCE TO BE REMOVED AND RE-ERECTED, which price shall include all labor, materials, and equipment to complete the work as specified herein, including storage, and hardware.

- DUCTILE IRON PIPE INSTALLED IN STEEL CASING

This work shall consist of installing the carrier pipe, ductile iron (water main) within a previously installed steel casing pipe.

Materials for ductile iron pipe shall meet the requirements of the appropriate special provisions.

Casing spacers of the bolt-on, spider style shall be provided with the pipe to facilitate positioning of the pipe within the casing pipe. Casing spacers shall be provided with a shell made in two sections of heavy T-304 stainless steel. The shell shall be lined with a PVC liner 0.90" thick with 85-90 diameter. All nuts and bolts shall be 18-8 stainless steel. Runners shall be made of ultra high molecular weight polymer with inherent high abrasion resistance and a low coefficient of friction. Runners shall be supported by shell risers made of heavy T-304 stainless steel. The height of the supports and runners combined shall be sufficient to approximately center the carrier pipe inside the casing pipe. Casing spacers shall be as manufactured by Cascade Waterworks Mfg. Co., Model CSS or approved equal.

After the casing pipe has been installed and attached to existing casing, and accepted by the ENGINEER the carrier pipe shall be installed as previously specified. The carrier pipe shall be pushed and pulled into place in such a manner that there is no opportunity for a joint to be opened. For watermain, all push-on joints in casing shall have "field lock gaskets". The carrier pipe length shall be adjusted so that the end extends past the end of the casing pipe and all appurtenances approximately 12 to 18 inches. Carrier pipe for watermain shall be hydrostatically pressure tested prior to sealing annular space. A minimum of 3 casing spacers shall be provided per standard 18 ft. to 20 ft. length of piping or approximately every 6 feet. After the installation of the watermain within the steel casing pipe is complete, the annular space between the carrier pipe and the casing pipe shall be filled with sand or pea gravel as directed by the ENGINEER. In addition the annular space between the carrier pipe and the casing pipe at both ends shall be sealed using casing end seals, Model CCES, as manufactured by Cascade Waterworks Mfg. Co. and bulkheads of concrete brick and mortar shall be placed at both ends of casing as well.

Restrained joints shall meet the requirements of the appropriate special provisions and be installed such that it would extend beyond both ends of the casing to the 45 degree fitting directing the water main from under the pavement section.

This work shall be measured and paid for at the contract unit price per foot for DUCTILE IRON PIPE INSTALLED IN STEEL CASING, of the size specified, which price shall include all labor, equipment and materials, including restrained joints, casing spacers, annular space fill, bulkheads and end seals, to complete the work as specified.

The steel casing pipe will be paid for separately as STEEL CASING PIPE IN OPEN CUT, of size specified as called out in the plans.

- MANHOLE, TYPE A, NEENAH R-3303 FRAME AND LID (SPECIAL)

Description. This work shall consist of constructing manholes with frames and grates or lids in accordance with Section 602 of the Standard Specifications, the details on the plans and as specified herein.

Construction Requirements. Drainage structures shall be precast reinforced concrete in accordance with Article 602.07 of the Standard Specifications.

The special frame and grate to be used shall be a Neenah R 3303 Frame and lid, *or approved equal.*

Basis of Payment. Drainage structures shall be paid for at the contract unit price per each for MANHOLE, TYPE A, FRAME AND LID (SPECIAL) as specified which price will include all labor, equipment, excavation, backfill and materials necessary to complete the work as specified herein.

- DRILLED SOLDIER PILE RETAINING WALL

Description. This work shall consist of providing all labor, materials, and equipment necessary to fabricate and furnish the soldier piles, create and maintain the shaft excavations, set and brace the soldier piles into position and encase the soldier piles in concrete to the specified elevation. All work shall be according to the details shown on the plans and as directed by the Engineer.

The remainder of the retaining wall components as shown on the plans, such as concrete facing, shear studs, reinforcement bars, tie backs, hand rails, and various drainage items etc., are not included in this Special Provision but are paid for as specified elsewhere in this Contract.

Materials. The materials used for the soldier piles shall satisfy the following requirements:

- (a) The structural steel components for the soldier piles shall conform to the requirements of AASHTO M270, Grade 50, unless otherwise designated on the plans.
- (b) The soldier pile encasement concrete shall be portland cement concrete according to Section 1020, except the mix design shall be as follows:
 - (1) A Type I or II cement shall be used at 605 lb/cu yd. When the plans specify that soil and ground water sulfate contaminates exceed 500 parts per million, a Type V cement shall be required. The cement shall be increased 60 lb/cu yd if the concrete is to be placed under water.
 - (2) Class C or F fly ash may replace Type I or II cement. The cement replacement shall not exceed 15 percent by mass (weight) at a minimum replacement ratio of 1.5:1. The fly ash shall not be used in combination with ground granulated blast-furnace slag.
 - (3) Grade 100 or 120 ground granulated blast-furnace slag may replace Type I or II cement. The cement replacement shall not exceed 25 percent by mass (weight) at a minimum replacement ratio of 1:1. The ground granulated blast-furnace slag shall not be used in combination with fly ash.
 - (4) The maximum water/cement ratio shall be 0.44.
 - (5) The mortar factor shall be a value which produces a coarse aggregate content comprising between 55 and 65 percent of total aggregate by mass (weight).
 - (6) The slump at point of placement shall be 7 ± 1 inch. If concrete is placed to displace drilling fluid or against temporary casing, the slump shall be 8 ± 1 inch at point of placement. The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus 1 hour.

- (7) An air entraining admixture shall be required and the air content range shall be 4.0 to 7.0 percent.
 - (8) The minimum compressive strength shall be 4000 psi at 14 days. The minimum flexural strength shall be 675 psi at 14 days.
 - (9) A retarding admixture shall be required.
 - (10) A water-reducing or high range water-reducing admixture shall be required.
 - (11) An accelerating admixture may be used with the permission of the Engineer in extraordinary situations.
 - (12) The coarse aggregate shall be CA 13, CA 14, CA 16 or a blend of these gradations. The fine aggregate shall consist of washed sand only.
- (c) Temporary casing shall be produced by electric seam, butt, or spiral welding to produce a smooth wall surface, fabricated from steel satisfying ASTM A252 Grade 2. The minimum wall thickness shall be as required to resist the anticipated installation and dewatering stresses, as determined by the Contractor, but in no case less than 1/4 inch.
- (d) Drilling slurry shall consist of a polymer or mineral base material. Mineral slurry shall have both a mineral grain size that will remain in suspension with sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. The percentage and specific gravity of the material used to make the suspension shall be sufficient to maintain the stability of the excavation and to allow proper concrete placement. For polymer slurry, the calcium hardness of the mixing water shall not exceed 100 mg/L.

Equipment. The drilling equipment shall have adequate capacity, including power, torque and down thrust, to create a shaft excavation of the maximum diameter specified to a depth of 20 percent beyond the depths shown on the plans. Concrete equipment shall be according to Article 1020.03.

Construction Requirements. The shaft excavation for each soldier pile shall extend to the tip elevation indicated on the plans for soldier piles terminating in soil or to the required embedment in rock when rock is indicated on the contract plans. The Contractor shall satisfy the following requirements:

- (a) Drilling Methods. The soldier pile installation may involve the use of one or more of the following drilling methods to maintain excavation side wall stability during the various phases of shaft excavation and concrete placement, dependent on the site conditions encountered:
- (1) Dry Method. The dry method consists of drilling the shaft excavation, removing accumulated water and loose material from the excavation, placing the soldier pile

and concrete in a predominately dry excavation. This method shall be used only at sites where the groundwater and soil conditions are suitable to permit the drilling and dewatering of the excavation without causing excessive water infiltration, boiling, squeezing, or caving of the excavation side walls. This method allows the concrete placement by tremie or concrete pumps, or if the excavation can be dewatered, the concrete can be placed by free fall.

- (2) Wet Method. The wet construction method may be used at sites where dewatering the excavation would cause collapse of the excavation sidewalls or when the volume and head of water flowing into the shaft excavation is likely to contaminate the concrete during placement. This method uses water or slurry to maintain stability of the shaft perimeter while advancing the excavation. After the excavation is completed, the water level in the shaft is allowed to seek equilibrium, the base is cleaned, the soldier pile is set and the concrete is discharged at the base using a tremie pipe or concrete pump, displacing the drilling fluid upward.
- (3) Temporary Casing Method. Temporary casing shall be used when either the wet or dry methods provide inadequate support to prevent sidewall caving or to ensure there is not excessive deformation of the hole. Temporary casing may also be used to reduce the flow of water into the excavation to allow dewatering, adequate cleaning, or to ensure proper concrete placement.

Temporary casing will not be allowed to remain permanently in place without the approval of the Engineer. Before the temporary casing is broken loose, the level of soldier pile encasement concrete in the casing shall be a minimum of 5 ft above the bottom of the casing. After being broken loose, and as the casing is withdrawn, additional concrete shall be added to maintain sufficient head so that water and soil trapped behind the casing can be displaced upward and discharged at the ground surface.

No shaft excavation shall be made adjacent to a soldier pile with encasement concrete that has a compressive strength less than 1500 psi unless otherwise approved by the Engineer. Materials removed or generated from the shaft excavations shall be disposed of by the Contractor according to Article 202.03. Excavation by blasting will not be permitted.

- (c) Drilling Slurry. During construction, the level of the slurry shall be maintained at a height sufficient to prevent caving of the hole. In the event of a sudden or significant loss of slurry to the hole, the construction of that shaft shall be stopped and the shaft excavation backfilled or supported by temporary casing until a method to stop slurry loss, or an alternate construction procedure, has been developed and approved by the Engineer.
- (c) Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be removed with normal earth drilling procedures, but requires special augers, tooling, core barrels or rock augers to remove the obstruction. When obstructions are encountered, the Contractor shall notify the

Engineer and upon concurrence of the Engineer, the Contractor shall begin working to core, break up, push aside, or remove the obstruction. Lost tools or equipment in the excavation, as a result of the Contractor's operation, shall not be defined as obstructions and shall be removed at the Contractor's expense.

- (d) Top of Rock. The actual top of rock will be defined as the point where material is encountered which can not be drilled with a conventional earth auger and/or under-reaming tool, and requires the use of special rock augers, core barrels, air tools or other methods of hand excavation.
- (e) Design Modifications. If the top of rock elevation encountered is below that estimated on the plans, such that the soldier pile length above rock is increased by more than 10 percent, the Engineer shall be contacted to determine if any soldier pile design changes are required. In addition, if the type of soil or rock encountered is not similar to that shown in the subsurface exploration data, the Engineer shall be contacted to determine if revisions are necessary.
- (f) Soldier Pile Fabrication and Placement. The soldier pile is defined as the structural steel section(s) shown on the plans as well as any connecting plates used to join multiple sections. Cleaning and painting of all steel components, when specified, shall be as shown on the plans and accomplished according to the special provision for "Cleaning and Painting New Metal Structures". This work will not be paid for separately, but shall be considered included in the cost of Furnishing Soldier Piles of the type specified.

The soldier pile shall be shop fabricated such that no field welding is required. The Contractor shall attach suitable bracing or support to maintain the position of the soldier pile within the shaft excavation such that the final location will satisfy the Construction Tolerances portion of this Special Provision. The bracing or supports shall remain in place until the concrete for encasement has reached a minimum compressive strength of 1500 psi.

- (g) Concrete Placement. Concrete work shall be performed according to the applicable portions of Section 503 and as specified herein.

The soldier pile encasement concrete pour shall be made in a continuous manner from the bottom of the shaft excavation to the elevation indicated on the plans. Concrete shall be placed as soon as possible after the excavation is completed and the soldier pile is secured in the proper position. Uneven levels of concrete placed in front, behind, and on the sides of the soldier pile shall be minimized to avoid soldier pile movement, and to ensure complete encasement. Concrete shall be placed either by free fall, or through a tremie or concrete pump subject to the following conditions:

- (1) The free fall placement shall only be permitted in shaft excavations that can be dewatered without causing side wall instability and where no more than 3 inches of standing water exists at the time of concrete placement. The maximum height of free fall placement shall not exceed 60 ft. and the concrete shall be directed to the

base to minimize contact with either the soldier pile or the shaft excavation side wall. Drop chutes may be used to direct concrete to the base during free fall placement.

- (2) Tremies shall be according to Article 503.08 and contain no aluminum parts that may have contact with the concrete. The inside and outside surfaces of the tremie shall be clean and smooth to permit both flow of the concrete and unimpeded withdrawal during concrete placement.
- (3) Concrete pumps. Pumps and lines may be used for concrete placement and shall have a minimum 4-inch diameter.

The tremie or pump lines used for wet method concrete placement shall be watertight and shall not begin discharge until placed within 10 inches of the base of the excavation. Valves, bottom plates or plugs may be used only when they can be removed from the excavation unless approved by the Engineer. The discharge end shall be immersed at least 1.5 m (5 ft.) in concrete at all times after starting the pour.

(h) Construction Tolerances. The soldier piles shall be drilled and located within the excavation to satisfy the following tolerances:

- (1) The center of the soldier pile shall be within 1 1/2 inches of plan station and 1/2 inch offset at the top of the shaft.
- (2) The out of vertical plumbness of the soldier pile shall not exceed 0.83 percent.
- (3) The top of the soldier pile shall be within ± 1 inch of the plan elevation.

(i) Structure Excavation. When structure excavation is necessary to place a concrete facing, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the face of the soldier pile to a vertical plane 2 ft from the finished face of the wall. The depth shall be from the top of the original ground surface to the bottom of the concrete facing.

Method of Measurement. The furnishing of soldier piles will be measured for payment in feet along the centerline of the soldier pile for each of the types specified. The length shall be determined as the difference between the plan top of soldier pile and the final as built shaft excavation bottom.

The drilling and setting of soldier piles in soil and rock, will be measured for payment and the volumes computed in cubic feet for the shaft excavation required to set the soldier piles according to the plans and specifications, and accepted by the Engineer. These volumes shall be the theoretical volumes computed using the diameter(s) of the shaft(s) shown in the plans and the depth of the excavation in soil and/or rock as appropriate. The depth in soil will be defined as the difference in elevation between the ground surface at the time of concrete placement and the bottom of the shaft excavation or the top of rock (when present), whichever is encountered first. The depth in rock will be defined as the difference

in elevation between the measured top of rock and the bottom of the shaft excavation.

Basis of Payment. The furnishing of soldier piles will be paid for at the contract unit price per foot for FURNISHING SOLDIER PILES, of the type specified, for the total number of feet furnished to the job site. The cost of any field splices required due to changes in top of rock elevation shall be paid for according to Article 109.04.

The drilling and setting of soldier piles will be paid for at the contract unit price per cubic foot for DRILLING AND SETTING SOLDIER PILES. The required shaft excavation and soldier pile encasement concrete will not be paid for separately but shall be included in this item.

Obstruction mitigation shall be paid for according to Article 109.04.

No additional compensation, other than noted above, will be allowed for removing and disposing of excavated materials, for furnishing and placing concrete, bracing, lining, temporary casings placed and removed or left in place, or for any excavation made or concrete placed outside of the plan diameter(s) of the shaft(s) specified.

- SANITARY SEWER (DIRECTIONAL BORE)

This work shall consist of directionally boring sanitary sewers of the size specified at locations shown on the plans in accordance with Divisions II and III of the "Standard Specifications for Water and Sewer Main Construction in Illinois" and the applicable requirements of Section 550 of the "Standard Specifications for Road and Bridge Construction."

The Contractor will directionally bore Certaineed Certa-lock™ C-900/RJ PVC pipe or approved equal.

Basis of Payment. This work will be paid for at the contract unit prices per foot for SANITARY SEWER (DIRECTIONAL BORE) of the type of pipe and diameter specified, which price will include making all connections, excavation, labor, materials and equipment. All drilling and receiving pits necessary for directionally boring will not be paid for separately, but will be included in the unit price of the sanitary sewer.

Trench backfill will be paid for separately.

- STEEL CASING PIPE IN OPEN CUT

This work shall consist of installing steel casing pipe in open cut trench at the locations as shown on the plans and as directed by the ENGINEER.

Steel casing pipe shall have a minimum yield strength not less than 35,000 psi. Steel casing pipe size and piping wall thickness shall be as shown on the Drawings. All casing pipe shall be manufactured of new billet steel, cylindrical, with smooth bituminous coated walls inside and outside. Steel casing pipe shall conform to ASTM A53 Grade B, ASTM A139 Grade B, or pipe fabricated in accordance with AWWA C200 using ASTM A36 steel.

Casing pipe minimum wall thickness shall be as required by permit requirements of the agency having local jurisdiction, or the CONTRACTOR'S method of construction, whichever is greater, but in no case shall it be less than as shown on the Drawings.

Steel casing pipe shall be installed into place and shall include all things necessary, but not limited to, excavation sheeting/bracing, dewatering, pumping, welding, backfilling and compacting all as required for the steel casing pipe installation. During installation of the steel casing pipe and as additional lengths of steel casing pipe are placed end to end, the ends of the steel casing pipe shall be welded together so that the completed casing forms a continuous length. Installation shall include any necessary cutting and grinding to the ends of the existing casing within the Metra ROW to ensure the new steel casing pipe will butt tightly to it prior to welding.

This work will be measured and paid for at the contract unit price per foot for STEEL CASING PIPE IN OPEN CUT, of the size specified, which price shall include all labor, equipment, and material necessary to complete the specified work.

- TREATMENT STRUCTURES

The Contractor shall install a pre-cast storm water treatment structure (structure) in accordance with the notes and details shown on the Drawings and in conformance with these Specifications and the applicable requirements of Section 602 of the "Standard Specifications".

The structure shall be non-mechanical and gravity driven, requiring no external power requirements. The structure shall be equipped with a stainless steel expanded metal screen having a screen opening of 4700 microns (4.7 mm or 0.185 inches) [2.4 mm or 0.095 inches if 2400 micron screen opening is specified]. The separation screen shall be self-cleaning and non-blocking for all flows diverted to it, even when flows within the storm drain pipeline exceed the structure's design treatment flow capacity. When storm flows exceed the structure's design treatment flow capacity, a portion of this flow will bypass the structure over the structure's diversion weir.

Hydraulic Treatment Capacity and Separation Screen Design

The structure shall have a minimum treatment flow capacity of 3.0-cfs. This treatment capacity shall be achieved without any flow bypassing the overflow weir of the structure.

Structure Design

The structure shall be designed to withstand H20 traffic and earth loadings to be experienced during the life of the treatment unit.

The structure shall be furnished with a sump that has a minimum volume of 2.09 cubic yards for storage of sediments, organic solids, and other settleable trash and debris.

Oil and Grease Removal Performance

The structure will be equipped with a conventional oil baffle to capture and retain oil and grease and Total Petroleum Hydrocarbons (TPH) pollutants as they are transported through the storm drain system during dry weather (gross spills) and wet weather flows. The conventional oil baffle within the structure will provide satisfactory oil and grease removal from typical urban storm water runoff up to 80% removal.

The structure shall be furnished with a baffle that provides a minimum gross oil storage volume of 205 gallons.

The structure shall also be capable of receiving and retaining the addition of Oil Sorbents within their separation chambers.

Solids Removal Performance Requirements

The structure shall remove oil and sediment from storm water during frequent wet weather

events. The structure shall treat a minimum of 85% to 95% of the annual runoff volume and be capable of removing 80 percent of the total suspended sediment load (TSS) and 90% to 95% of the floatable free oil with the addition of sorbent material without any loss of material at bypass flow rate conditions. The structure must be capable of trapping silt and clay size particles in addition to large particles. The structure shall capture 100% of the floatables and 100% of all particles equal to or greater than the screen size opening (4.7 mm or 2.4 mm) for all flow conditions up to structure's design treatment flow capacity, regardless of the particle's specific gravity. The structure shall capture 100% of all neutrally buoyant material equal to or greater than the screen size opening (4.7 mm or 2.4 mm) for all flow conditions up to its design treatment flow capacity. There shall be no flow conditions up to the design treatment flow capacity of the structure; in which a flow path through the structure can be identified, that allows the passage of a particle equal to or larger than the screen for any neutrally buoyant object. The structure shall permanently retain all captured material for all flow conditions of the storm drains to include flood conditions. The structure shall permanently retain all captured material for all flow conditions of the storm drains to include flood conditions. The structure shall not allow materials that have been captured within the structure to be flushed through or out of the unit during any flow condition to include flood and/or tidal influences.

Materials Design

Concrete:

The stormwater filtration treatment structure shall be manufactured from concrete and have a 28 day compressive strength of not less than 5,000 pounds per square inch (psi), using either Type 1 or Type 3 Portland Cement. Aggregates shall conform to ASTM Designation C33, except the requirement for gradation shall not apply. Reinforcement shall consist of wire conforming to ASTM Designation A185 or A497 or of deformed bars Grade 60 steel conforming to ASTM Designation A615.

Hardware/Covers/Hatches:

The separation screen shall be fabricated from stainless steel conforming to ASTM Designation A316. Fasteners used to install the screen or support structure shall be stainless steel, 316. PSW series screens may have Ultra high molecular weight (UHMW) or High Density Poly (HDPE) blocks may be fastened to the support structure and embedded into the concrete structure to facilitate screen installation.

The access cover for the structure shall be designed to withstand 150 pounds per square foot pedestrian loading and shall provide an access hatch of the dimensions shown on the drawings.

Fiberglass:

Fiberglass components shall meet the National Bureau of Standards PS-15. Components shall be coated with isophalic polyester gelcoat and hand laid up to 4 layers of 2 oz. mat and fabric on the mold. Cure 8-16 hours until completely dry before de-molding. The

components are to be smoothed; if needed, of any rough edges to provide a clean product.

Manufacturers Performance Certificate

The manufacturer of the structure shall submit details and shop drawings of sufficient detail for the Engineer to confirm that no available flow paths exist that would allow the passage of an object greater than the screen size opening (2.4 mm or 4.7mm) used on the structure. Additionally, the manufacturer shall submit a "Manufacturers Performance Certificate" certifying that the structure shall achieve the specified removal efficiencies listed in these specifications. This Manufacturer's Performance Certification of removal efficiencies shall clearly and unequivocally state that the listed removal efficiency shall be achieved throughout the entire treatment flow processed by the structure with no attenuation of removal efficiency as the flow increase up to the minimum treatment flow capacity specified above.

Warranty

The manufacturer of the structure shall guarantee the filtration unit free from defects in materials and workmanship for a period of one year following installation. Equipment supplied by the manufacturer shall be installed and used only in the particular application for which it was specifically designed.

Basis of Payment. This work shall be measured and paid for at the contract unit price per each for TREATMENT STRUCTURES, which price includes all excavation and back fill required.

WETLAND PLANTS

Description. The work shall consist of procurement, transport, installation, and maintenance of all aquatic plants as specified herein. The work shall also include watering, weeding and replacing of plants when required. Plant materials in this section will be installed in aquatic planting zone per the planting plan.

Materials. Plant material described in the WETLAND PLANTS (tubers), shall comply with Section 254 of the Standard Specifications and the applicable sections of the following references.

1. American Association of Nurserymen, Inc. (AAN) Standard: American Standard for Nursery Stock (ANSI Z60.1-1990).
2. American Joint Committee on Horticultural Nomenclature "Standardized Plant Names," second edition, 1942.
3. Swink, F. and G. Wilhelm. Plants of the Chicago Region, 1994.

Installation. Immediately following contract award and upon authorization of the ENGINEER, the CONTRACTOR shall begin plant material procurement. During the procurement period, the CONTRACTOR shall locate sufficient quantities of specified plant materials and set up growing or collecting contracts, if necessary, to ensure that the quantity and quality of plant material will be available during the planting windows specified.

The planting stock shall comply with governmental regulations prevailing at the source of supply and the job site. If specified planting material is unavailable, the ENGINEER shall identify substitutes. Adjustments will be made at no cost to the contract.

All planting stock shall be nursery propagated in accordance with good horticultural practice. Collected stock or nursery grown wild plants will not be permitted. Planting stocks from which plant propagation is taken may have been wild collected. All planting stock shall be healthy, free of all fungi and bacterial discoloration, and deformities.

Plant materials shall be subject to final approval by the ENGINEER at the site prior to installation.

Planting Time: Tubers shall be installed during the months of May and June, unless the ENGINEER approves of a different planting time.

Digging of Plants: Shall conform to Section 253.04 of the Standard Specifications with the following addition:

Transportation/Storage: Plants shall be shipped with legible labels stating correct name and size of plant, securely attached to individual plants or to bundles of like variety and size. Containers of tubers shall be individually labeled as specified.

Shipping shall be scheduled to minimize on site storage of plants. Planting stock shall not be shipped until the planting preparations have been completed. The CONTRACTOR shall notify the ENGINEER of all delivery times. The ENGINEER shall be notified at least 48 hours prior to shipping.

If delays beyond the CONTRACTOR's control occur after delivery, plants shall be kept watered and protected from sun, wind, and mechanical damage. Store dormant plant materials in only refrigerated compartment or environmentally controlled structures, as approved by the ENGINEER, until plant installation.

Plants shall be handled at all times in accordance with the best horticultural practices. Plants handled otherwise will be subject to rejection by the ENGINEER. Plants shall not be bent, stacked or bound in a manner that deforms roots or destroys natural shape.

Construction Requirements. The CONTRACTOR shall examine and verify the acceptability of the job site. The CONTRACTOR shall notify the ENGINEER if conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions or obstructions. The CONTRACTOR shall not proceed with the work until unsatisfactory conditions have been corrected or resolved in writing by the ENGINEER. The ENGINEER reserved the right to adjust plant material locations, without adjusting plant quantities, to meet field conditions, at no additional cost to the OWNER.

Holes shall be dug with a trowel, spade, planting bar, or implement approved by the ENGINEER. Holes shall be of a minimum depth and diameter to accommodate the tuber without damage. Prior to planting, the site shall be watered to the point of saturation. Plant tubers should be pushed deep enough into the soil so they have 2 inches of cover. Once planted, the hole shall be backfilled with soil. The area planted shall be watered upon completion of planting. When planting of an area has been completed, the area shall be cleared of all debris, soil piles and containers within one day.

Period of Establishment. The period of establishment shall be 90 days following the last day of planting. One hundred percent of all tubers shall be alive and viable at the end of the 90-day period of establishment. The ENGINEER shall determine the viability of the plant material during a site visit with the CONTRACTOR when planted material will be compared to "As-Planted" drawings.

Plant Care. Plant care shall conform to Section 253.15 of the Standard Specifications.

Method of Measurement and Basis of Payment. ~~WETLAND~~ PLANTS will be measured in individual cost per each for each tuber planted. Measurement of this work will not be performed until one month after planting and will not include plants which may have been planted in poor condition or found to be dead. Payment for plants will be made at the contract unit price for ~~WETLAND~~ PLANTS in individual cost per each for each tuber planted, which payments shall constitute full compensation for furnishing, handling, storing, preparation and planting; watering before and after planting; plant care; and for all labor, tools and incidentals necessary to complete the work as specified. 90% of the contract unit

price will be made payable after measurement, and 10% of the contract unit price will be payable upon successfully meeting the performance requirement at the end of the first full growing season.

LANDSCAPING PLANTER

The work shall consist of preparing median planter for trees, shrubs and perennials as specified herein and at the direction of the ENGINEER. The work shall also include mulching, pruning, watering, fertilizing, inoculating, weeding and replacing of plants when required. A certified arborist or forester shall specify and oversee pruning and other techniques deemed necessary to preserve the trees.

Plant materials shall be subject to final approval by the ENGINEER at the site prior to installation.

The CONTRACTOR shall maintain responsibility for caring for the plants, if delays occur between delivery of the plants and planting, whether or not the delay is within the CONTRACTOR'S control. Refer to plans for plant list and landscape materials.

Drainage layer. Provide and install pipe drain, fabric and course aggregate as detailed in the plans and as per Section 600. Pipe Underdrains will be connected to roadway pipe underdrains.

Soil. Provide and place topsoil as detailed in the plans as per Section 211.

Layout and Planting. The CONTRACTOR shall examine and verify the acceptability of the job site. The CONTRACTOR shall notify the County of any unacceptable conditions, if conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions, or obstructions. However the completion and inspection dates will not be altered due to such occurrence during the contract time.

No tree shall be placed within 5 feet of another tree. Trees shall be planted in the areas as shown in the plans. Shrub species are to be planted in groupings as shown in the plans.

Trees and shrubs shall be planted in accordance with the National Arborist's Associations recommended practices. All wire or twine shall be cut away from balled and burlapped plants. Watering shall accompany the backfill operation to eliminate air pockets. Excavation of plant holes shall be in accordance with Article 253.08 of the Standard Specifications as modified herein with the enclosed planting detail.

Shredded Bark Mulch and Weed Barrier Fabric. Mulch shall be applied at a 3" depth in a circular form around trees and a 3" depth around shrub beds extending to the edge of the area disturbed by planting in areas above the 721 elevation only. The mulch material for planting shall consist of shredded tree bark, or other approved organic mulch. The mulch must be approved by the ENGINEER prior to placement. Mulch around trees and shrubs below the 721 elevation will consist of a black Weed Barrier Fabric anchored to the edge of the area disturbed by planting. The Weed Barrier Fabric should conform to Section 1081.12 of the Standard Specifications. Fabric edges will overlay 3" and be anchored in place using appropriate landscape fabric anchors.

Tree Fertilizing and Inoculating. A controlled release fertilizer such as NUTRI PRO or equivalent as manufactured by Tree Pro of West Lafayette, Indiana, shall be planted at the same time as planting the tree in the tree hole. One 5 year packet per every caliper inch should be installed.

Mycor Tree Root Saver Inoculate or equivalent shall be used to inoculate at a rate of 18 oz. per caliper inch as manufactured by Tree Pro of West Lafayette, Indiana. Apply by sprinkling throughout the hole before installing the tree.

Pruning. Pruning shall be done after planting. Remove only dead and/or damaged branches. Trees and shrubs shall be pruned by a professional arborist in conformance with National Arborist's Association Pruning Standards for Shade Trees Class 1 – Tree Pruning. Pruning shall comply with Article 253.09 of the Standard Specifications.

Watering. Trees and shrubs shall be watered slowly and evenly to allow saturation of the entire root zone to a 6 inch minimum depth. Rate of application shall limit runoff and maximize saturation. Watering shall be done without injury to the tree, shrub, or the Work Site.

Inspection and Acceptance. After all plants have been installed, the CONTRACTOR shall notify the County and Village of Libertyville if within Village Limits and request an inspection. As soon as practicable thereafter, the County or their representative, will make an inspection, at which time all trees and shrubs planted in accordance with Article 253 of the Standard Specifications and in a live, healthy condition will be accepted for payment. Plants not in a live and healthy condition will not be accepted for payment. Plants not in a live and healthy condition shall be replaced at the CONTRACTOR'S expense.

Guarantee Period. CONTRACTOR shall warrant and guarantee all Work under this Section for a period of twelve months following acceptance. Inspections will be conducted by the County or their representative the fall following installation, and twelve (12) months following installation. The CONTRACTOR shall be present during the inspections.

Satisfactory performance shall consist of 100% of the trees and shrubs alive one calendar year after initial planting. Any tree or shrub which has not successfully rooted by the time of the final inspection shall be removed and replaced by the CONTRACTOR at no expense to the County. The time of the final inspection will be within one month of one calendar year from the date of planting.

If the CONTRACTOR fails to comply with the requirements for satisfactory performance, the County has the right to make other arrangements as it may deem necessary to correct the deficiency. The cost resulting from such action by the County shall be deducted from the performance security established by the County.

All trees that are dead or, at the determination of the County or their representative, are

in an unsightly or unhealthy condition at the time of inspection, shall be replaced by the CONTRACTOR at no additional expense to the County. All trees shall be restored to an upright, plumb position. Plant material furnished for replacement shall be of the same source, size, type and quality as originally approved, and planted in accordance with these specifications unless otherwise approved by the County. Replacement plants are subject to the approval of the County. No guarantee is required on approved replacements.

Warranty shall not include damage or loss of trees caused by fire, flood, lightning, or winds over 75 miles per hour.

Method of Measurement. Preparing the median planter will be measured for payment per lump sum. Drainage Fabric, Aggregate, Pipe Underdrains, Topsoil, Shredded Bark Mulch, Weed Barrier Fabric, Pruning, Weeding, Watering, Fertilizing and Inoculating will not be measured separately, but will be considered incidental to **LANDSCAPING PLANTER**

Basis of Payment. Payment for **LANDSCAPING PLANTER** as detailed in the plans and specifications will be made at the contract unit price per lump sum which payment shall constitute full compensation for handling, storing, preparation and planting; excavation; pipe underdrains and connections, aggregate, backfilling with topsoil; fertilizing & inoculating; mulching, post planting watering; plant care, and for all labor, tools and incidentals necessary to complete the work as specified which payments shall constitute full compensation for furnishing, handling, storing and installations.

- TEMPORARY STORM SEWER

Description. This work consists of furnishing, installing and removing storm sewer of size specified at the locations shown on the plans or as directed by the Engineer, meeting the applicable portions of Section 550 of the Standard Specifications and as detailed in the plans.

When directed by the Engineer, the Contractor shall remove the temporary storm sewer. It will then become the Contractor's property to be removed from the jobsite; the unit price shall reflect the salvage price of the temporary storm sewer.

All connections of TEMPORARY STORM SEWER to existing storm sewer or existing storm sewer structures will not be measured separately.

Basis of Payment. This work will be paid for at the contract unit price per foot for TEMPORARY STORM SEWER which price is to include all labor, equipment, excavation, backfill and materials necessary to complete the work as specified herein including any pipe removal, and connections to existing drainage systems.

- FURNISH WITNESS POST

(Revised 4/12/04)

Description. This item includes only furnishing witness posts. The installation shall be by Lake County Division of Transportation. The markers shall be as manufactured by Carsonite, phone 1-800-648-7974 or approved equal. The posts shall be white and six feet long with logo 5566- ROWSM applied. (Ordering data: CBM2507201 with 5566- ROWSM applied)

Materials. The post minimum material, mechanical and performance requirements are as follow. It shall be a continuous glass reinforced composite marker post and shall be a single piece marker capable of simple, permanent installation by one person using a manual-driving tool. The marker upon proper installation shall resist displacement from wind and vehicle impact forces. It shall be of a constant "T" cross sectional design which provides a flat surface for sheeting application and a reinforcing rib incorporated longitudinal along the back midsection to provide structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration. It shall be constructed of a durable, UV resistant continuous glass fiber and marble reinforced, thermosetting composite material that is resistant to impact, ozone and hydrocarbons within a service temperature range of -40° to +140° F. The post shall exhibit good workmanship and shall be free of burns, discoloration, cracks, bulges or other objectionable marks which would adversely affect the marker's performance or serviceability. A black line shall be stamped horizontally across the front of the marker near the bottom to indicate proper burial depth. It shall conform to the shape and overall configuration shown in the standard detail drawing. The post shall be 2.6 inches in order to accommodate a 2.5-inch wide decal and provide adequate daytime delineation. The post shall have the minimum mechanical properties:

PROPERTY	ASTM TEST METHOD	MINIMUM
VALUE		
Ultimate Tensile Strength	D-638	50,000 psi
Ultimate Compressive Strength	D-638	45,000 psi
Specific Gravity	D-792	1.7
Weight & Glass Reinforcement	D-2584	50%
Barcol Hardness	D-2583	47

The post shall be pigmented throughout the entire cross-section so as to produce a uniform color as an integral part of the material. Ultraviolet resistant materials shall be incorporated in the construction to inhibit fading or cracking of the marker upon field exposure. Deflection tests shall consist of a two-pound load suspended from one end of the post while the other end is clamped to a support in cantilevered fashion. Horizontally, the distance from the fulcrum to the weight shall be 48 inches. The maximum allowable free end deflection shall be four inches.

For the post, the following impact resistance shall be met. The post shall be conditioned a minimum of two hours at -40° to +3° F. A minimum two-pound spherical weight shall be

dropped a distance of five feet through a virtually frictionless vertical guide to impact the surface of the marker at midsection. The surface of the post being struck by the steel ball shall be in a horizontal position with the marker supported and held in position at both ends. The marker shall be subjected to five impact tests concentrated near the middle of the marker within 10 minutes from the removal from the environmental chamber. Fracturing, cracking, or splitting of the posts shall constitute failure. Another marker after conditioning shall be struck flush against a flat solid surface three times within two minutes after removal from the conditioning chamber. The strike the delineator it should be manually swung through a 90° arc, and the marker shall not fracture or shatter upon impact.

The post shall be self-erecting and remain functional after being subjected to an impact by a typical passenger sedan at 35 mph without substantially damaging the vehicle.

The manufacturer before delivery shall apply the Pressure sensitive Vinyl and reflective Decal to the post. This part of the specification covers the general requirements for materials of construction, and mechanical and physical properties for reflective and non-reflective pressure-sensitive decals. The decal shall consist of either cast vinyl or acrylic/urethane retro-reflective sheeting, which has been printed with UV-stabilized inks for outdoor application. The decal shall have a high tack, aggressive, permanent, pre-applied layer of pressure-sensitive adhesive, protected by a removable release film. UV Shield® overlaminating film shall be applied to the decal for long term ultraviolet and abrasion protection. Clear coating shall not be allowed as a substitute for the UV Shield®. The decal shall exhibit good workmanship and shall be free of visible cracks, burns, discoloration, foreign inclusions or other objectionable marks that would affect its performance. The maximum allowable width for decals shall be 3.0 inches. The minimum total decal thickness with adhesive and UV Shield® shall not be less than 4 mils for vinyl decals and 6 mils for reflective decals. Both decal styles shall consist of a minimum adhesive thickness of 1 mil. The clear UV Shield® overlaminating film shall be a minimum of 0.75 mils in thickness. Decals shall exhibit negligible color change, legend fading, blistering, or edge curl upon exposure to ultra-violet light. Decal appearance and adhesion shall not be appreciably affected over a temperature service range of -40° to +140° F and shall allow for application at temperatures above 40°F. The decals shall exhibit no effect when applied to a clean fiberglass composite and immersed in water or SAE 20 motor oil for 24 hours at 73°F. The decals shall exhibit a minimum of 4.5 lb./in. when tested for adhesion by 180° pullback at 12 in./min. after application and conditioning to a clean aluminum surface of 73°F± 5°F for 24 hours. The minimum decal tensile strength shall be 4.5 lb./in. at 73°F when measured at 12-in./min. jaw separation. The minimum decal elongation shall be 40% at 73°F when measured at above condition.

Method of Measurement and Basis of Payment. This work shall be paid for at the contract unit price per each for FURNISH WITNESS POST.

- MEDIAN SIGN

Description. This work shall consist of furnishing and installing architectural cast metal signs within the landscaped median wall as shown on the plans and as directed by the ENGINEER.

Tolerances.

Thickness – Plus $\frac{1}{4}$ " Minus $\frac{1}{8}$ "

Submittals. The CONTRACTOR shall submit a minimum 8"x 8" cast metal sign sample, with shop drawings that detail method of attachment structure, to the County for approval prior to fabrication and median planter wall construction.

Finish. Cast metal finish shall be smooth.

Construction Requirements. The signs shall be attached to planter walls per County approved shop drawings. Sign letters shall be of the shape, font and dimensions shown on the plans and consistent with planters on Butterfield Road from Huntington Drive to Ridgewood Lane. Letters shall be smoothly cast and colored with a permanent UV-resistance dye. Median signs shall include a 10-year guarantee against defects including cracking fading or peeling.

Basis of Payment. This work shall be measured and paid for at the contract unit price per each for MEDIAN SIGN,

**- STAMPED COLORED PORTLAND CEMENT CONCRETE MEDIAN SURFACE
4 INCH (SPECIAL)**

Description. This work shall consist of placing Portland cement concrete median surface on 4" of compacted AGGREGATE BASE COURSE, TYPE A (SPECIAL) or AGGREGATE BACKFILL where width between median planter and curb is 12" or less. All work and materials will be in accordance with Section 606 of the STANDARD SPECIFICATIONS except as described below.

Construction Requirements. The color of the concrete shall be consistent with the existing unit pavers located south of Harding Avenue on Butterfield Road. A color sample shall be submitted to the County for approval prior to the construction of the median. The colored concrete shall be stamped with a pattern consistent with the pattern of the exiting unit paving located south of Harding Avenue on Butterfield Road. The pattern shall be approved by the County and the ENGINEER prior to construction.

Method of Measurement. STAMPED COLORED PORTLAND CEMENT CONCRETE MEDIAN SURFACE 4 INCH (SPECIAL) will be measured for payment in place, and the area computed in square feet.

Basis of Payment. This work will be paid for at the contract unit price per square foot for STAMPED COLORED PORTLAND CEMENT CONCRETE MEDIAN SURFACE 4 INCH (SPECIAL), which price shall include all required expansion joints, coloring, special texturing and patterns. The aggregate fill is paid separately as AGGREGATE BASE COURSE, TYPE A (SPECIAL) or AGGREGATE BACKFILL.

MEDIAN SIGN (SPECIAL)

Description. This work shall consist of fabricating, furnishing and installing sandblasted wooden signs at locations indicated in the plans.

Materials.

All wood shall be vertical grain redwood or vertical grain cedar.

All bolts shall be stainless steel.

Paint shall be an approved oil-based sign painter's paint.

UV protective clear coat shall be submitted for approval prior to use.

Concrete for post bases shall be IDOT Class SI with a minimum 28 day strength of 3,500 PSI.

Construction Requirements. The sign shall be fabricated by sandblasting over a computer generated mask to create the letters and borders as shown on the plans. Approved paint and UV protective coat shall be applied. The sign shall be bolted/glued to the 4" x 4" posts in such a manner that the bolts are not visible from the front of the sign. The 4" x 4" post shall be set in 1' diameter drilled shafts a minimum of 3' deep. Shop Drawings indicating the details of the signs, colors and types of paints and method of attachment to posts shall be submitted for review and approval prior to fabrication.

Basis of Payment. This work shall be measured and paid for at the contract unit price per each for MEDIAN SIGN (SPECIAL)

- FENCE (SPECIAL)

This work shall be in accordance with Section 664 of the Standard Specifications except as follows. The design, size, type and material shall be in accordance with the "Majestic Eagle" as manufactured by Iron Eagle Industries or approved equal. The fence dimensions and design are shown on the detail in the Contract plans. The finished color shall be black.

Shop drawings of the fence shall be submitted to the ENGINEER for review prior to fabrication.

Work shall include furnishing and installing FENCE (SPECIAL), including all fence connections, concrete and electric grounding. Payment shall be per linear foot measured in place.

- FLOCCULATION LOGS

- FLOCCULATION POWDER

Material. The polymer shall be a water soluble anionic polyacrylamide (PAM) used to minimize soil erosion, bind soil particles, remove suspended particles, and act as a construction aide. PAMs are manufactured in various forms to be used on specific soil types. Using the wrong PAM will result in performance failures. All site specific soils must be tested by a Certified Professional in Erosion and Sediment Control (CPESC) each time a PAM is used.

a) Toxicity

All vendors and suppliers of PAM, PAM mix or blends shall present or supply a written toxicity report which verifies that the PAM, PAM mix or blend exhibits acceptable toxicity parameters which meet or exceed the requirements for the State and Federal Water Quality Standards. **Cationic formulations of PAM, PAM blends, polymers or Chitosan are not allowed.**

b) Performance

All vendors and suppliers of PAM, PAM mix or blends shall supply written "site specific" testing results demonstrating that a performance of 95% or greater of nephelometric turbidity units (NTU) or total suspended solids (TSS) from samples taken. In addition to soil testing, a CPESC person shall design the installation plan for the polymers based on mix time and point of entry.

c) Safety

PAM shall be mixed and/or applied in accordance with all Occupational Safety and Health Administration (OSHA) material safety data sheet (MSDS) requirements and the manufacturer's recommendations for specified use.

Flocculation Powder Dry Form Application:

Dry form powder may be applied by hand spreader or mechanical spreader. Pre-mixing of dry form PAM into fertilizer, seed or other soil amendments is allowed when instructed by the CPESC. Application method shall insure uniform coverage to the target area. Application rates will be from 10 pounds per acre to 18 pounds per acre, or per manufacture's recommendation.

Flocculation Powder Hydraulically Applied Application:

PAM is typically used as part of hydraulically applied slurry containing at least mulch and seed to quickly establish vegetation, temporary or permanent. When used without seed, PAM provides temporary erosion protection for cut & fill surfaces. Application rates will be from 10 pounds per acre to 18 pounds per acre, or per manufacture's recommendation.

Flocculation Powder Installation constraints

Flocculation Powder shall be applied to non-frozen soil surfaces, only. An unfrozen soil surface is defined as any exposed soil surface free of snow, standing water, ice

crystals, etc. which is comprised of discrete soil particles unbound to one another by surface or interstacy ice. When hydraulically applying the Flocculation Powder the temperature shall be at least 40° F.

Flocculation Log Installation

A Flocculation Log is a semi-hydrated polyacrylamide block that is placed within stormwater or construction site drainage to remove fine particles and reduce NTU values. Placement of Flocculation Logs should be as close to the source of particle suspension as possible. Ideal performance of the Flocculation Logs occurs when the product is used in conjunction with other best management practices. Each Flocculation Log is specifically formulated for the soil and water chemistry at the site. Soil and water samples will determine which formula Flocculation Log is needed. The samples will also aid in determining proper placement.

Flocculation Products Maintenance plan:

As with any other best management practice, this system will need to have a maintenance plan in place. The Contractor shall perform the following items as directed by the Engineer:

1. Reapplication of Flocculation Powder to disturbed areas
2. Reapplication of Flocculation Powder to temporary areas
3. Replacement of Flocculation Logs
4. Adjustments to the S.W.P.P.P.

Method of Measurement. An estimated quantity of flocculation logs and flocculation powder has been included in the contract. FLOCCULATION LOGS will be measured per each, in place, installed. FLOCCULATION POWDER will be measured in pounds of powder applied over areas directed by the Engineer at

Basis of Payment. FLOCCULATION LOGS will be paid for at the contract unit price per each which price shall include furnishing and installing the logs as per the vendors / suppliers recommendations. Payment will be made based on the actual number of logs used.

FLOCCULATION POWDER will be paid for at the contract unit price per pound which price shall include furnishing and applying the powder as per the above application methods and the vendors / suppliers recommendations. Payment will be made based on the actual quantity of powder applied, up to 103% of maximum application rate.

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 Siecior 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 aerially 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 7¾" (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.
- Surge Protection – EDCO Model 1210 IRS with failure indicator.
- 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 lamp life 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) ½-inch diameter x 1 ¼-inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (Burdny type YGHA or approved equal). The grounding compression terminal shall be secured to the bolts with stainless steel split-lock washers and nylon-insert locknuts.

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

The grounding cable shall be paid for separately.

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

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

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
Pedestrian Indication	Hand-Portland Orange		Person-White			
	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, ±17.5	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, ±17.5	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 $0.730 - x$

LAKE COUNTY DIVISION OF TRANSPORTATION

TRAFFIC SIGNAL SPECIFICATIONS

Effective: November 28, 2005

All work and equipment performed and installed under this Contract:

County Highway Name: Butterfield Road
 County Highway Number: CH57
 County Highway Section: 99-00142-07-WR

shall be governed by and shall comply with:

SPECIFICATION	ADOPTED/DATED
The State of Illinois "Standard Specifications for Road and Bridge Construction" referred to as "Standard Specifications"	Latest Edition
The State of Illinois "Manual on Uniform Traffic Control Devices for Streets and Highways," referred to as "MUTCD"	Latest Edition
The National Electrical Code referred to as "NEC"	Latest Edition
The National Electrical Manufacturers Association (All publications for traffic control items) referred to as "NEMA"	Latest Edition
The International Municipal Signal Association ("Official Wire & Cable Specifications Manual,") referred to as "IMSA"	Latest Edition
The Institute of Transportation Engineers Technical Report No. 1, (A Standard for Adjustable Face Vehicular Traffic Control Heads) referred to as "ITE"	Latest Edition
AASHTO "Standard Specifications" Structural Supports for Highway Signs, Luminaires, and Traffic Signals	Latest Edition
Supplemental Specifications and Recurring Special Provisions	Latest Edition

The following Traffic Signal Special Provisions supplement the above specifications, manuals, and codes. In case of conflict with any part or parts of said documents, these Special Provisions shall take precedence and shall govern.

The following terms and acronyms are used:

IDOT	Illinois Department of Transportation
District 1	IDOT District 1
LCDOT	The Lake County Division of Transportation
Engineer	The Resident Engineer
Traffic Engineer	The County Traffic Engineer – LCDOT

The construction, installation, modification and/or removal work shall be accomplished at the following intersection(s):

Butterfield Road at Illinois Route 137, Butterfield Road at Virginia Road, and Butterfield Road at Winchester Road

The intent of this Special Provision is to prescribe the materials and construction methods commonly used in traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be indicated on the plans or as directed by the Engineer.

The work performed under this contract shall consist of furnishing and installing all traffic signal work as specified on the plans and as specified herein in a manner acceptable and approved by the Engineer.

MAST ARM SIGN PANELS.

Add the following to Article 720.02 of the Standard Specifications:

Signs attached to poles or posts (such as mast arm signs) shall have mounting brackets and sign channels which are equal to and completely interchangeable with those used by LCDOT. All aluminum signs shall have a white reflectorized legend and border on a green reflectorized background, type AZ sheeting. The sign face shall not have any holes. 3M Scotch Joining Systems bonding tape or an approved equal shall be used in place of screws or rivets. The Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware, or bonding tape are acceptable based upon LCDOT approval.

INSPECTION OF ELECTRICAL SYSTEMS.

Add the following to Article 802.01 of the Standard Specifications:

All cabinets, including temporary traffic signal cabinets, shall be assembled by an approved equipment supplier in District One. LCDOT reserves the right to request that any controller and cabinet be tested at a District 1 approved equipment supplier's facility prior to field installation. Such testing will be at no extra cost to the contract. All permanent or temporary "railroad interconnected" controllers and cabinets, shall be newly constructed, built, tested and approved by the controller equipment vendor, in the vendor's District 1 approved 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 Article 802.02 of the Standard Specifications to read:

Any damaged equipment or equipment not operating properly from any cause whatsoever shall be repaired and/or replaced with new equipment provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, to the satisfaction of 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 incidental to the related pay item such as foundation, conduit, handhole, trench and backfill, etc. and no extra compensation shall be allowed. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be restored to match the previously existing conditions. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded, in accordance with Section 250 and 252 of the "Standard Specifications" respectively.

SUBMITTALS.

Revise Article 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 thirty (30) calendar days after the contract is awarded, or within fifteen (15) calendar days after the preconstruction meeting, whichever is earliest.
- b. Seven (7) copies of a letter listing the manufacturer's name and the model numbers of the proposed equipment. The Traffic Engineer will review the letter and determine whether the proposed equipment is approved for use. The copies will be stamped as "approved", "not approved", or "approved as corrected" and returned to the Contractor.
- c. Two (2) copies of material catalog cuts.
- d. Seven (7) copies of mast arm poles and assemblies drawings.
- e. The contract number or permit number, project location/limits and corresponding pay item 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 Article 802.07 of the Standard Specifications to read:

- a) Existing traffic signal installations and/or any electrical facilities at locations included in this contract 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 it is 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 pay item MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, and/or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION, shall become the full responsibility of the Contractor. The Contractor shall supply the Engineer and the County's Traffic Signal Maintenance Contractor a 24-hour emergency contact name and telephone number. The Contractor shall provide sufficient

qualified personnel to respond to all notifications of malfunctions on a round-the-clock basis (24 hours a day, 7 days a week). The Contractor is required to keep a time and date log of each response, from the time of the initial report to the time of final permanent repair.

- b) When the project has a pay item for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, and/or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION, the Contractor must notify the Traffic Engineer at (847) 362-3950 of their intent to begin any physical construction work on the project or any portion thereof. This notification must be a minimum of seven (7) working days prior to the start of construction to allow sufficient time for an inspection of the existing traffic signal installation(s) and the transfer of maintenance to the Contractor. If work is started prior to the inspection, maintenance of the traffic signal installation(s) will be immediately transferred to the Contractor without an inspection. The Contractor shall then 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 to or the replacement of damaged equipment must meet the approval of the Engineer at the time of final inspection or the traffic signal installation will not be accepted.
- c) Contracts that don't include traffic signal installations or modifications, but do include pay items for milling or pavement patching which may result in the destruction of traffic signal loops, do not require maintenance transfer. These contracts do 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 Traffic Engineer at (847) 362-3950, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection.
- 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 unavoidable down time. Any plan to shutdown the traffic signal installation for a period exceeding fifteen (15) minutes must receive prior approval from the Engineer. Approval to shutdown the traffic signal installation will only be granted during the hours of 9:00 A.M. to 3:00 P.M. on weekdays. Shutdowns will not be allowed during inclement weather, weekends 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 Division, the County's Traffic Signal Maintenance Contractor or the public, shall be investigated and repairs started within one hour. Failure to provide this service will result in liquidated damages of \$500 per day per occurrence. In addition, the Contractor shall restore service and complete permanent repairs in accordance with the following Repair Timetable. The Traffic Engineer reserves the right to assign any work not completed within this timeframe to the County's Traffic Signal Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Traffic Signal 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 County's Traffic Signal Maintenance Contractor may inspect any signaling device on the Division's highway system at any time without notification.

Unless specifically stated to the contrary, all items shall be repaired within the time frame described in the Repair Timetable. The times listed are noncumulative. Any repairs not specifically covered in the Repair Timetable, or described elsewhere, shall be completed within a time frame matching the most similar line item in the Repair Timetable.

REPAIR TIMETABLE
 (non cumulative)

<u>ITEM</u>	<u>RESPONSE TIME</u>	<u>SERVICE RESTORATION</u>	<u>PERMANENT REPAIRS</u>
KNOCKDOWNS/FAILURE/DAMAGE:			
Cabinet	1 hr	24hrs	2 wks
Controller (Master)	1 hr	NWD	2 wks
Controller (Local)	1 hr	24hrs	2 wks
Detector Loop	1 hr	n.a.	30 days
Detector Loop (Priority)	1 hr	n.a.	10 days
Loop Detector/Amplifier	1 hr	4 hrs	2 wks
MVP Sensor	1 hr	4 hrs	2 wks
PTZ Camera	2 hrs	48 hrs	2 wks
Detector Interface Card/Mini Hub	1 hr	4 hrs	2 wks
Modem	1 hr	NWD	2 wks
Load Switch	1 hr	2 hrs	2 hrs
Signal Head/Lenses	1 hr	2 hrs	NWD
Pole/Mast Arm	1 hr	2 hrs	ENG
Cabling/Conduit	1 hr	4 hrs	ENG
Interconnect	1 hr	NWD	ENG
Graffiti/Advertising	NWD	NWD	NWD
Telemetry, Electrical	1 hr	2 hrs	NWD
Indicators/switches/LEDs/displays	NWD	n.a.	2 wks
Outages not covered elsewhere	1 hr	2 hrs	NWD
Filter/Cleanliness/fans/thermostat	NWD	NWD	n.a.
Misalignment (conflicting)	1 hr	2 hrs	NWD
Misalignment (non-conflicting)	48hrs	48hrs	1 wk
COMPLAINTS/CALLS/ALARMS:			
Timing/Phasing/Programming	1 hr	2 hrs	ENG
Coordination Alarm/Cycle Fail	NWD	ENG	ENG
Controller Alarm/Status Change	1 hr	NWD	1 wk
Detector Alarm/Status change	NWD	NWD	ENG
CMU Flash/Local Flash	1 hr	2 hrs	1 wk
Door Open/Maint. Req.	1 hr	2 hrs	NWD

LEGEND: hr=hour, hrs=hours, NWD=next working day, wk=week, wks=weeks, ENG=acceptable to Engineer, days=calendar days, n.a.=not applicable

TRAFFIC SIGNAL INSPECTION (TURN-ON).

Revise Article 802.10 of the Standard Specifications to read:

It is LCDOT's intent to have all electric work completed and the equipment field-tested by the vendor, prior to LCDOT's "turn-on" field inspection. 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. In the event the Traffic Engineer determines that the work is not complete and that 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 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 Traffic Engineer at (847) 362-3950 a minimum of seven (7) working days prior to the time of the requested inspection. LCDOT will not grant a field inspection until the Contractor provides notification that the equipment has been field tested, and the intersection is operating according to contract requirements. The LCDOT facsimile number is (847) 362-5290.

Signal indications being tested shall match the lane configurations and markings at the intersection. If any conflicting signal indications are visible to motorist or pedestrians while testing, the Contractor shall be responsible to provide police officer(s) to direct traffic. In addition, 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 properly and that all work has been completed in accordance with the contract and to the satisfaction of the Traffic Engineer, the Traffic 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 reassume the traffic signal maintenance upon successful completion of this inspection.

The Lake County Division of Transportation requires the following from the Contractor at Traffic Signal "turn-ons":

1. One (1) set of signal plans of record.
2. Notification from the Contractor and the equipment vendor that the equipment was satisfactorily field-tested.
3. A knowledgeable representative of the controller equipment supplier shall be present at the traffic signal "turn-on". The representative shall be knowledgeable concerning the cabinet design and the controller functions.
4. A copy of the approved material letter.
5. One (1) copy of the operation and service manuals for the signal controller and the associated control equipment.
6. Five (5) copies (11" x 17") of the cabinet wiring diagrams.
7. Five (5) copies of the traffic signal installation cable log.

Acceptance of the traffic signal equipment by LCDOT shall be based on the inspection results at the traffic signal "turn-on". If approved, the traffic signal acceptance shall be given verbally at the "turn-on" inspection, followed by written correspondence from the Traffic Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until LCDOT acceptance is granted. Any "punch list" work remaining after the installation is accepted shall be completed within thirty (30) calendar days of the acceptance date. If this work is not completed within thirty days, LCDOT reserves the right to have the work completed by others at the Contractor's expense. This cost will be in addition to Liquidated Damages for Untimely Work.

The Contractor shall furnish all equipment and/or parts to keep the traffic signal installation operating.

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 will be subject to removal and disposal at the Contractor's expense.

LIQUIDATED DAMAGES FOR UNTIMELY WORK

A primary concern of LCDOT is to maintain a safe and efficient roadway for the public. Therefore, the Contractor shall proceed with the traffic signal work as soon as conditions and project staging permit. If in the opinion of the Engineer construction conditions are suitable for traffic signal work, and the Contractor has not yet begun the traffic signal work, the Engineer shall notify the Contractor to proceed. The Contractor shall begin the traffic signal work within seven (7) calendar days after notification to proceed. The Contractor shall continue to prosecute the traffic signal work until completion, or until he can no longer proceed due to conditions beyond his control. The Contractor shall notify the Engineer of any conditions impeding and/or delaying his prosecution of the work. Failure by the Contractor to proceed with the traffic signal work as specified herein shall result in liquidated damages of **\$500.00** per calendar day per occurrence.

LOCATING UNDERGROUND FACILITIES.

Revise Section 803 of the Standard Specifications to read:

Contractor requests for equipment locates will be granted only once prior to the start of the contract. Additional requests shall be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any item(s) damaged during the construction, at his/her own expense.

Locate requests should be directed to LCDOT's Traffic Signal Maintenance Contractor or to the LCDOT Traffic Engineering Department at (847) 362-3950.

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 call J.U.L.I.E. at **1-800-892-0123**. For the locations of some utilities, other Agencies or Municipalities may need to be contacted.

ELECTRIC SERVICE INSTALLATION.

Revise Section 805 of the Standard Specifications to read:

Description. This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the details in the "District 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. All electrical service enclosures shall be UL 50, single door design, fabricated from Type 5052 H-32 aluminum. All seams shall be continuous welded and ground smooth, and the cabinet shall be sized to adequately house all required

components with extra space for arrangement and termination of wiring. Enclosures shall meet the following additional requirements:

1. Pole Mounted Cabinet. The cabinet shall be NEMA Type 4X. 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. A minimum size of 14-inches high, 9-inches wide and 8-inches deep 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 NEMA Type 3R with back panel. The cabinet frame and door shall be 0.125-inch thick, the top 0.250-inch thick, and the bottom 0.500-inch thick. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full-length tamperproof stainless steel .075-inch thick hinge bolted to the cabinet with stainless steel carriage bolts and nylock nuts. The locking mechanism shall be slam-latch type with a keyhole cover. A minimum size of 40-inches high, 16-inches wide, and 15-inches deep 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, with trip-free indicating handles. 120-volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.
 - e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.
 - f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.
 - g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-

up. This 30-day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.

- h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10-feet in length, and 3/4-inch 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 3/4-inch 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 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 in all foundations, intersection handholes, and the service installation. An additional ground rod will be required at locations where measured resistance to ground exceeds 25 ohms. Ground rods are included in the associated pay items and will not be paid for separately. Testing shall be according to Article 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 Article 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 Earth shall not be used as the equipment-grounding conductor, and no splices shall be allowed in the cable between ground rods. The equipment-grounding conductor is paid for separately.
 - 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, with the following exceptions: 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.

CONDUIT IN GROUND.

The conduit shall meet the requirements of Section 810 of the "Standard Specifications," except for the following:

Delete Article 810.01 of the Standard Specifications and add the following:

Description. This item shall consist of furnishing and installing galvanized steel conduit, fittings and accessories in the ground, either pushed, trenched, plowed, or directionally bored, with fittings complete as specified herein and as shown on the Contract drawings.

Add the following to Article 810.03 of the Standard Specifications:

Pavement, driveways, and curbs shall not be removed to install electrical conduits. All buried conduits shall be placed at a minimum depth of 30 inches, except under railroad tracks, where the minimum depth shall be five (5) feet, as measured from the final surface grade to the top of the conduit. All conduit couplings shall be threaded. Conduits terminating in junction and pull boxes shall be terminated with hubs.

When empty conduit is installed for future traffic signal interconnects(s), the Contractor shall provide a pull line within the conduit.

Revise Article 810.05 of the Standard Specifications to read:

Basis of Payment: This work will be paid for at the contract unit price per foot for CONDUIT IN GROUND, of the type and size specified, which price shall be payment in full for furnishing and installing the conduit either pushed, trenched, plowed, or directionally bored with fittings, complete. Trenching, backfilling and area restoration are incidental to the cost of this item.

HANDHOLES.

Add the following to Section 814 of the Standard Specifications:

All handholes shall be cast-in-place concrete, with a minimum inside dimension of 21-1/2 inches. Frames and lid openings shall match this dimension. The minimum wall thickness for heavy-duty hand holes shall be 12 inches. The handhole cover shall be labeled "Traffic Signals" with legible raised letters.

All conduits shall enter the handhole at a minimum depth of thirty (30) inches. However, the depth of conduit from detector loops located less than five (5) feet from the handhole may be less than thirty (30) inches.

All cable hooks shall be hot-dipped galvanized in accordance with AASHTO Specification M111. Hooks shall be a minimum of 3/8-inch diameter and extend into the handhole at least 6 inches. Hooks shall be placed a minimum of 12 inches below the lid, or lower if additional space is required. All cable hooks shall be secured with a retaining nut tightened against the handhole concrete.

GROUNDING CABLE.

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

Add to Article 817.02 of the Standard Specifications:

Unless otherwise noted on the Plans, the system grounding cable shall be one conductor, #6 gauge copper, with an XLP jacket.

The system grounding cable shall be bonded, using a Listed grounding connector (Burdny type KC/K2C, as applicable, or approved equal), to all new and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts.

Revise Article 817.05 of the Standard Specifications to read:

Basis of Payment. Payment shall be at the Contract unit price, per foot, 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 the following to Article 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 inch polyethylene (black, blue, red). The jacket shall be black 0.045 PVC or polyethylene.

Revise Article 817.05 of the Standard Specifications to read:

Basis of Payment. This work shall be paid for at the contract unit price per 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 of the Standard Specifications to read:

The Contractor shall not be required to pay the energy charges for the operation of the existing traffic signal installation. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof.

The Contractor shall have electricians on staff 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 Article 802.07 of the Standard Specifications, 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 the emergency vehicle pre-emption system. 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 (2) 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 at least 2 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 signal maintenance vehicles 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 those which may be damaged or stolen.

The Contractor shall provide the Engineer with a 24-hour telephone number for traffic signal maintenance. The Contractor, or his representative, shall be available on a 24-hour basis to respond to emergency calls by the Traffic Engineer or other parties.

Traffic signal equipment which is lost or not returned to the County 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 County 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 County. 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 County's Traffic Signal Maintenance Contractor perform the maintenance work required. The County's Traffic Signal 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 County's Traffic Signal 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 of the Standard Specifications:

The controller shall be the latest model available that is compatible with "icons" software (NTCIP) or "Aries" software, currently in use by LCDOT, and shall be NEMA TS2 Type 1 compatible, unless specified otherwise on the plans. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans. Only controllers supplied by approved District 1 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 circular yellow and yellow arrow indications.

INTERSECTION MONITOR MODULE

This item shall consist of furnishing and installing an Intersection Monitor Module in a traffic signal controller. The module shall be manufactured by the same manufacturer as the traffic signal controller. This module is necessary at isolated (non-interconnected) traffic signals in order to monitor the intersection and controller operations.

Basis of Payment: This item will be paid for at the contract unit price each for INTERSECTION MONITOR MODULE, which price shall be payment in full for furnishing and installing the monitor module complete with all necessary connections and equipment for proper operations.

MASTER CONTROLLER.

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

The Master Controller shall be the latest model available that is compatible with "Aries" software, currently in use by LCDOT. The minimum baud rate for fiber optic interconnected signal systems shall be 9600 bps.

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

The cabinet shall be provided with an outdoor network interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date. The interface shall be equipped with a standard Three-Electrode Heavy Duty Gas Tube Surge Arrestor. The cabinet shall be equipped with a US robotics modem, minimum 56K baud rate or approved equal.

FIBER OPTIC CABLE.

Revise Section 871 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 fibers specified, with six fibers per tube.

The control cabinet distribution enclosure(s) shall be Corning Model WCH-02P, WCH-04P, or an approved equivalent, capable of accommodating the required number of fibers.

Both ends of each section of fiber optic cable being installed shall be spliced and/or terminated with approved mechanical connectors according to the following:

Multimode: The contractor shall coordinate with the equipment vendor, and shall terminate as many multimode fibers as are necessary to establish proper communications with signal controllers and/or video transmission equipment. In addition, the contractor shall terminate four unused multimode fibers, and shall label them "spare". All multimode terminations shall be ST compatible connectors with ceramic ferrules.

Singlemode: The contractor shall splice and/or terminate the number of singlemode fibers shown on the project plans, if any. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated pigtailed fusion spliced to bare fibers. All fusion splices shall be secured on Corning splice trays, Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. Unused fibers terminated according to the plans shall be labeled "spare". All single-mode connectors shall be SC compatible, with ceramic ferrules.

Fibers not attached to the distribution enclosure shall be capped and sealed. A minimum of 13 feet 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 have an approved water blocking tape.

Basis of Payment. The work shall be paid for at the contract unit price per foot for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 24 FIBER (12 MULTIMODE AND 12 SINGLEMODE) or FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 36 FIBER (12 MULTIMODE AND 24 SINGLEMODE) for the cable in place, including distribution enclosure(s), all connectors, pigtailed, splice trays, and the required number of terminations described above. Additional fiber terminations and/or splices required by the Engineer shall be paid for as TERMINATE FIBER IN CABINET and/or SPLICE FIBER OPTIC CABLE IN CABINET.

TERMINATE FIBER IN CABINET.

This work shall consist of terminating existing or new fibers in field cabinets or buildings as indicated on the plans or as directed by the Engineer.

All multi-mode connectors shall be ST compatible, with ceramic ferrules. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated (SC compatible) pigtails fusion spliced to bare fibers. All fusion splices shall be secured on Corning splice trays, Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. Splice trays shall be incidental to TERMINATE FIBER IN CABINET, and shall not be paid for separately.

The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 802.08(b) of the Standard Specifications, to the satisfaction of the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price each for each fiber terminated in a field cabinet or inside a building as TERMINATE FIBER IN CABINET, which will be payment in full for terminating each required multimode or singlemode fiber, including all connectors, pigtails, splice trays, testing and documentation. The splicing of pigtails for singlemode fibers is included in the cost of TERMINATE FIBER IN CABINET, and shall not be paid for separately. This pay item shall not be used to pay for fiber terminations and/or splices completed to meet the requirements of FIBER OPTIC CABLE IN CONDUIT.

SPLICE FIBER OPTIC CABLE IN CABINET.

This work shall consist of fusion splicing singlemode fibers in a field cabinet or inside a building as indicated on the plans and as directed by the Engineer. Splices shall be secured in fiber optic splice trays within fiber optic distribution enclosures. The splice trays shall be Corning Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. Splice trays shall be incidental to SPLICE FIBER OPTIC CABLE IN CABINET and shall not be paid for separately. The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 802.08(b) of the Standard Specifications, to the satisfaction of the Engineer.

All optical fibers shall be spliced to provide continuous runs. Splices shall be allowed only in equipment cabinets except where otherwise shown on the Plans.

All splices shall be made using a fusion splicer that automatically positions the fibers using a system of light injection and detection. The Contractor shall provide all equipment and consumable supplies.

Basis of Payment: This work shall be paid for at the contract unit price each for SPLICE FIBER OPTIC CABLE IN CABINET, which will be payment in full for all fusion splicing, fiber optic splice trays, testing and documentation, at a cabinet or building location shown on the plans and as directed by the Engineer.

FIBER OPTIC TRACER CABLE.

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

In order to trace the fiber optic cable after installation, an XLP black insulated copper cable No. 14 shall be pulled 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. In order to minimize the number of splices required, the tracer cable shall incorporate maximum lengths of cable supplied by the manufacturer. Splicing of the tracer cable will be allowed at the handholes only. 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. Blowtorches or other devices which oxidize copper cable shall not be allowed for soldering operations. The splice shall be covered with underwater grade WCSMW 30/100 heat shrink tube, minimum length four (4) inches and with a minimum one (1) inch coverage over the XLP insulation.

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

CONCRETE FOUNDATIONS

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 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 Standards Traffic Signal Design Details". All Type A foundations shall be a minimum depth of forty-eight (48) inches.

Concrete Foundations, Type "D" for Traffic Signal Cabinets shall be constructed a minimum of forty-eight (48) inches long by thirty-one (31) inches wide, and shall have a minimum depth of forty-eight (48) inches. The concrete apron at the signal cabinet shall be constructed to 36 inches by 48 inches by 5 inches. Anchor bolts shall be provided and spaced according to the cabinet manufacturer's specifications.

Concrete Foundations, Type "D", Special, shall be used at all Traffic Signal Cabinets where a battery-back up system is being installed. The Type "D" Special foundation shall meet all the dimensions and requirements of the regular Type "D" foundation, and shall also include the following: a thirty (30) inch by twenty (20) inch by ten (10) inch thick concrete slab foundation shall be constructed on the right side of the controller cabinet. Also, a four (4) inch thick concrete apron, a minimum of thirty-six (36) inches long by thirty (30) inches wide, shall be constructed in front of the battery back-up cabinet. Refer to Lake County Detail number LC 8001.

Concrete Foundations, Type "E" for Mast Arm and Combination Mast Arm Poles shall meet the following requirements:

MAST ARM SIZE	DIAMETER OF FOUNDATION	DESIGN DEPTH OF FOUNDATION
14'-38'	30"	15'
> or = 40'	36"	15'
COMBINATION MAST ARMS	36"	15'

The Resident Engineer shall approve the foundation excavation prior to placing any concrete. Foundations used for Roadway Lighting shall provide an extra 2½" 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 Engineer shall mark the location of the proposed loops and contact the Traffic Engineer (847) 362-3950 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the placement of the 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 in order to minimize the length of the saw cut (homerun), unless otherwise directed by the Engineer or as shown on the plans. Polyethylene unit duct shall be used for detector loop raceways to the handholes. Unit duct shall meet the requirements of NEC Article 343. All unit duct used for traffic signal loop detector runs shall be incidental to the price of the detector loop.

The detector loop cable insulation shall be labeled with the cable specifications. Each detector loop lead-in wire shall be labeled in the handhole using a Panduit 250W175C waterproof tag or approved equal. The tag will be secured to each wire with nylon ties.

The resistance to ground for new detector loops shall be a minimum of 500 megaohms under any conditions of weather or moisture. Inductance shall be more than 50 microhenries and less than 700 microhenries. Quality readings shall be more than 5. All new or replacement lead-in cables shall be connected to the loop interface panel using appropriate crimp-on, spade type connectors.

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.

The location of each dive hole shall be marked on the face of the curb, the edge of pavement or the handhole, with a saw cut 1/4 inch deep by 4 inches long.

- (a) Type I: Each detector loop, which is to be installed in new asphalt pavement, must be placed in the pavement below the surface course. Each detector loop, which is to be installed in an existing asphalt or concrete pavement, shall be located to miss existing pavement cracks, if possible. Loop sealant used to seal new loops shall consist of a two-component thixotropic, chemically-cured polyurethane. The sealant will be Chemque Q-Seal 295, Perol Elastic Cement A/C Grade or an approved equal. The sealant shall be installed 1/8 inch below the pavement surface. Excess sealant, which accumulates on the surface, shall be removed immediately. Loop sealant used to reseal existing loops shall be composed of an asphalt-based compound. The sealant will be Doseal 230 or an approved equal.
- (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 and shall be placed in the substrate. 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 1 1/16-inch outside diameter (minimum), 3/8-inch inside diameter (minimum) Class A oil resistant synthetic cord-reinforced hydraulic hose with 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.

To minimize the length of time that a signal operates without vehicle detection, detector loops for active traffic signal installations shall be installed in a timely manner as follows:

If in the opinion of the Engineer construction conditions are suitable for loop installation(s), the Engineer shall notify the Contractor to proceed. The detector loops shall be installed and fully operational within fourteen (14) calendar days following notification to proceed by the Engineer. This 14-day period shall be in effect throughout the entire year, including the off season, regardless of the Contractor's working day status. Failure by the Contractor to complete the loop installation(s) within the specified timeframe shall result in liquidated damages in the amount of \$500.00 per calendar day, per occurrence.

Basis of Payment. This work shall be paid for at the contract unit price per 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 of the Standard Specifications to read:

If not marked in the Contract plans, 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 of the latest type manufactured and must be completely compatible with all components of signal equipment currently in use by the County.

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 preemption. 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 to prevent chafing of wires. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the preemption signal. The preemption movement shall be signalized by a flashing indication at the rate specified by Section 4K.01 of "MUTCD". The stopped preempted movements shall be signalized by a continuous indication.

All light operated systems shall operate at a uniform rate of $14.035 \text{ hz} \pm 0.002 \text{ hz}$, or as otherwise required by the Traffic Engineer, and provide compatible operation with other light systems currently being operated in the County.

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 light 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

Add the following to Section 890 of the Standard Specifications:

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 Electrical Systems" specification) A representative of the approved control equipment vendor shall be present at the temporary traffic signal turn-on inspection.

Only controllers compatible with "icons" software (NTCIP) or "Aries" software, currently in use by LCDOT, will be approved for use at temporary signal locations. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans. All controllers used for temporary traffic signals shall be fully-actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software, installed in NEMA TS-1 or TS-2 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 bridge 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) 4-inch diameter holes to run the electric cables through. The 4-inch diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

The stand which supports the temporary traffic signal cabinet shall be constructed of lumber and plywood that has been pressure-treated to protect against rot, mold, and insects.

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 the District 1 Traffic Signal Specifications for "Grounding of Traffic Signal Systems".

All traffic signal head sections shall be twelve (12) inches. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Traffic 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.

For temporary traffic signal installations within closed loop system(s), the controller shall be compatible with the existing traffic signal system master controller. The existing system interconnect is to be maintained as part of the Temporary Traffic Signal Installation specified 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 shall be incidental to the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.

All emergency vehicle priority 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 priority equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of signal equipment currently in use by the County. All light operated systems shall operate at a uniform rate of 14.035 hz \pm 0.002, or as otherwise required by the Engineer. All labor and material required to install and maintain the Emergency Vehicle Priority system shall be incidental to the item Temporary Traffic Signal Installation.

All temporary traffic signal installations shall have approved vehicular detection and approved pedestrian push buttons installed as shown on the plans or as directed by the Engineer. Vehicular detection shall be provided by video sensors, microwave sensors, or detector loops, and shall be paid for separately. The Contractor shall install, wire, and adjust the alignment of the vehicular detection system in accordance with the manufacturer's recommendations and requirements. When directed by the Engineer, this item shall also include operational items such as: controller database changes, timing changes, activation/deactivation of phases, relocation of signal heads, relocation / reconfiguration of detectors (microwave and/or video), and bagging / unbagging signal heads. A representative of the approved control equipment vendor shall be present and assist the contractor in setting up the vehicular detection system. On temporary traffic signal installations with detector loops, polyethylene unit duct shall be used for detector loop raceways from the saw-cut to 10 feet up the wood pole, unless otherwise shown on the plans. Unit duct shall meet the requirements of NEC Article 343. All unit duct used for traffic signal loop detector runs shall be incidental to the price of the detector loop.

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 assemblies and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.

The Contractor shall not be required to pay the energy charges for the operation of the existing traffic signal installation. If the installation replaces an existing signal, the Contractor shall not be required to pay the energy charges for the operation of the temporary traffic signal. The Contractor shall pay the energy charges for all other temporary traffic signal installations.

The Contractor shall furnish all control equipment for the temporary traffic signals(s) unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be of the same manufacturer and model number with current software installed.

Maintenance shall meet the requirements of the "Standard Specifications" and District 1 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 any portion of the project. Maintenance responsibility of the existing signals shall be incidental to the item TEMPORARY TRAFFIC SIGNAL INSTALLATION. 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 contact the Traffic Engineer (847) 362-3950 to request 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 aerially suspended, at a minimum height of 18 feet, on temporary wood poles (Class 5 or better) of 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. All approaches for temporary traffic signals for bridge projects shall have microwave vehicle sensors or video vehicle detection, as shown on the plans or 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 which shall include all costs for the installation, modification, maintenance, operational items, complete removal of the temporary traffic signal., and all material required to complete the work.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT.

Add the following to Article 895.05 of the Standard Specifications:

The traffic signal equipment, which is to be removed and will become the property of the Contractor, shall be disposed of by the Contractor outside the right-of-way at his/her own expense.

The Contractor shall safely store and arrange for delivery of all equipment that will remain the property of LCDOT. The Contractor shall deliver, unload and stack the equipment at the owner's facility, as directed by the Engineer, within 30 days of removing it from the traffic signal installation. The Contractor shall provide three (3) copies of a list of equipment that is to remain the property of LCDOT including model and serial numbers where applicable. The Contractor shall also provide a copy of the contract plan or special provisions showing the quantities and type of equipment to be delivered. 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. The Contractor shall be

responsible for the condition of the traffic signal equipment from the time of removal until the acceptance of a receipt written by the owner indicating that the items have been returned in good condition.

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

PEDESTRIAN PUSH-BUTTON.

Replace Article 1074.02 of the Standard Specifications with the following:

Pedestrian Push-button assembly shall be a Campbell Company 57H Station with a round Progressive Traffic Products "BumbleBee" button, or an approved equal. The push-button assembly shall be installed with a 5-inch by 7 $\frac{3}{4}$ -inch Campbell Company vandal resistant sign, according to the following:

Where pedestrian signal heads are used, pedestrian signs shall provide the "Push Button for" legend, with the Walking Man symbol and arrow (R10-4b). Where no pedestrian signal heads are used, pedestrian signs shall provide the "Push Button for Green Light" legend with arrow (R10-3 with arrow), or as specified on the plans.

Basis of Payment: This work shall be paid for at the contract unit price each for PEDESTRIAN PUSH BUTTON. The unit price shall include furnishing and installing the pedestrian station, push button, sign, and all necessary equipment and connections for proper operations. Electric cable in conduit shall be paid for separately.

PEDESTRIAN PUSH-BUTTON, LED

Replace Article 1074.02 of the Standard Specifications with the following:

This item shall meet the same requirements as PEDESTRIAN PUSH BUTTON, with the following exception: The button shall be a Campbell Company DCC 200 Series stainless steel button, with "Enlightened" feature (Red LED), or approved equal. The Campbell "Enlightened" feature requires an interface panel in the signal cabinet, which can control up to two pedestrian phases

Basis of Payment: This work shall be paid for at the contract unit price each for PEDESTRIAN PUSH BUTTON, LED. The unit price shall include furnishing and installing the pedestrian station, push button, sign, and all necessary equipment and connections for proper operations, including cabinet interface panels and/or modules. Electric cable in conduit shall be paid for separately.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Add the following to Article 1074.03 of the Standard Specifications:

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. Individual load switches shall be provided for each vehicle, pedestrian, and right turn overlap phase.

- Cabinets – The cabinet shall be 65 inches high, and shall provide a third shelf for mounting additional equipment. The cabinet shall be fabricated of 1/8" thick unpainted aluminum alloy

5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.

- Cabinet Doors – Provide front and rear doors of NEMA type 3R construction with cellular neoprene gasket that is rain tight. Door hinges shall be continuous 14-gauge stainless steel and shall be secured with ¼-20 stainless steel carriage bolts.
- Controller Harness – Provide a TS2 Type 2 “A” harness in addition to the TS2 Type 1 harness.
- Surge Protection – EDCO Model 1210 IRS with failure indicator.
- BIU – Containment screw required.
- Switch Guards – All switches shall be guarded.
- Heating – One (1) 200-watt, thermostatically-controlled, Hoffman electric heater, or approved equivalent.
- Plan & Wiring Diagrams – 12” x 16” moisture sealed container attached to door.
- Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen (16) channels of vehicular operation.
- Field Wiring Labels – All field wiring shall be labeled.
- Field Wiring Termination – Approved channel lugs required.
- Power Supply – Provide a nonconductive shield.
- Circuit Breaker – The signal load circuit breaker shall be rated thirty (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 approved equivalent.

FULL ACTUATED CONTROLLER, IN TYPE IV CABINET, NEMA-TS2, (SPECIAL)

This item shall comply with Sections 857 and 863 of the Standard Specifications for Road and Bridge Construction, and shall also comply with the following requirements:

The controller shall meet the requirements for NEMA-TS2 standards for a Type 1 Cabinet.

The controller shall be the latest model available that is compatible with “icons” software (NTCIP) or “Aries” software, currently in use by LCDOT. Controller software compatibility requirements are based upon the controller’s location in the communication system, and shall be as shown on the plans.

The cabinet shall be 65 inches high, and shall provide a third shelf for mounting additional equipment. Also, the cabinet shall have front and rear doors of NEMA type 3R construction with cellular neoprene gasket that is rain tight. Door hinges shall be continuous 14-gauge stainless steel and shall be secured with ¼-20 stainless steel carriage bolts. Standard equipment shall include a three-point locking system that secures the door at the top, bottom and center. A corbin lock with two keys shall also be furnished. The front and rear doors shall be equipped with a two-position doorstop, one at 90° and one at 120°.

Basis of Payment: This item will be paid for at the contract unit price each for FULL ACTUATED CONTROLLER, IN TYPE IV CABINET, NEMA-TS2, (SPECIAL) which price shall be payment in full for furnishing and installing the cabinet and controller, complete with necessary connections and equipment for proper operation, at a location designated by the Engineer. If required, the transceiver shall be considered incidental to the cost of this item. Removal of an existing controller, and its return to the County, shall also be incidental to the cost of this item.

TRAFFIC ACTUATED CONTROLLER AND CABINET INTERCONNECTED WITH RAILROADS.

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

Cabinets shall be NEMA TS2 Type 1 design, meeting the requirements of CONTROLLER CABINET AND PERIPHERAL EQUIPMENT and FULL ACTUATED CONTROLLER, IN TYPE IV CABINET, NEMA-TS2, (SPECIAL). In addition, the following shall apply to railroad interconnected equipment:

Only an approved traffic signal equipment supplier shall assemble railroad interconnected controllers and cabinets. The equipment shall be tested and approved in the equipment supplier's District 1 approved facility prior to field inspection.

The pedestrian clearance during railroad preemption will be limited to a flashing "Don't Walk" interval, equal in length to the vehicle yellow clearance interval, and shall time concurrently with the vehicle yellow clearance.

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 6-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 immediately upon detecting any failure.

The interconnect to the 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 the controller/cabinet CRC (cycle redundancy check) match. The CRC will be developed based on preemptor entries, unit data (including phases in use, sequence and ring structure, etc.), overlap assignment and timing, firmware version, and any special memory content necessary for proper operation. Where data is stored in a data module, a spare data module shall be provided to the Engineer.

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

The cabinets shall be equipped with a labeled test switch for the railroad interconnected preemption line which will place a call in the controller's railroad preemption phase and also will acknowledge power to the interconnect line. The switch shall automatically return to normal position upon release.

UNINTERRUPTIBLE POWER SUPPLY (UPS)

This specification sets forth the minimum requirements for an uninterruptible power system with battery back-up, for a traffic signal. The system is comprised of the UPS or Inverter unit, bypass switch, batteries, cabinet, and related wiring harnesses.

UPS (Inverter Unit)

The UPS shall produce a fully regenerated, conditioned, regulated pure sine wave 120-volt AC (+/- 4%) power output in all operational modes to all traffic control equipment.

The electronic control circuit shall constantly sample the AC input. The UPS shall provide a steady 120v AC from an input source as low as 85 volts and as high as 135volts AC before using the inverter / battery to provide 120 volts to the load.

The switching to battery/inverter will occur in less than 4 milliseconds after utility voltage fluctuations or deviations travel outside preset parameters. The inverter's output shall be pure clean sine wave with an efficiency of 94% at 100% load. The inverter circuit shall be capable of high duty cycle operation.

The UPS shall be rated at Unity power factor (1000 watts) for continuous operation. The UPS shall be capable of providing an overload output rating of 150% of rated output for 10 minutes at Unity power factor (1500 watts).

In case of UPS failure and or battery depletion, the UPS will ensure upon the return of utility power that the utility power will be failsafe-bypassed to the traffic signal controller. An external manual bypass shall provide a secondary redundant path for the utility power if the internal UPS bypass fails. The UPS shall be capable of operating in a bypass mode until the depleted batteries have recharged to a predetermined state, and then resume full on-line operation. The UPS shall be capable of hot swapping the batteries or battery bank, without shutting down the UPS

The UPS Front Panel shall have the following: A/C Input / Output circular connector, battery connector, multi-function dial timer, LCD display for counting power interruptions, real-time voltage meter and amp/watt meter, circular connector containing dry contact closure for UPS Fail, On Battery, Flash, Low Battery, and Alarm. The front panel shall also have LED indicators for AC/Battery power present, UPS Fault, Overload, Low Battery, and Ground Fault.

The UPS shall interface with the traffic signal controller or master controller to provide the "On Battery" alarm to the Lake County Division of Transportation facilities over the normal fiber optic/dial-up communication channels. The "On Battery" alarm must be wired to the Alarm 2 Function of the traffic signal controller back panel.

The connector shall be rated for 150 amps DC.

Bypass Switch

The Bypass Switch shall consist of one main manual switch, which provides a means of placing the UPS into a bypassed position without interruption of the power to the intersection. A second switch provides a means of isolating the AC utility from the UPS. This provides a means of testing the UPS/Battery back-up by turning off the AC utility to the UPS with the UPS in normal operation. Both of these switches shall be rated 20 amps at 600 volts.

The Bypass Switch AC connections consist of two circular locking Input/Output connectors, phased to the UPS AC harness. This switch will include an alternate-source input connection, which provides a means of connecting a generator or alternate utility source. The Bypass Switch case shall be constructed of aluminum.

Batteries

This system shall be comprised of four (4) or six (6) 12-volt batteries, as required, to provide a minimum two (2) hours of normal signal operation followed by a minimum four (4) hours of flashing red operation. Non-essential items such as streetlights, illuminated street name signs, cabinet lamps and fans, EVPS confirmation beacons, and video monitors do not need to be connected to the UPS. Batteries shall be Optima Spiral Cell, blue top, deep cycle batteries, with a 55 Ah capacity, or an approved equal. The battery cable shall consist of a quick release connector rated at 150 amps. The connector shall have recessed pins and be polarized to prevent accidental cross connecting of the battery string to the UPS.

Cabinet

The cabinet shall be a California Chassis aluminum cabinet, Part Number FCU104013, with a natural aluminum mill finish, or approved equal.

The external cabinet dimensions shall be 41 inches tall by 25 inches wide by 16 inches deep, excluding the door. The cabinet shall house all batteries, the UPS, the Bypass Switch, and the wiring harnesses.

When installed, the cabinet for the UPS shall rest on the traffic signal cabinet foundation and shall also be secured to the right side of the traffic signal cabinet.

The cabinet shall provide an external connection for an AC generator to power the signals, if necessary, during an extended utility power outage. The external connection shall be a NEMA Style 5-15 male flanged receptacle, and shall be securely covered by a screw-on aluminum plate with a rubber gasket.

The UPS shall be equipped with an integrated safety ("Tip") switch that will interrupt inverter output power in the event of a cabinet knockdown. The safety switch may be either internal to the inverter unit, or mounted inside the UPS cabinet. The safety switch shall be designed to interrupt output power in the event that the inverter is tilted more than twenty degrees on any axis. The switch shall be mechanically latching to ensure that power is not automatically restored to the UPS until the system is reset.

A blue LED indicator light shall be mounted on the side of the UPS cabinet facing traffic and shall illuminate to indicate when the utility power has been disrupted and the UPS is in operation. The light shall be a minimum 1" diameter, and bright enough to be visible from the driving lanes in the daylight.

Basis of Payment: This item shall be paid for at the contract unit price, each, for furnishing and installing the UNINTERRUPTIBLE POWER SUPPLY (UPS). The price shall include the UPS/Inverter unit, Bypass Switch, Batteries, Cabinet, wiring harnesses, and all associated equipment and materials necessary for proper operation.

CABINET NEATNESS

The Contractor shall assure that all wiring and peripheral equipment in any new traffic signal cabinet is in a neat and orderly fashion that is acceptable to the Engineer. This applies to controller cabinets, master cabinets, railroad cabinets, communication cabinets, electrical service cabinets, or any other new cabinet called for in the project plans.

All conduit entrances into the cabinet shall be sealed with a pliable waterproof material. Electrical cables inside the cabinet shall be neatly trained along the base and back of the cabinet. Each conductor shall be connected individually to the proper terminal, and the spare conductors shall be bound into a neat bundle. All cables, including those for signals, vehicle detection, pushbuttons, emergency vehicle preemption, video transmission, and communication shall be neatly arranged and bundled within the cabinet to the satisfaction of the Engineer. Each cable shall be marked with an identification number which corresponds to the number and description on the cabinet cable log.

In the case of an existing cabinet that is being modernized or modified, the new cables being installed shall be trained, bundled and labeled to the satisfaction of the Engineer. When working inside an existing cabinet, the Contractor shall minimize disturbance to existing cables and cabinet wiring. Any existing cables and cabinet wiring disturbed by the Contractor shall be re-trained, bundled, and/or labeled to the satisfaction of the Engineer.

The County shall not accept maintenance of the traffic signal installations until the requirements of this specification are satisfied. The cost for this work shall be considered incidental to the cost of the associated pay item.

VENDOR REPRESENTATION

Under this provision, the Engineer reserves the right to request the equipment vendor be present at the activation of new traffic equipment. Equipment covered under this provision includes signal heads, cabinets, controllers, amplifiers, preemption, video detection/monitoring, communication/transmission, fiber-optic/telemetry, radio, microwave, infra-red, illuminated signs, streetlights, push buttons, lighted crosswalks, uninterruptible power supplies, and any other new equipment being installed and activated.

This provision is in addition to the requirement contained herein that the Contractor provide a representative from the control equipment vendor to attend the traffic signal inspection for both permanent and temporary traffic signal "turn-ons".

Any costs associated with equipment vendor representation shall not be paid for separately, but shall be incidental to the cost of the associated traffic equipment being activated. Any unforeseen costs incurred by the Contractor to provide this representation shall not be the responsibility of the County.

ELECTRIC CABLE.

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

The electric service cable shall have an XLP jacket. All other cable jackets shall be polyvinyl chloride, meeting the requirements of IMSA 19-1 or IMSA 20-1. The jacket color for signal cable

shall be black. The jacket color for lead-in and communications cable shall be gray. All cabling between the signal cabinet and the signal heads shall be solid copper, not multi-stranded. Heat shrink splices shall be used according to the District 1 "Standard Traffic Signal Design Details".

STEEL MAST ARM ASSEMBLY AND POLE

STEEL COMBINATION MAST ARM ASSEMBLY AND POLE

Add the following to Article 1077.03 of the Standard Specifications:

For standardization, the poles for all mast arms and combination mast arms shall be manufactured with an eighteen (18)-inch bolt circle at the foundation base plate, regardless of mast arm length. Traffic signal mast arms shall be one-piece construction, unless otherwise approved by the Engineer. All mast arms and poles shall be galvanized.

Luminaire arms shall be galvanized steel, truss style, clamp-on, and a minimum fifteen (15) feet in length. Luminaires shall be "cobra head" style, with a minimum mounting height of forty (40) feet.

The base of the mast arm pole shall be protected by a Component Products bolt-on galvanized metal shroud or an approved equal, in lieu of stainless steel screening.

STEEL MAST ARM ASSEMBLY AND POLE (SPECIAL).

STEEL COMBINATION MAST ARM ASSEMBLY AND POLE (SPECIAL).

Add the following to Article 1077.03 of the Standard Specifications:

For standardization, the poles for all mast arms and combination mast arms shall be manufactured with an eighteen (18)-inch bolt circle at the foundation base plate, regardless of mast arm length. Traffic signal mast arms shall be one-piece construction, unless otherwise approved by the Engineer.

Ornamental bases for mast arm poles shall be either cast iron or cast aluminum. All mast arms, mast arm poles, luminaire arms, cast iron bases, and any exposed steel hardware shall be hot-dipped galvanized, and then painted black by the supplier/manufacturer. Cast aluminum bases shall also be painted black by the supplier/manufacturer.

Luminaire arms shall be steel, truss style, clamp-on, and a minimum fifteen (15) feet in length. Luminaires shall be "cobra head" style and painted black by the supplier/manufacturer. Minimum mounting height for luminaires shall be forty (40) feet.

All (Special) steel mast arm assemblies and poles (including combination mast arm assemblies) shall be manufactured and/or supplied by Sternberg Vintage Lighting, Valmont, Beacon or approved equal, according to the following:

- Round, tapered, 16-sharp fluted pole.
- Round, tapered, smooth, standard-curved, flange-connected, traffic signal mast arm
- Hamilton Series (6400D) ornamental base (Sternberg).
- MainStreet Series (200SJ) ornamental base (Beacon).

TRAFFIC SIGNAL POST.

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

Posts and bases shall be steel and hot-dipped galvanized.

TRAFFIC SIGNAL POST (SPECIAL).

Add the following to Article 1077.01 of the Standard Specifications:

All Traffic Signal Posts (Special) shall be sixteen (16) feet in height, extruded aluminum, unless otherwise specified on the plans. All ornamental bases for Traffic Signal Post (Special) shall be cast aluminum.

All Traffic Signal Posts (Special) and associated ornamental bases shall be assembled and painted black at the factory. All exposed steel hardware shall be hot-dipped galvanized, and then painted black.

All Traffic Signal Posts (Special) and associated ornamental bases shall be manufactured and/or supplied by Sternberg Vintage Lighting, Valmont, Beacon, or approved equal, according to the following:

- Round, straight (non-tapered), five (5)-inch diameter, 12-flat fluted post.
- A ball center cap for the top of the post, instead of a tenon.
- Hamilton Series (5400D) ornamental base, approximately forty-three (43) inches tall. (Sternberg)
- MainStreet Series (100SJ) ornamental base, approximately forty-three (43) inches tall. (Beacon)

INDUCTIVE LOOP DETECTOR

Add the following to Article 1079.01 of the Standard Specifications:

All new inductive loop detectors (amplifiers) shall have a liquid crystal display to view all detector operation, loop diagnostics, loop frequency, inductance, change of inductance readings, and programmable features. When rack space allows, new amplifiers shall be rack-mounted. When the detector rack is full, shelf-mounted amplifiers may be allowed. Shelf-mounted amplifiers shall utilize multi channels to minimize the required shelf space.

ILLUMINATED SIGN, LED

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

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.

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 and highly visible, under any lighting conditions, within a 15-degree cone centered about the optic axis. The sign face shall be 24 inches by 24 inches. 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 ¾ 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.

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, LED.

LED INTERNALLY ILLUMINATED STREET NAME SIGN

This work shall consist of furnishing a street name sign which is internally illuminated with light emitting diodes, and installing the sign on a traffic signal mast arm or span wire.

The sign shall be manufactured by Traffic Signs, Inc., with a GELcore LED Light Engine, or approved equivalent.

The sign shall display the designated street name clearly and legibly in the daylight hours without being energized. When energized, the entire surface of the sign panel shall be evenly illuminated, and the light transmission factor shall provide a letter to background brightness ratio adequate for nighttime legibility. The sign face/panels shall be 0.125-inch white translucent, high-impact, UV resistant polycarbonate. All surfaces shall be free of blemishes in the plastics or coating that might impair the service or detract from the general appearance of the sign. The sign frame shall be painted black with a durable powder coated process.

Street name signs shall have double-sided message, with the following exception: At locations where one side of a particular sign will not be visible to vehicular traffic, such as a "T" intersection, that sign shall be single-sided. The street name/legend, font, and border shall be as shown on the plans. On both sides of each sign, the sign face legend background shall consist of translucent acrylic HOLLY GREEN EC (electronically cuttable) film.

The sign shall be mounted on the mast arm three feet to the right of the furthest right signal head, as viewed by the approaching traffic.

Each sign shall be activated by a photocell. Unless specified on the plans, the photocell may be installed in one of two locations. Each of these alternatives is equally acceptable. Where there is new or existing overhead street lighting on combination mast arms, the photocell may be mounted/installed on the streetlight luminaire. Or, the photocell may be mounted/installed on the

side of the sign frame.

The Manufacturer/Vendor shall supply shop drawings of the fixtures, sign, sign message and mounting hardware. All hardware used to install the sign shall be in accordance with the manufacturer's recommendations.

Basis of Payment: This work will be paid for at the contract unit price each for furnishing and installing LED INTERNALLY ILLUMINATED STREET NAME SIGN, of the size specified, complete in place, including photocell and all related hardware, wiring, and connections required for proper operations.

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 TRANSFERRED TO THE COUNTY UNTIL THIS WORK IS COMPLETED AND ACCEPTED.**

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. The Contractor shall contact the County Traffic Engineer at (847) 362-3950 for a listing of approved consultants.

A listing of existing signal equipment, interconnect information and existing phasing/timing patterns may be obtained from the Lake County Traffic Engineering Department, if available and as appropriate. The consultant shall consult with the County Traffic 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 no sooner than 30 days after the traffic signals are approved for operation by the County Traffic 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 LCDOT 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 signal coordination.

The consultant shall furnish to LCDOT 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. Copies of the entire database including intersection displays and zone displays shall be furnished to LCDOT.

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.

SIGNAL HEADS.

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

All vehicle signal and pedestrian signal heads shall provide 12-inch displays, with glossy black polycarbonate housings, with the following exception: At locations where existing yellow polycarbonate heads will remain, all new signal heads shall be yellow to match the existing ones. Connecting hardware and mounting brackets shall be polycarbonate, the same color as the heads, 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. Where required, incandescent bulbs shall be manufactured by Duratest, Sylvania or an approved equal. Signal heads shall be positioned according to the District 1 "Standard Traffic Signal Design Details".

All vehicle signal and pedestrian signal heads shall be paid for at the contract unit price per each for the type signal head specified. The price shall be payment in full for furnishing and installing the pedestrian signal head complete.

SIGNAL HEAD, LIGHT EMITTING DIODE (LED)

This work shall meet the requirements of the IDOT Bureau of Design & Environment (BDE) Special Provision "LIGHT EMITTING DIODE (LED) SIGNAL HEAD", revised November 1, 2005, or applicable successor BDE specifications. This BDE Special Provision requires that the LED signal head comply with the Institute of Transportation Engineers (ITE) LED purchase specification, "Vehicle Traffic Control Signal Heads, Part 2: LED Vehicle Traffic Signal Modules", and "Vehicle Traffic Control Signal Heads, Part 3: LED Vehicle Arrow Traffic Signal Modules", or applicable successor ITE specifications, except as modified herein. The LEDs utilized in the modules shall not be Aluminum Gallium Arsenide (AlGaAs) material technology.

Retrofit Traffic Signal Module:

All other specifications apply unless specifically superceded in this section.

1. The module shall fit into existing traffic signal section housings built to the specifications detailed in ITE Publication: Equipment and Material Standards, (Vehicle Traffic Control Signal Heads).
2. 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.
3. 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.

12-inch Programmed Visibility (PV) Module:

All other specifications apply unless specifically superceded in this section.

1. The module shall be designed and constructed to be installed in a 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.

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.

PEDESTRIAN SIGNAL HEAD, LIGHT EMITTING DIODE (LED)

This work shall meet the requirements of the IDOT Bureau of Design & Environment (BDE) Special Provision "LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD", effective November 1, 2005, or applicable successor BDE specifications. This BDE Special Provision requires that the pedestrian LED signal head comply with the Institute of Transportation Engineers (ITE) LED purchase specification, "Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules", or applicable successor ITE specifications, except as modified herein. The LEDs utilized in the modules shall not be Aluminum Gallium Arsenide (AlGaAs) material technology.

Each pedestrian signal LED module shall provide the ability to actuate the full upraised hand and the full walking person on one 12-inch 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 in height and easily identified from a distance of 120 feet.

Where specified, pedestrian signal heads with a countdown timer shall consist of two (2) 12-inch by 12-inch modules aligned vertically. The top module of the unit shall be an LED message-bearing surface supplied with overlapping full "HAND" and full "MAN" symbols that comply with the ITE Pedestrian Traffic Control Signal Indications (PTCSI) standard for these symbols. The bottom module of the unit shall house a LED countdown traffic signal consisting of a two digit numerical display ("00" to "99") a minimum of seven (7) inches in height. The counter shall begin countdown at the beginning of the pedestrian clearance interval as the pictogram of the hand starts flashing. The counter shall execute a countdown of the time, in seconds, of the pedestrian clearance interval

synchronized with the controller and ending at (0) at the expiration of the clearance interval. The counter shall be blank at all other times.

Basis of Payment: This item 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 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.

TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM.

Replace the first sentence of Article 1078.03 of the Standard Specifications with "All backplates shall be aluminum" and louvered".

VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION)

This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device. This work shall consist of furnishing and installing an Autoscope Solo Pro or approved equal video vehicle detection system at one signalized intersection, including all necessary hardware, cable and accessories necessary to complete the installation in accordance with the manufacturer's specifications.

In order for the Traffic Engineer to manipulate detection zones and view the video signal over a high-speed connection, the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) must be connected to either the LCDOT Gigabit Ethernet network or a VIDEO TRANSMISSION SYSTEM.

If the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) is being connected to the Gigabit Ethernet network, then a LAYER II (DATA LINK) SWITCH and/or a LAYER III (NETWORK) SWITCH will be required. Layer II and Layer III switches shall be installed according to the plans, and shall be paid for separately.

If the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) is being connected to a new or existing VIDEO TRANSMISSION SYSTEM, then fiber-optic video/data transmitters and receivers may be required. Fiber-optic video/data transmitters and receivers are necessary whenever the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) and the VIDEO TRANSMISSION SYSTEM are installed at separate signalized intersections. When required, fiber-optic video/data transmitters and receivers shall be installed according to the plans, and shall be included in the cost of this item. The VIDEO TRANSMISSION SYSTEM shall be paid for separately.

The system shall consist of integrated machine vision processor sensors (MVPs), an interface panel, and a detector interface card. The quantity of MVP sensors included with this pay item shall be as shown on the plans. The system shall also include a ten-inch color VGA monitor with BNC connector for video input. A simple multi-camera video switching unit shall be provided to select video input to the monitor. Vehicle detection zones shall be user-defined through interactive graphics by placing lines and/or boxes in an image on a VGA monitor. The system shall calculate

traffic parameters in real-time and provide local non-volatile data storage for later downloading and analysis.

I. Introduction

The video vehicle detection system shall be easily configurable and expandable to meet traffic management applications such as intersection control, traffic monitoring, incident management, and traffic data collection. The system shall be composed of the following components:

- A machine vision processor (MVP) sensor that provides vehicle detection, JPEG video compression, and communications with other subsystems.
- Detector Interface Card (Mini-Hub TS-2)
- A Windows-based communications and Windows-based applications software for setup and system configuration as well as any continued monitoring and data collection, if required.
- System communications that shall operate over any appropriate serial and/or Ethernet communications links provided by the systems integrator.
- An integrated color camera, zoom lens, and machine vision processor all in one unit; direct, real-time iris and shutter speed control; with single-frame, JPEG image compression.
- The system shall also have easily configured IP addressing for the MVP sensor field network.

II. MVP Sensor

The MVP sensor shall combine an integrated high-speed, color imaging CCD array with zoom lens optics, image-processing hardware and a general-purpose CPU bundled into a sealed enclosure. The sensor shall be equipped with a sunshield to reflect solar heat and to shield the CCD array and faceplate from direct exposure to the sun. The sensor shall also be equipped with a faceplate heater to prevent accumulated ice, snow, or condensation from obscuring the view of the camera. The general-purpose CPU shall directly control the optics and camera electronics.

The lens shall be pre-focused at the factory and shall not require field adjustment. The zoom optics shall maintain focus throughout the operating range from 7 to 74 degrees horizontal field of view (5 to 58 degrees vertical field of view). At an operator's request, the MVP sensor shall temporarily switch to surveillance mode operation, which allows the operator to zoom the lens.

The MVP sensor shall provide color analog video output at 30 frames per second, and shall process a minimum of twenty (20) detector zones placed anywhere in the field of view of the sensor. The analog video output shall provide graphics overlay that indicates the current real-time detection state.

MVP Sensor External Interfaces

The external interfaces to the MVP sensor shall include the following:

Network Communications Port

There shall be a field network communications port to configure and provide general communications and data retrieval. The MVP sensor shall use a full- or half-duplex, RS-485, 4-wire electrical network to facilitate communications with a Windows computer. This port shall be used to update the embedded software and to interact with applications software for the various detection requests supported by the MVP sensor.

Detector I/O Port

The MVP sensor detector port shall use a dedicated, RS-485 2-wire, half-duplex interface between the MVP sensor and a detector interface card also known as a detector port master (DPM) (e.g. Mini-Hub TS2). The real-time state of traffic controller phase inputs shall be transmitted to the MVP

sensor. The detector port master interface card shall subsequently translate the detection states to a traffic signal controller.

Differential Video

The MVP sensor shall output full motion, differential analog video over a single, twisted pair.

Power

The MVP sensor shall operate on 24 VAC at 50/60 Hz or 24 VDC. The camera and processor electronics and power supply shall consume a maximum of 10 watts. The integrated faceplate heater shall consume a maximum of 5 watts.

MVP Sensor Vehicle Detection Requirements

The MVP sensor shall be able to be programmed with a variety of detector types which can perform the following functions:

- Presence/passage detection of moving and stopped vehicles.
- Detection based on the direction of travel.
- Measure vehicle speed and length and provide five (5) classes of vehicles based on length.
- Detect incident shock waves using effective detection algorithms.
- Generate alarm status based on the detection of shock waves, wrong-way vehicles, stopped vehicles, red-light runners, or other operator-defined traffic conditions.
- Combine the output of multiple detectors with logical operators and modify the combined state based on delay or extension timers.

Detection Zone Programming

A VGA monitor shall display the detection zones superimposed on images of traffic scenes. A mouse and keyboard shall be used to place, size, and orient detection zones and edit previously defined detector configurations. It shall also be possible to download detector configurations from the computer to the MVP sensor and upload the current detector configuration that is running in the MVP sensor.

Count Detection Performance

Using an MVP sensor installed for optimal viewing, the system shall be able to accurately count vehicles with at least 96% accuracy under normal operating conditions (day and night), and at least 93% accuracy under artifact conditions. Artifact conditions are combinations of weather and lighting conditions that result from shadows, fog, rain, snow, etc. The volume count shall be accumulated for all traveled lanes, and accumulated over time intervals that contain a minimum of one hundred (100) vehicles to ensure statistical significance.

Demand Presence Detection Performance

The system shall be able to accurately provide demand presence detection. The demand presence accuracy shall be based on the ability to enable a protected turning movement on an intersection stop line, when a demand exists. The probability of not detecting a vehicle for demand presence shall be less than 1-percent error under all operating conditions. In the presence of artifact conditions, the MVP sensor shall minimize extraneous (false) protected movement calls to less than 7%.

Speed Detection Performance

The MVP sensor shall accurately measure average speed of multiple vehicles with more than 98% accuracy under all operating conditions for approaching and receding traffic. The MVP sensor shall accurately measure individual vehicle speeds with more than 95% accuracy under all operating conditions for vehicles approaching the sensor and 90% accuracy for vehicles receding from the

sensor.

MVP Sensor Enclosure

The MVP sensor and lens assembly shall be housed in an environmental enclosure that provides the following capabilities:

- The enclosure shall be waterproof and dust-tight to NEMA-4 specifications, and shall have the option to be pressurized with dry nitrogen to 5 ± 1 psi.
- The enclosure shall allow the MVP sensor to operate satisfactorily over an ambient temperature range from -34 degrees C to $+60$ degrees C while exposed to precipitation as well as direct sunlight.
- The enclosure shall allow the image sensor horizon to be rotated during field installation.
- A faceplate heater shall prevent the formation of ice and condensation in cold weather.

MVP Sensor Electrical

All video connections from the sensor shall be isolated from earth ground. The video output, communication, and power stages of the sensor shall include transient protection to prevent damage to the sensor. The MVP sensor shall meet CE, FCC, and UL requirements for safety and EMI.

Communications (Video Interface) Panel Requirements

The communications interface panel shall provide a terminal block for terminating power, as well as terminations for two twisted-pair wires for network communications to the MVP sensor, one twisted-pair for video output from the MVP sensor, and one twisted-pair for detector port communications. The panel shall also provide two sets of terminations for two twisted-pair wires for a point-to-point field network. The communications interface panel shall also provide transient protection and a DB9 connector for an optional traffic signal controller interface. This panel shall include a Gigabit Ethernet port and a serial port.

III. Detector Interface Card (Mini-Hub TS-2)

The system shall use a defined communication protocol (detector port protocol) between the MVP sensors and the Mini-Hub TS2. The protocol shall be used to communicate TS1 input pins, TS1 output pins, TS2 detector states, and TS2 phase states. The detector interface card shall be the master of the detector port (DPM) and the MVP sensors shall be the slaves. The DPM shall issue a command for a single or up to eight (8) MVP sensors to respond. The DPM shall exchange input and output state data with the MVP sensor every 100 ms. The DPM interface card shall subsequently translate the detection states to a traffic signal controller. Each input or output pin of an interface card shall have one associated LED output to reflect its input or output state.

IV. Basis of Payment

This item will be paid for at the contract unit price each for VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) which price shall be payment in full for furnishing all associated equipment required, installing the system at one signalized intersection, and placing the system in operation to the satisfaction of the Engineer.

REMOTE-CONTROLLED VIDEO SYSTEM

This pay item shall include providing and installing a remote-controlled video system at a location designated by the Engineer. The remote-controlled video system shall be a PELCO Spectra III Series Discreet Dome System or approved equal. This pay item shall include a color camera (minimum 16x or 22x optical zoom), dome assembly, all mounting hardware, connectors, cables,

and related equipment necessary to complete the installation in accordance with the manufacturer's specifications.

In order for the Traffic Engineer to control the camera remotely and view the video signal over a high-speed connection, the REMOTE-CONTROLLED VIDEO SYSTEM must be connected to either the LCDOT Gigabit Ethernet network or a VIDEO TRANSMISSION SYSTEM.

If the REMOTE-CONTROLLED VIDEO SYSTEM is being connected to the Gigabit Ethernet network, then a LAYER II (DATA LINK) SWITCH and/or a LAYER III (NETWORK) SWITCH will be required. Layer II and Layer III switches shall be installed according to the plans, and shall be paid for separately.

If the REMOTE-CONTROLLED VIDEO SYSTEM is being connected to a new or existing VIDEO TRANSMISSION SYSTEM, then fiber-optic video/data transmitters and receivers may be required. Fiber-optic video/data transmitters and receivers are necessary whenever the REMOTE-CONTROLLED VIDEO SYSTEM and the VIDEO TRANSMISSION SYSTEM are installed at separate signalized intersections. When required, fiber-optic video/data transmitters and receivers shall be installed according to the plans, and shall be included in the cost of this item. The VIDEO TRANSMISSION SYSTEM shall be paid for separately.

Basis of Payment: This item will be paid for at the contract unit price each for REMOTE-CONTROLLED VIDEO SYSTEM, which price shall be payment in full for furnishing all associated equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of the Engineer.

VIDEO TRANSMISSION SYSTEM

General

This specification sets forth the minimum requirements for a video transmission system that allows a user to transmit video output from multiple cameras to a remote location, via telephone video transmitter(s) and an ISDN communication link.

The VIDEO TRANSMISSION SYSTEM may be installed in either the intersection traffic signal cabinet or in the VIDEO COMMUNICATIONS CABINET. The Cabinet shall be paid for separately.

The VIDEO TRANSMISSION SYSTEM may include the relocation of existing telephone video transmitter(s) and/or ISDN modem(s) to a new traffic signal cabinet. The relocation of such existing equipment to a new traffic signal cabinet shall be performed as directed by the Engineer and included in the cost of the VIDEO TRANSMISSION SYSTEM. Any item damaged during removal, storage, or reinstallation shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

System Components

The system shall consist of telephone video transmitter(s) (ADPRO Fast Scan or approved equal), ISDN Modem(s) (Adtran ISU 128 or approved equal), and related connection cables.

Telephone Video Transmitter

1. The telephone video transmitter shall provide an initial image transmission time of 0.4-2.5 seconds via an ISDN communication link. Subsequent updates shall typically be less than 0.5 seconds depending on scene changes and communication rates.
2. The telephone video transmitter shall support NTSC/RS170 image resolutions up to 752 x 480.

3. The telephone video transmitter shall have a minimum of ten video input channels each accepting a one-volt peak-to-peak signal. Each video input shall be interchangeable between 75 ohm or high impedance.
4. The telephone video transmitter shall have at least one video output designed to drive a 75-ohm load.
5. The telephone video transmitter shall have a minimum of ten external alarm inputs that trigger an alarm and store images from the corresponding video channel. The inputs shall be programmable to trigger on contact opening or closure.
6. The telephone video transmitter shall have a minimum of ten open collector control outputs that correspond to the control inputs of the receiver.
7. The telephone video transmitter shall support PSTN, ISDN, and cellular phone and RF communication links.
8. The telephone video transmitter shall communicate via an RS-232 interface, 8 data bits, no parity, either asynchronously or synchronously, with baud rates up to 115.2 kbps and 192 kbps, respectively.
9. The telephone video transmitter shall be configured with an RS-485 port that shall be used to control pan/tilt/zoom telemetry stations.
10. A hand-held device used for in-field programming shall be included with the telephone video transmitter.
11. The telephone video transmitter shall operate within 90-130 volts AC, 18 VA (max) at 110 volts.

ISDN Modem

1. The ISDN modem shall support error free data transmission up to 128 kbps on two B channels without data compression.
2. The ISDN modem shall support Multilink PPP, ITU-T V.120, Asynchronous BONDING, and Fallback protocols.
3. The ISDN modem shall be configurable via a front-panel keyboard interface.

Basis of Payment: This item will be paid for at the contract unit price each for VIDEO TRANSMISSION SYSTEM, which price shall be payment in full for furnishing and/or relocating all associated equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of the Engineer

LAYER II (DATA LINK) SWITCH

This specification sets forth the minimum requirements for a layer two Ethernet switch that will transmit data from one traffic signal cabinet to another traffic signal cabinet containing a layer two switch or a layer three (Network) switch.

The layer two switch shall be a Cisco Catalyst 2955 Series Intelligent Ethernet Switch, or approved equal. This pay item shall include the layer two switch, one VidQuad digital video processor and one video coder/decoder (CODEC) for the video detection cameras at the intersection (if applicable), one video coder/decoder (CODEC) for the PTZ camera at the intersection (if applicable). The video CODEC(s) shall be Cornet Technology, Inc. (CTI) CDX-350, or approved equivalent. This pay item shall also include any necessary media converters and/or terminal servers.

If the layer two switch is interconnected to other signalized intersections that deploy video detection without the use of switches, this pay item shall then also include all necessary video multiplexers, video and data transmitters, video encoders, and all necessary connections for proper video/data communications.

Basis of Payment: This item will be paid for at the contract unit price each for LAYER II (DATA LINK) SWITCH, which price shall be payment in full for furnishing and installing the switch, the digital video processor, the CODEC(s), media converters, terminal servers, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

LAYER III (NETWORK) SWITCH

This specification sets forth the minimum requirements for a layer three switch that will transmit video data from one traffic signal cabinet to another traffic signal cabinet or to another location having a layer three switch.

The layer three switch shall be a Cisco Catalyst 3550 Series Intelligent Ethernet Switch, or approved equal. This pay item shall include the layer three switch, one VidQuad digital video processor and one video coder/decoder (CODEC) for the video detection cameras at the intersection (if applicable), one video coder/decoder (CODEC) for the PTZ camera at the intersection (if applicable). The video CODEC(s) shall be Cornet Technology, Inc. (CTI) CDX-350, or approved equivalent. This pay item shall also include any necessary media converters and/or terminal servers.

If the layer three switch is interconnected to other signalized intersections that deploy video detection without the use of switches, this pay item shall then also include all necessary video multiplexers, video and data transmitters, video encoders, and all necessary connections for proper video/data communications.

Basis of Payment: This item will be paid for at the contract unit price each for LAYER III (NETWORK) SWITCH, which price shall be payment in full for furnishing and installing the switch the digital video processor, the CODEC(s), media converters, terminal servers, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

VIDEO COMMUNICATIONS CABINET.

This specification sets forth the minimum requirements for a video communications cabinet to be installed at the location(s) shown in the plans. The cabinet shall house the fiber optic termination equipment, layer three switches, and/or video transmission system, all of which will be paid for separately.

The Video Communications Cabinet shall be a Model 332 (Type 170) Controller Cabinet, with heat exchanger, or approved equal. The heat exchanger shall be thermostatically controlled to maintain the temperature between 32°F and 122°F within the enclosure. The cabinet shall be constructed of 0.125"-thickness, alloy-5052 sheet aluminum. The surface shall have a smooth, natural aluminum mill finish. The cabinet shall measure 24" wide x 30" deep x 55" high.

The communications cabinet shall have front and rear doors of NEMA type 3R construction with cellular neoprene gasket that is rain tight. Door hinges shall be continuous 14-gauge stainless steel and shall be secured with ¼-20 stainless steel carriage bolts. Standard equipment shall include a three-point locking system that secures the door at the top, bottom and center. A corbin lock with two keys shall also be furnished. The front and rear doors shall be equipped with a two-position doorstop, one at 90° and one at 120°. Door locking rods are ¼" x ¾" aluminum turned edgeways with 1" nylon rollers. Door handles shall be cast aluminum.

The cabinet shall be base mounted and equipped with inside flanges and anchoring holes in the front and back of the cabinet for anchoring to a base.

The cabinet shall be equipped with a 19" Electronic Industries Association (EIA) rack using 1.75" hole spacing for the purpose of mounting rack-mountable cabinet equipment. The cabinet shall include a splice enclosure, Corning Cable Systems CSH-05U, or approved equal, mounted on the 19" rack.

The cabinet shall also be equipped with a CCTV Power Distribution Assembly and a pull-out drawer/shelf assembly.

A power panel shall be included with the cabinet and shall include the following:

- 50-amp circuit breaker. This circuit breaker shall supply power to all devices in the cabinet.
- The main breaker shall be thermal magnetic type, U.L. listed for HACR service, with a minimum of 20,000 amp interrupting capacity.
- Two 15-amp load breakers with minimum 10,000 amp interrupting capacity.
- Two 20-amp load breakers with minimum 10,000 amp interrupting capacity.
- An EDCO model ACP-340 surge arrestor, or approved equivalent.
- A 15-position neutral bus bar capable of connecting three #12 wires per position.
- A 7-position ground bus bar capable of connecting three #12 wires per position.
- A NEMA type 5-15R GFI convenience outlet.
- A power supply with input voltage AC100-120/220-240V (switchable) 47-63 Hz, output voltage 24VDC (+5%, -1%), overload protection, and minimum operating temperature range -10° to +60°C. The power supply must be compatible with Cisco Catalyst 2955 Series switch.

The heat exchanger shall be mounted on the side of the communications cabinet and conform to the following specifications.

- Maximum dimensions of 47" H x 15" W x 11" D
- The unit shall provide closed-loop system cooling and heating
- Unit shall be fully gasketed and maintain the NEMA 3R enclosure rating
- Shall utilize a high efficiency, convoluted, refrigerant-free, aluminum heat transfer element
- Shall operate under maximum enclosure temperature of 150°F and maximum ambient temperature of 131°F
- The unit shall dissipate a minimum of 54 Watts per °F
- Shall operate on 115 VAC, 60 Hz
- The unit shall be equipped with a 120 V fin strip heater that works in conjunction with the unit's blowers to maintain the required cabinet temperatures during cold weather
- Unit shall be UL listed

Basis of Payment: This item will be paid for at the contract unit price each for VIDEO COMMUNICATIONS CABINET, which price shall be payment in full for furnishing all associated equipment and labor, and installing the cabinet as shown on the plans and to the satisfaction of the Engineer. The concrete foundation for the cabinet shall be paid for separately.

RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION).

This work shall consist of the removal, storage, and relocation of an existing video detection system (complete intersection) from one traffic signal installation (temporary or permanent) to another traffic

signal installation (temporary or permanent). This item shall also include the relocation of the remote-controlled video system according to the plans.

The video detection system (complete intersection) shall be removed and relocated as shown in the plans. Any damage sustained to the video detection system during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

Basis of Payment: This item will be paid for at the contract unit price each for RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION), which price shall be payment in full for disconnecting the existing video detection system, remote-controlled video system, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer.

RELOCATE EXISTING REMOTE-CONTROLLED VIDEO SYSTEM.

This work shall consist of the removal, storage, and relocation of an existing remote-controlled video system from one traffic signal installation (temporary or permanent) to another traffic signal installation (temporary or permanent). This pay item shall be used when only the remote-controlled video system is being relocated. This pay item shall not be used when the remote-controlled video system is being relocated as part of RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION).

The remote-controlled video system shall be removed and relocated as shown in the plans. Any damage sustained to the remote-controlled video system during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

Basis of Payment: This item will be paid for at the contract unit price each for RELOCATE EXISTING REMOTE-CONTROLLED VIDEO SYSTEM, which price shall be payment in full for disconnecting the existing remote-controlled video system, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer.

RELOCATE EXISTING SWITCH.

This work shall consist of the removal, storage, and relocation of an existing layer two or layer three switch from one traffic signal installation to another traffic signal installation.

The switch shall be removed and relocated as shown in the plans. Any damage sustained to the switch during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

Basis of Payment: This item will be paid for at the contract unit price each for RELOCATE EXISTING SWITCH, which price shall be payment in full for disconnecting the existing switch, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer.

ELECTRIC CABLE IN CONDUIT, COAXIAL

This work shall consist of furnishing and installing a Belden 8281 RG-59U Type Coaxial Cable or

approved equal. The cable shall be a 75-ohm coaxial cable with 20 AWG solid bare copper conductor, tinned copper double-braided shield (96% min), and black polyethylene jacket. The nominal outside diameter shall be 0.304 inches. Amphenol 31-71032 (or equivalent) BNC plug connectors shall be used at both the PTZ camera and traffic signal cabinet ends of the cable. An Amphenol CLT-2 crimping tool is required for the termination. No splices shall be allowed in the cable between the PTZ camera and the traffic signal cabinet.

Basis of Payment: This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, COAXIAL, which price shall be payment in full for furnishing the material, making all electrical connections and installing the cable complete, measured as specified herein.

ELECTRIC CABLE IN CONDUIT, COMMUNICATION, NO. 16, 5½ PAIR

This work shall consist of furnishing and installing a Belden YC46223 communications cable, or approved equal, in existing and/or new conduit. This Belden cable has a color code that matches the MVP cable currently in use by the County. The cable shall consist of 16 AWG stranded bare copper twisted-pair conductors, with PVC insulation, and PVC jacket with nylon ripcord. The nominal outside diameter shall be 0.502-inch.

The communications cable, No. 16, 5½ pair shall be spliced to the MVP Cable in the base of the signal mast arm pole on which the MVP is mounted. The MVP cable shall be provided by the MVP manufacturer. The communications cable shall be provided by the Contractor. The conductors from the two cables shall be spliced using the 3M Scotchlok gel-filled splice tabs (part number 314). Each splice shall be individually protected with shrink tubing. The individual splices shall also be bundled together and protected with shrink tubing. The cost of all work associated with splicing the cables shall be considered incidental to the cost of the communications cable, No. 16, 5½ pair.

Basis of Payment: This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, COMMUNICATION NO. 16, 5½ PAIR, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operation.

MODIFY EXISTING VIDEO TRANSMISSION SYSTEM

General

This specification sets forth the minimum requirements for the modification of an existing video transmission system that allows a user to transmit video output from multiple cameras to a remote location, via telephone video transmitter(s) and an ISDN communication link to one which communicates via the Lake County fiber optic network connected to the Lake County Traffic Management Center (TMC).

This pay item consists of removing the telephone video transmitter(s) (ADPRO Fast Vu or approved equal), ISDN Modem(s) (Adtran ISU 128 or approved equal), master controller and related connection cables and installing video and data transmission equipment that will allow communications with the TMC over the Ethernet network. This pay item shall include all components, mounting hardware, connectors, cables, and related equipment necessary to complete the modification in accordance with the manufacturer's specifications.

System Components to be removed may consist of telephone video transmitter(s) (ADPRO Fast Vu or approved equal), ISDN Modem(s) (Adtran ISU 128 or approved equal), master controller, and related connection cables. All equipment to be removed shall be returned to the LCDOT.

System Components to be installed may consist of a hardened layer two Ethernet switch, the required number of analog to digital video encoders, a traffic control terminal server, and a four input video switch all as shown on the plans.

Hardened Layer Two Ethernet Switch

This switch shall be a Cisco 2955S-12, Cisco 3550-24EMI, or approved equal. The Ethernet switch shall be installed in the traffic signal cabinet and provide twelve 10/10 Ethernet ports and two 100 BASE-LX single mode uplink ports.

Analog to Digital Video Encoder

The analog to digital video encoder shall be a Cornet CDX -350T or approved equal. This encoder shall encode the video signal as an MPEG-2 digital format and be compatible with a 10/100 BASE-T Ethernet network. This component shall be rack mounted in the traffic signal cabinet.

Four Input Video Switch

This video switch shall be a Bosch LTC 2377 or approved equal. The switch shall be able to accept four full color analog video inputs and shall be able to output a quad display video stream.

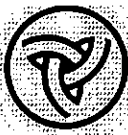
Basis of Payment: This item will be paid for at the contract unit price each for MODIFY EXISTING VIDEO TRANSMISSION SYSTEM, which price shall be payment in full for furnishing and removing all associated equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of the Engineer.

MODIFY EXISTING CONTROLLER

This work shall be in accordance with Section 895 of the Standard Specifications and shall include all modifications and peripheral equipment necessary to allow for the video and data communications over the single mode fibers from the Allanson Road traffic signal cabinet to the TMC.

This pay item shall include the modification of the controller to be NTCIP compatible and the splicing and termination of the single mode fibers to facilitate the communications over the Ethernet network.

Basis of Payment: This item will be paid at the contract unit price each for MODIFY EXISTING CONTROLLER, which price shall be payment in full for furnishing all necessary items, performing the required upgrades, and placing the system in operation to the satisfaction of the Engineer.



**Illinois Department
of Transportation**

Storm Water Pollution Prevention Plan

Route FAU 2647
 Section 99-00142-07-WR
 County Lake

Marked CH 57 (Butterfield Road)
 Project No. F-0330(042)

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.

[Handwritten Signature]

Signature

11/30/05

Date

PROJECT 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 improvements consist of removing the existing bituminous roadway and appurtenances, driveway aprons, portions of sidewalk, and constructing bituminous pavement with concrete curb and gutter, median planter and concrete medians, and concrete sidewalk. Other improvements include proposed 1.2 ac-ft detention basin, proposed roadway storm sewer, proposed water lines and water service connections. Proposed traffic signals modernization and Railroad reconstruction are also part of the improvement.

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):

PRE-STAGE

- * BEGIN CONSTRUCTION OF DETENTION POND AT STATION 131+00 LT.
- * INSTALL WATER MAIN FROM STA. 186+00 TO STA. 191+75.
- * PLACE MAINLINE STORM SEWER, LATERALS, AND DRAINAGE STRUCTURES BETWEEN STA. 188+00 LT AND STA. 193+40 LT; CONNECT TO OUTFALL AT STA. 190+50.
- * BUILD TEMPORARY PAVEMENT AND DRAINAGE AS SHOWN ON STAGE IA MAINTENANCE OF TRAFFIC PLAN AND CROSS SECTION-TEMPORARY PAVEMENT AND DRAINAGE.

STAGE IA

- * COMPLETE CONSTRUCTION OF THE MAINLINE STORM SEWERS AND DRAINAGE STRUCTURES ON THE EAST SIDE OF BUTTERFIELD ROAD, AND THE NORTH SIDE OF WINCHESTER ROAD.
- * CONSTRUCT THE EAST SIDE OF BUTTERFIELD ROAD, AND THE NORTH SIDE OF WINCHESTER ROAD ALONG WITH ALL DRIVEWAYS, ENTRANCES, SIDEWALKS AND SODDING.

BDE 2342

241

STAGE IB

- * CONSTRUCT THE LEFT TURN LANES AT THE INTERSECTION OF BUTTERFIELD ROAD AND WINCHESTER ROAD AS SHOWN ON STAGE IB MAINTENANCE OF TRAFFIC PLAN.
- * CONSTRUCT CENTER LANE OF WINCHESTER ROAD AT PROJECT LIMITS.
- * COMPLETE CONSTRUCTION OF THE MAINLINE STORM SEWERS AND DRAINAGE STRUCTURES ON IL. RTE. 137 (BUCKLEY ROAD).
- * CONSTRUCT THE LEFT TURN LANES, CURB AND GUTTER AND MEDIANS AT THE INTERSECTION OF BUTTERFIELD ROAD AND IL. RTE. 137 (BUCKLEY ROAD).

STAGE II

- * COMPLETE CONSTRUCTION OF THE MAINLINE STORM SEWERS AND DRAINAGE STRUCTURES ON LAKE STREET.
- * CONSTRUCT LAKE STREET.
- * COMPLETE CONSTRUCTION OF THE STORM SEWERS AND DRAINAGE STRUCTURES ON THE WEST SIDE OF BUTTERFIELD ROAD, AND THE SOUTH SIDE OF WINCHESTER ROAD.
- * CONSTRUCT THE WEST SIDE OF BUTTERFIELD ROAD, THE SOUTH SIDE OF LAKE STREET, AND THE SOUTH SIDE OF WINCHESTER ROAD ALONG WITH ALL DRIVEWAYS, ENTRANCES, SIDEWALKS AND SODDING.

STAGE III

- * COMPLETE ALL LANDSCAPING.

- c. The total area of the construction site is estimated to be 31 acres.
The total area of the site that it is estimated will be disturbed by excavation, grading or other activities is 25 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 aerial 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.

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):

PRE-STAGE

- * PLACE PERIMETER EROSION BARRIER AROUND PROPOSED DETENTION POND.
- * INSTALL PERIMETER EROSION BARRIER, INLET AND PIPE PROTECTION, INLET FILTERS AND TREE PROTECTION PROJECT WIDE AS SHOWN IN THE EROSION CONTROL PLAN AND AS DIRECTED BY THE ENGINEER.
- * INSTALL TEMPORARY DITCH CHECKS, TEMPORARY EROSION CONTROL SEEDING AND EROSION CONTROL BLANKET IN TEMPORARY DRAINAGE DITCH (ALONG TEMP. PAVEMENT).

STAGE IA

- * MAINTAIN ALL EROSION CONTROL ITEMS.
- * PLACE SEEDING AND EROSION CONTROL BLANKET IN COMPLETED DETENTION POND.
- * PLACE TEMPORARY EROSION CONTROL SEEDING AS REQUIRED BY THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS IN AREAS TO BE AFFECTED IN SUBSEQUENT STAGES.
- * PLACE SOD AS WORK PROGRESSES, OR TEMPORARY EROSION CONTROL SEEDING AS REQUIRED BY THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
- * INSTALL INLET AND PIPE PROTECTION AND INLET FILTERS IN NEW DRAINAGE STRUCTURES.
- * INSTALL TEMPORARY DITCH CHECKS IN PROPOSED SWALES, AS REQUIRED BY CONSTRUCTION METHODS AND AS DIRECTED BY THE ENGINEER.
- * COMPLETE THE SOD INSTALLATION WITHIN WORK ZONE.

STAGE IB

- * MAINTAIN ALL EROSION CONTROL ITEMS.
- * PLACE TEMPORARY EROSION CONTROL SEEDING AS REQUIRED BY THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS IN AREAS TO BE AFFECTED IN SUBSEQUENT STAGES.
- * INSTALL TEMPORARY DITCH CHECKS, INLET AND PIPE PROTECTION AND INLET FILTERS AS REQUIRED BY CONSTRUCTION METHODS AND AS DIRECTED BY THE ENGINEER.

STAGE II

- * MAINTAIN ALL EROSION CONTROL ITEMS.
- * PLACE TEMPORARY EROSION CONTROL SEEDING AS REQUIRED BY THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS IN AREAS TO BE AFFECTED IN SUBSEQUENT STAGES.
- * PLACE SOD AS WORK PROGRESSES, OR TEMPORARY EROSION CONTROL SEEDING AS REQUIRED BY THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
- * INSTALL INLET AND PIPE PROTECTION AND INLET FILTERS IN NEW DRAINAGE STRUCTURES.
- * INSTALL TEMPORARY DITCH CHECKS IN PROPOSED SWALES, AS REQUIRED BY CONSTRUCTION METHODS AND AS DIRECTED BY THE ENGINEER.
- * COMPLETE THE SOD INSTALLATION WITHIN WORK ZONE.

STAGE III

- * MAINTAIN ALL EROSION CONTROL ITEMS.
- * COMPLETE SOD INSTALLATION AND LANDSCAPING.
- * UPON PROJECT COMPLETION AND APPROVAL BY THE ENGINEER, REMOVE ALL TEMPORARY EROSION CONTROL ITEMS.

- (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.

Perimeter erosion barrier, inlet and pipe protection, inlet filters, ditch checks, erosion control blanket, temporary riser in detention pond, stabilized construction entrance, flocculation logs, flocculation powder, treatment structures, sod and seeding are all temporary measures that will be used to limit runoff and the discharge of pollutants from the exposed areas of the site.

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):

Stormwater management will be handled through two detention storage basins. The first is a new basin located at Station 131+00LT. This basin provides 1.2 ac-ft of storage. Appropriate erosion control blanket and outlet protection has been specified. The second location is an existing detention basin at Station 169+00 LT. This basin is fully stabilized and additional stabilization measures for the basin are not necessary. The stormwater management portions of the project have been reviewed and will be approved by the Lake County Stormwater Management Commission prior to the start of construction.

Pipe Underdrains, manholes with reducers, and the sodding/seeding of all permeable areas

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:

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):

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. Inspections shall occur after installation of structural control measures and following final stabilization, before removal of control measures.

- 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).

N/A.



Illinois Department of Transportation

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	<u>FAU 2647</u>	Marked	<u>CH 57 (Butterfield Road)</u>
Section	<u>99-00142-07-WR</u>	Project No.	<u>F-0330(042)</u>
County	<u>Lake</u>		

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.

Signature

Date

Title

Name of Firm

Street Address

City State

Zip Code

Telephone Number

N:\Lombard\03591\Civil\Spec\Spec 082504\03591Storm Water Pollution Prevention Plan.doc

WORK WITHIN METRA RIGHT-OF-WAY

The safety and continuity of operations and traffic of both Metra and the County shall be of primary importance and shall at all times be protected and safeguarded.

The Contractor shall give ten (10) days advance written notice to the Chief Engineer of Metra or his authorized representative prior to performing any construction work on Metra premises. Written notice shall be served by one of the following:

- Certified or registered mail with return receipt requested and postage prepaid
- Facsimile transmission
- Hand delivered

Notices to Metra shall be sent to:

*Commuter Rail Division
547 W. Jackson Boulevard
Chicago, Illinois 60661
Attn: Director, Real Estate & Contract Management
Phone: (312) 322-8010
Fax: (312) 322-4288*

The Contractor and all sub-contractors shall conduct their operations within the Metra premises in full compliance with the rules, regulations, and requirements of Metra.

RIGHT-OF-ENTRY AGREEMENT FOR WORK ON METRA PROPERTY

All contractors and subcontractors that will perform work within Metra's premises shall **each** be required to execute and deliver to Metra a Right-of-Entry Agreement prior to entering Metra premises. A copy of the Metra Right-of-Entry Agreement has been included in these specifications.

Contractors and subcontractors shall be responsible for payment of a **\$600.00 fee** required by Metra associated with processing said agreement. This fee must be paid in advance, and shall be considered incidental to the contract; additional compensation will not be provided to cover these costs.

RIGHT OF ENTRY AGREEMENT
ALL DISTRICTS

THIS AGREEMENT, made this _____ day of _____, 200____, by and between the Commuter Rail Division of the Regional Transportation Authority, a division of an Illinois municipal corporation ("Metra") and _____ ("Indemnitor"). Metra and Indemnitor are hereinafter sometimes individually referred to as a "Party" and jointly referred to as the "Parties".

PRELIMINARY STATEMENT

Indemnitor desires to enter upon that portion of Metra's property located _____ on Exhibit "A" attached to and made a part of this Agreement ("Premises") for the purpose of roadway improvements as specified in the plans and specifications provided by Lake County and approved by Metra ("Permitted Activities").

NOW, THEREFORE, for and in consideration of the above stated recitals which are by this reference hereby incorporated into this Agreement and the mutual promises and agreements set forth below, the sufficiency of which are hereby acknowledged by the Parties, Metra and Indemnitor agree as follows:

1. Metra hereby agrees to permit Indemnitor to enter upon the Premises for a period of _____ () months, commencing on the effective date of this agreement, to conduct the Permitted Activities and for no other purpose whatsoever subject to the terms and conditions set forth in this Agreement. The term of this agreement may be extended by mutual agreement of the Parties as evidenced in writing.
2. As one of the considerations for this Right of Entry, Indemnitor agrees to pay to Metra the sum of \$ 600.00 for the cost of preparing this Agreement, payable in advance.
3. Indemnitor agrees to reimburse Metra for all costs and expenses incurred in connection with the use of Metra's personnel and equipment as a direct result of the Permitted Activities.
4. To the fullest extent permitted by law, Indemnitor hereby assumes and agrees to release, acquit, waive any rights against and forever discharge Metra, the Regional Transportation Authority ("RTA"), and the Northeast Illinois Regional Commuter Railroad Corporation ("NIRCRC"), their respective directors, administrators, officers, employees, agents, successors, assigns and all other persons, firms and corporations acting on behalf of or with the authority of

Metra, from and against any and all claims, demands or liabilities, including but not limited to court costs and attorneys' fees, imposed upon them by law or otherwise of every kind, nature and character on account of personal injuries, including death at any time resulting therefrom, and on account of damage to or destruction of property arising from any accident or incident which may occur to or be incurred by Indemnitor, its employees, officers, agents and all other persons acting on their behalf while on the Premises or any other Metra property for the purposes set forth in this Agreement whether or not such injuries or damages are caused by the actions, omissions or negligence of Metra, RTA or NIRCRC or their respective directors, officers, agents or employees or any other cause or causes. Notwithstanding anything in this Agreement to the contrary, the waivers and releases contained in this paragraph shall survive termination of this Agreement.

5. To the fullest extent permitted by law, Indemnitor agrees to indemnify, defend and hold harmless Metra, the RTA, the NIRCRC, their respective directors, officers, agents, employees, successors, assigns and all other persons, firms and corporations acting on behalf of or with the authority of Metra, from and against any and all liabilities, losses, damages, costs, payments and expenses of every kind and nature, including but not limited to court costs, attorneys' fees and disbursements as a result of claims, demands, actions, suits, proceedings, judgments or settlements, arising out of or in any way relating to or occurring in connection with the Permitted Activities or the use or condition of the Premises used pursuant to the terms of this Agreement whether or not such injuries or damages are caused by the actions, omissions or negligence of Metra, the RTA or the NIRCRC or their respective directors, officers, agents or employees or any other cause or causes. Indemnitor agrees to notify Metra in writing within thirty (30) days of the date Indemnitor becomes aware of any claim which may fall within this indemnity provision. Indemnitor further agrees to defend Metra, the RTA, and the NIRCRC, their respective directors, officers, agents and employees against any claims, suits, actions or proceedings filed against any of them with respect to the subject matter of this indemnity provision, whether such claims, suits, actions or proceedings are rightfully or wrongfully made or filed; provided, however, that Metra may elect to participate in the defense thereof at its own expense or may, at its own expense, employ attorneys of its own selection to appear and defend the same on behalf of Metra, the RTA, the NIRCRC, and their respective directors, officers, agents or employees. Indemnitor shall not enter into any compromise or settlement of any such claims, suits, actions or proceedings without the consent of Metra, which consent shall not be unreasonably withheld. Notwithstanding anything in this Agreement to the contrary, the indemnities contained in this paragraph shall survive termination of this Agreement and the indemnification and hold harmless provisions set forth in this Agreement shall not be construed as an indemnification or hold harmless against and from the negligence of Metra, the RTA or the NIRCRC with respect to any construction work performed by Indemnitor or those performing on behalf of or with the authority of Indemnitor to the extent that such is in violation of the Illinois Construction Contract Indemnification for Negligence Act, 740 ILCS 35/0.01 et seq.

6. Prior to entering upon the Premises, Indemnitor agrees to furnish insurance in form and in such amounts as required by Metra's Risk Management Department (312-322-6991) and shall deliver to Metra's Risk Management Department certificates of insurance or such other

documentation acceptable to Metra's Risk Management Department evidencing the acquisition of the required insurance.

7. Upon completion of the Permitted Activities or upon termination as provided in this Agreement, Indemnitor shall, at its sole cost and expense, restore the Premises to the same or to a better condition than that which existed prior to commencement of Indemnitor's activities on the Premises.

8. Indemnitor further agrees to notify Metra's Police Communication Center at (312) 322-2800 and the appropriate District Engineering Department: the Milwaukee District at (312) 322-4145, the Rock Island District at (708) 293-6166, or the Electric District at (312) 322-2472 when performing activities for the purposes set forth in this Agreement seventy-two (72) hours in advance of Indemnitor's entrance upon the Premises or any other Metra property in said District.

9. Indemnitor agrees that any authorized representative of Metra has full authority concerning the operation of the railroad and Indemnitor agrees to comply with the recommendations of the authorized representatives of Metra having jurisdiction over the Premises relative to railroad operations and safety regulations.

10. Indemnitor agrees that a Railroad flagman may be required whenever Indemnitor is on the Premises or any other Metra property for the purposes set forth herein, the cost of which will be borne by Indemnitor. In the event it is determined flagging will be required in excess of five (5) days, pursuant to a work schedule ("Schedule") provided by Indemnitor, such flagging shall be paid in advance. In the event Metra determines that flagging services in addition to the Schedule will be required to complete the Permitted Activities, the Indemnitor shall deposit a check with Metra in an amount covering the cost of the additional flagging services. Indemnitor shall pay Metra any amount due within ten (10) days of receipt of request from Metra for deposit for or payment of additional flagging services.

11. Metra may terminate this Agreement at any time by giving Indemnitor ten (10) days prior written notice of its intention to so terminate.

12. The Permitted Activities shall be performed at Indemnitor's sole cost and expense and shall at all times be conducted in a good workmanlike, safe and sanitary manner and in accordance with all applicable federal, state and local laws, ordinances and regulations. Indemnitor shall take all reasonable safety precautions (such as covering of borings, installation of barricades and warning signs) to adequately secure the site. Indemnitor shall not place, keep, store or otherwise permit to be placed, kept or stored on the Premises any equipment or materials except during such time as Indemnitor's employees, agents, contractor's or subcontractors are physically present and conducting activities permitted under this Agreement.

13. Indemnitor's activities on the Premises shall be conducted in a manner so as not

to prevent or unreasonably interfere with use and enjoyment of the Premises by Metra, its employees, agents or permittees, for the purpose(s) to which the Premises is now, or may hereinafter be, committed by Metra.

14. Any rights to the Premises not specifically granted to Indemnitor herein, are reserved to Metra, its successors and assigns.

15. All payments required to be made by Indemnitor to Metra under the terms, conditions or provisions of this Agreement shall be made within sixty (60) days of Indemnitor's receipt of any demand or invoice from Metra evidencing the amount of the indebtedness due. Payments not made within said sixty (60) day period shall accrue interest at a rate of one and one half percent (1 ½ %) per month or the highest amount permitted by Illinois law, whichever is less, from the date payment is due until paid.

16. No waiver of any obligation or default of Indemnitor shall be implied from omission by Metra to take any action on account of such obligation or default and no express waiver shall affect any obligation or default other than the obligation or default specified in the express waiver and then only for the time and to the extent therein stated. Section captions used in this Agreement are for convenience only and shall not affect the construction of this Agreement. Whenever the context requires or permits, the singular shall include the plural, the plural shall include the singular and the masculine, feminine and neuter shall be freely interchangeable. This Agreement and the rights and obligations accruing hereunder are binding upon the successors and assigns of Metra and Indemnitor. This Agreement shall be governed by the internal laws of the State of Illinois. This Agreement, together with the Exhibits attached hereto, constitutes the entire Agreement between the Parties with respect to the subject matter hereof. If any provision of this Agreement, or any paragraph, sentence, clause, phrase or word or the application thereof is held invalid, the remainder of this Agreement shall be construed as if such invalid part were never included and this Agreement shall be and remain valid and enforceable to the fullest extent permitted by law provided that such exclusion does not unfairly prejudice the rights of either Party to this Agreement. In the event of any conflict or inconsistency between the terms set forth in the body of this Agreement and the terms set forth in any Exhibit hereto, the terms set forth in such Exhibit shall govern and control.

17. All notices, demands, elections, and other instruments required or permitted to be given or made by either Party upon the other under the terms of this Agreement or any statute shall be in writing. Such communications shall be deemed to have been sufficiently served if sent by commercial courier, certified or registered mail, return receipt requested, with proper postage prepaid or sent by facsimile transmission by Metra or Municipality at the respective addresses shown below or to such other party or address as either Party may from time to time furnish to the other in writing. Such notices, demands, elections and other instruments shall be considered as delivered to recipient on the day of delivery if sent by commercial courier, on the second business day after deposit in the U.S. Mail if sent by certified or registered mail or on the first business day after successful transmission if sent by facsimile transmission.

(a) Notices to Metra shall be sent to:

Commuter Rail Division
547 W. Jackson Boulevard
Chicago, Illinois 60661
Attn: Director, Real Estate & Contract Management
Phone: (312) 322-8010
Fax: (312) 322-7098

(b) Notices to Indemnitor shall be sent to:

Phone: _____
Fax: _____

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed by their duly authorized officers on the day and year first written above.

INDEMNITOR:

THE COMMUTER RAIL DIVISION OF
THE REGIONAL TRANSPORTATION
AUTHORITY:

By: _____

By: _____

Its: _____

Its: _____

ATTEST:

ATTEST:

By: _____

By: _____

Its: _____

Its: _____

METRA
RIGHT-OF-ENTRY PERMIT

EXHIBIT A



STORMWATER MANAGEMENT COMMISSION

**WATERSHED DEVELOPMENT
PERMIT
HAS BEEN SECURED
WD PERMIT NUMBER 95-83-003a**

Project: Butterfield Road Improvements

Address: Butterfield Road (Harding Ave. to Route 176)

Date Issued: 11/30/2005

Issued By: Michael D. Warner, PE

Conditions:

- Providing notification at least 5 days prior to the pre-construction meeting to Perry Danler, of the SMC, to enable their attendance.
- Providing as-built plans of the stormwater management system prior to final seeding.
- Posting the NOI and maintaining a copy of the permitted plan set at the construction site.
- Completing the enclosed inspection report weekly and after every 0.5-in rainfall. The reports shall be maintained on-site.

**NOTICE
TO CONTRACTORS AND OWNERS**

POST THIS CARD AT THE SITE, VISIBLE FROM THE STREET AND SO LOCATED AS TO PERMIT THE INSPECTOR TO RECORD THE INDICATED INSPECTIONS ON THE PLACARD. DO NOT POST IN THE INTERIOR OF A BUILDING.

INSPECTORS AND SHERIFF'S DEPUTIES ARE INSTRUCTED TO STOP ALL WORK WHERE THIS PERMIT CARD IS NOT DISPLAYED.

REFER TO THE REVERSE SIDE OF THE WATERSHED DEVELOPMENT PERMIT SLIP FOR NECESSARY INSPECTIONS DURING PROGRESS OF THE WORK. ALWAYS MENTION THE WATERSHED DEVELOPMENT PERMIT NUMBER WHEN REFERRING TO THIS PROJECT. IF THIS CARD BECOMES MISLAID OR LOST PLEASE CONTACT LAKE COUNTY STORMWATER MANAGEMENT COMMISSION FOR A REPLACEMENT.

Lake County Stormwater Management Commission (847) 918-5262

255



STORMWATER MANAGEMENT COMMISSION

November 30, 2005

Martin G. Buehler
Lake County Division of Transportation
600 W. Winchester Road
Libertyville, IL 60048

Subject: Butterfield Road (Harding Avenue to Route 173)
Watershed Development Permit #95-83-003a
PERMIT ISSUANCE

Dear Mr. Buehler:

Accompanying this letter is the required Watershed Development Permit. This approval is subject to the conditions on the back of the permit including the following.

- Providing notification at least 5 days prior to the pre-construction meeting to Perry Danler, of the SMC, to enable their attendance.
- Providing as-built plans of the stormwater management system prior to final seeding.
- Posting the NOI and maintaining a copy of the permitted plan set at the construction site.
- Completing the enclosed inspection report weekly and after every 0.5-in rainfall. The reports shall be maintained on-site.

This approval is based on the plans entitled:

PLANS FOR PROPOSED FEDERAL AID HIGHWAY FAU 2647 (CH 57
(BUTTERFIELD ROAD) . . .) HARDING AVENUE TO FAP 352 (IL ROUTE 137
(BUCKLEY ROAD) ROADWAY RECONSTRUCTION & TRAFFIC SIGNAL
MODERNIZATION; DATED 11/16/05, RECEIVED NOVEMBER 21, 2005.

WINNER OF THE ASFPM 2003 NATIONAL AWARD FOR EXCELLENCE

Stevenson Mountsier, Chairman Ward S. Miller, Executive Director

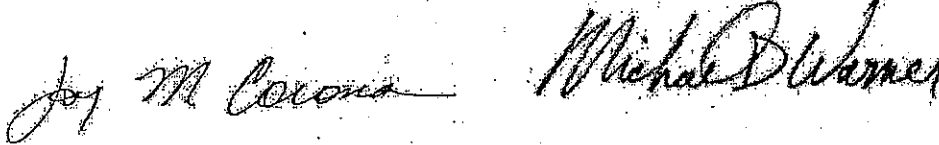
333-B Peterson Road • Libertyville, Illinois 60048 • 847/918-5260 • FAX 847/918-9826

Mr. Martin Buehler
November 30, 2005
Page 2 of 2

We would like to be of assistance. If you have any questions or would like to set up the pre-construction meeting please call Perry Danler at (847) 918-7695.

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION



Joy M. Corona, PE, CFM
Acting Permit Engineer

Michael D. Warner, PE, CFM
Chief Engineer

c: Jeff Julkowski -- CBBEL
Mike Zemaitis -- LCDOT

This document was digitally transmitted. Please print out a copy of the document and retain for your records. If you are unable to print the document, or desire a hard copy mailed to you, please notify me at your earliest convenience.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 5947-05

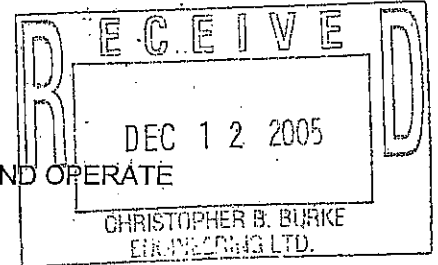
PERMIT NO.: 2005-HB-5947

FINAL PLANS, SPECIFICATIONS, APPLICATION
AND SUPPORTING DOCUMENTS

DATE ISSUED: DEC 08 2005

PREPARED BY: Christopher B. Burke Engineering, Ltd.

SUBJECT: LIBERTYVILLE -- CH 57 Butterfield Road
(Village of Libertyville Sewage Treatment Plant) -- Sanitary Sewer Permit



PERMITTEE TO CONSTRUCT

Village of Libertyville
200 E. Cook Avenue
Libertyville, Illinois 60048

PERMITTEE TO OWN AND OPERATE

Village of Libertyville
118 W. Cook Avenue
Libertyville, Illinois 60048

Permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities described as follows (quantities are approximate):

19 feet of 8 inch sanitary sewer, 4 feet of 10 inch sanitary sewer, 26 feet of 12 inch sanitary sewer, 369 feet of 18 inch sanitary sewer, 600 feet of 21 inch sanitary sewer and 6 manholes to serve as a replacement sewer (O.P.E., 0 GPD, DAF) located along Butterfield Road with discharge to an existing 21 inch sanitary sewer tributary to the above indicated sewage treatment plant.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: Any connections to this sanitary sewer extension must be in accordance with the latest Revisions of Title 35, Subtitle C, Chapter 1, Permits, must be obtained if required by said regulations.

SPECIAL CONDITION 2: If this project is located within a wetlands, the U.S. Army Corps of Engineers may require a permit for construction pursuant to Section 404 of the Clean Water Act.

SPECIAL CONDITION 3: The Permittee to Construct shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activities associated with this project will result in the disturbance of one (1) or more acres total land area.

An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Agency's Division of Water Pollution Control - Permit Section.

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

SAK:RUH:1005PERMITSSTATECONVIA110594705.WPD

DIVISION OF WATER POLLUTION CONTROL

EPA - Des Plaines FOS
Christopher B. Burke Engineering, Ltd.
Records - Municipal
Binds

Alan Keller, P.E.
Manager, Permit Section

258

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:

- a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;
- b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;
- c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;
- d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;
- e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

- a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;
- b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;
- c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;
- d. does not take into consideration or attest to the structural stability of any units or parts of the project;
- e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.

7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

- a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or
- b. upon finding that any standard or special conditions have been violated; or
- c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

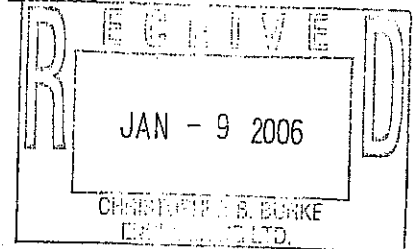
1021 N. Grand Avenue East, P.O. Box 19276
Springfield, IL 62794-9276

Division of Public Water Supplies

Telephone 217/782-1724

PUBLIC WATER SUPPLY CONSTRUCTION PERMIT

SUBJECT: LIBERTYVILLE (Lake County-0970000)



Permit Issued to:
Village President and Board of Trustees
200 E. Cook Avenue
Libertyville, IL 60048

PERMIT NUMBER: 1134-FY2006
Proposed Improvement

DATE ISSUED: January 4, 2006
PERMIT TYPE: Water Main

The issuance of this permit is based on plans and specifications prepared by the engineers/architects indicated, and are identified as follows:

FIRM: Christopher B. Burke Engineering, Ltd.
NUMBER OF PLAN SHEETS: 251
TITLE OF PLANS: *CH 57 (Butterfield Road) **SR**

PROPOSED IMPROVEMENTS:

Installation of approximately 4 feet of 4-inch water main, 78 feet of 6-inch water main, 247 feet of 8-inch water main, 40 feet of 10-inch water main, 1,629 feet of 12-inch water main, and 89 feet of 16-inch water main

ADDITIONAL CONDITIONS:

- 1. All water mains shall be satisfactorily disinfected prior to use. In accordance with the requirements of AWWA C651-99, at least one set of samples shall be collected from every 1,200 feet of new water main, plus one set from the end of the line and at least one set from each branch. Satisfactory disinfection shall be demonstrated in accordance with the requirements of 35 Ill. Adm. Code 652.203.
- 2. There are no further conditions to this permit.

JHK:MPH:dse

CC: Christopher B. Burke Engineering, Ltd.
Elgin Regional Office
State Department of Public Health

Jerry H. Kuhn, P.E.
Manager, Permit Section
Division of Public Water Supplies

This permit is issued for the construction and/or installation of the public water supply improvements described above, in accordance with the provisions of the "Environmental Protection Act," Title IV, Sections through 17, and Title X, Sections 39 and 40, and is subject to the conditions printed on the reverse side of this page and the ADDITIONAL CONDITIONS printed above.

From: Connie Smith [mailto:Connie.Smith@epa.state.il.us]

Sent: Wednesday, February 01, 2006 9:55 AM

To: bluke@cbbel.com

Subject: This contains the standard conditions for construction/development permits

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
(July 1, 1979)

The Illinois Environmental Protection Act (Illinois Compiled Statutes, Chapter 111-1/2, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits, which it issues.

These standard conditions shall apply to all permits which the Agency issues for construction for development projects which require permits under the Divisions of Water Pollution Control, Air Pollution Control, Public Water Supplies, and Land and Noise Pollution Control, Special conditions may also be imposed by the separate divisions in addition to these standard conditions.

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year after date of issuance unless construction or development on this project of project has started on or prior to that date. (See Below)
2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection act, and Rules and Regulations adopted by the Illinois Pollution Control Board.
3. There shall be no deviations from the approved plans and specifications unless a written request for modifications of the project, along with plans and specifications as required, shall have been submitted to the Agency and supplemental written permit issued.
4. The permittee shall allow any agent duly authorized by the Agency upon the presentation of credentials:
 - a. to enter at reasonable times the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;
 - b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;
 - c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;
 - d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;
 - e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing monitoring, or recording any activity, discharge, or emission authorized by this permit.
5. The issuance of this permit:
 - a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;
 - b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;
 - c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;
 - d. does not take into consideration or attest to the structural stability of any units or parts of the project;
 - e. in no manner implies or suggest that the Agency (or its officers, agents or employees) assumes any liability directly or indirectly for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the Agency before the facility or equipment covered by this permit is placed into operation.
7. These standard conditions shall prevail unless modified by special conditions.
8. The Agency may file a complaint with the Board of modifications, suspension or revocation of a permit.
 - a. upon discovery that the permit application contained misrepresentation or false statements or that all relevant facts were not disclosed; or
 - b. upon finding that any standard or special conditions have been violated; or
 - c. upon any violation of the Environmental Protection Act or any Rule or Regulation effective thereunder as a result of the construction or development authorized by this permit.

For Division of Public Water Supply Construction Permits, construction on the project, once started, may continue for four years before this permit expires. A request for extension shall be filed at least 90 days prior to the permit expiration date.

USE OF RAP (BMPR)

Effective: January 1, 2000

Revised: July 1, 2006

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. All stockpiles shall be free from contaminants listed in Article 1004.07(b).

- (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(c)(1). Homogeneous RAP stockpiles not meeting these requirements may be processed (crushing and screening) and retested.
- (2) Conglomerate 5/8. Conglomerate 5/8 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 5/8 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 5/8 RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate 5/8 RAP stockpiles shall meet the requirements of Article 1004.07(c)(1).
- (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(c)(1).

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) Conglomerate 3/8. Conglomerate 3/8 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 B quality or better. This RAP may have an inconsistent gradation and/or asphalt cement content prior to processing. All conglomerate 3/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 9.5 mm (3/8 in.) or smaller screen. Conglomerate 3/8 RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate 3/8 RAP stockpiles shall meet the requirements of Article 1004.07(c)(1).
- (5) 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) 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.
- (c) RAP in Bituminous Concrete Mixtures. 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, conglomerate 5/8, or conglomerate 3/8 RAP stockpiles. Conglomerate 5/8 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 5/8, conglomerate 3/8 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.

(1) Testing. All RAP shall be sampled and tested either during or after stockpiling.

a. General Testing Requirements for all RAP

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.

b. Additional Testing Requirements for Conglomerate 3/8

The Contractor shall test Conglomerate 3/8 RAP for Maximum Theoretical Specific Gravity (G_{mm}) at a 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).

c. Evaluation of Test Results

All of the test results shall be compiled and averaged for asphalt content, gradation and, when applicable, G_{mm} . Individual 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% ¹	± 0.5%
G _{mm}	± 0.02 ²	N/A

Note 1 – Tolerance for Conglomerate 3/8 is ±0.3%

Note 2 – Applies only to Conglomerate 3/8. If variation of the G_{mm} exceeds the ± 0.02 tolerance, a new stockpile of Conglomerate 3/8 shall be created which will also require an additional mix design.

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt 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)".

- (2) 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.

- (3) 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. When producing mixtures containing conglomerate 3/8 RAP, a positive dust control system shall be utilized.

(4) Recording Proportions. HMA plants utilizing RAP shall be capable of automatically recording and printing the mixture proportions and asphalt cement content. The asphalt cement content as a percentage of the total mix shall be printed as well as the individual percentages of virgin asphalt cement and residual asphalt cement from the RAP.

(d) RAP in Aggregate Surface Course and Aggregate Shoulders. The use of RAP in Aggregate Surface Course and Aggregate Shoulders shall be as follows.

(1) Stockpiles. RAP stockpiles may be any of those listed in Article 1004.07(a), except "Other".

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

(e) RAP in Porous Granular Embankment (PGE). The use of RAP in PGE shall be as follows.

(1) Percent of RAP. The amount of RAP used in PGE shall be limited to a maximum of 40 percent blended with 60 percent gravel, crushed gravel, crushed stone, crushed concrete, crushed slag, chats, crushed sandstone, or wet-bottom boiler slag. Crushed steel slag or other expansive materials shall be limited to a maximum of 10 percent. Prior to blending, the RAP shall be tested by the Department to determine the percent of steel slag in the RAP. Any blending shall be by interlocked mechanical feeders as approved by the Engineer prior to beginning production. RAP for use in Porous Granular Embankment

(2) Stockpiles. RAP stockpiles may be any of those listed in Article 1004.07(a).

(3) Gradation. The gradation of the RAP material shall be determined by the Engineer. If a gradation is specified, the gradation shall be tested according to the AGCS, Category 3, using Illinois Modified AASHTO T 27, with the following exceptions.

a. The sample shall be air dried to prevent the material from clumping.

b. No washed minus #200 will be calculated.

ACCESSIBLE PEDESTRIAN SIGNALS (APS) (BDE)

Effective: April 1, 2003

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive pedestrian pushbutton with speaker, an informational sign, a solid state electronic control board, a power supply, wiring and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 802 and 873 of the Standard Specifications, except as modified herein.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -34 °C to +70 °C (-29 °F to +160 °F).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton.

A clear, verbal message shall be used to communicate the pedestrian walk interval. This message shall sound throughout the WALK interval only. The verbal message shall be "WALK SIGN", which may be followed by the name of the street to be crossed. No other messages shall be used to denote the WALK interval.

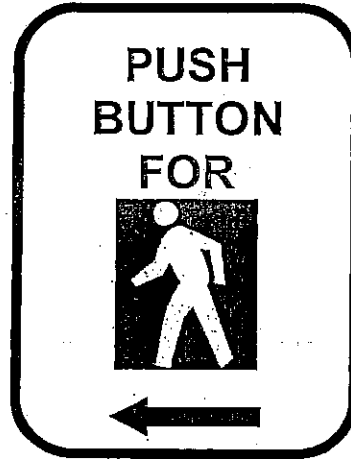
Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 89 dB. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 50 mm (2 in.) in diameter or width. The force required to activate the pushbutton shall be no greater than 15.5 N (3.5 lb).

If a pushbutton is depressed for three seconds, a custom verbal message shall be given before the walk cycle goes into effect which tells the pedestrian their location or other pertinent information about the intersection.

A red light emitting diode (LED) shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall resemble either of the following:



Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided either on the pushbutton or its sign. This arrow shall meet the requirements of Section X02.5.1.4 of the U.S. Access Board's "Public Rights-of-way Access Advisory Committee Report, 2001".

Vibrotactile Feature. When specified on the plans, vibrotactile messages shall also be provided at each pedestrian pushbutton. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Method of Measurement. This work will be measured for payment as each, per pushbutton.

When provided the vibrotactile feature will be measured for payment as each, per pushbutton.

Basis of Payment. This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS.

When provided, the vibrotactile feature will be paid for at the contract unit price per each for VIBROTACTILE FEATURE.

80099

AGGREGATE SHIPPING TICKETS (BDE)

Effective: January 1, 2006

Add the following to Article 1003.01 of the Standard Specifications:

"(f) Shipping Tickets. Shipping tickets for the material shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Designation of Aggregate Information on Shipping Tickets"."

Add the following to Article 1004.01 of the Standard Specifications:

"(f) Shipping Tickets. Shipping tickets for the material shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Designation of Aggregate Information on Shipping Tickets"."

Add the following to Article 1005.01 of the Supplemental Specifications:

"(d) Shipping Tickets. Shipping tickets for the material shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Designation of Aggregate Information on Shipping Tickets"."

80156

AUTHORITY OF RAILROAD ENGINEER (BDE)

Effective: July 1, 2004

Revise Article 105.02 of the Standard Specifications to read:

"105.02 Authority of Railroad Engineer. Whenever the safety of railroad traffic is concerned, the Railroad Engineer will have jurisdiction over safety measures to be taken and his/her decision as to the methods, procedures, and measures used shall be final, and any and all Contractors performing work near or about the railroad shall be governed by such decision. Instructions to the Contractor by the Railroad Engineer will be given through the Engineer. Work ordered as specified herein will be classified and paid for according to Article 104.02. Work performed for the Contractor's convenience will not be paid for separately but shall be considered as included in the contract."

80128

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 placement of the surface course or at other times throughout the work."

80142

BUTT JOINTS (BDE)

Effective: April 1, 2004

Revised: April 1, 2005

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 55 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 \pm 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 \pm 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."

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 water-soaking 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 water-soaked 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

CURING AND PROTECTION OF CONCRETE CONSTRUCTION (BDE)

Effective: January 1, 2004
Revised: November 1, 2005

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	115%
Protection Method I	110%
For concrete in superstructures:	
When protected by: Protection Method II	123%
Protection Method I	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 Curb and Gutter Sidewalk Slope Wall	1020.13(a)(1)(2)(3)(4)(5) ^{4/ 5/}	3	1020.13(c) ^{16/}
Paved Ditch Catch Basin Manhole Inlet Valve Vault	1020.13(a)(1)(2)(3)(4)(5) ^{4/}	3	1020.13(c)
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) ^{6/}	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 Nelson Type Structural Member	1020.13(a)(3)(5) ^{9/ 10/}	As required. ^{13/}	504.06(c)(6), 1020.13(e)(2) ^{19/}
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 at no additional cost to the Department."

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 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 be according to the following.

- (a) Temperature Control other than Structures. The temperature of the concrete immediately before placement shall be a minimum of 10 °C (50 °F) and a maximum of 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 between 20 °C (70 °F) and 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 the concrete, as placed in the forms, shall be a minimum of 10 °C (50 °F) and a maximum of 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). 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 between 20 °C (70 °F) and 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

- (c) Temperature. The concrete temperature shall be determined according to ASTM C 1064."

80114

DETECTABLE WARNINGS (BDE)

Effective: August 1, 2005

Replace Articles 424.08 – 424.12 of the Standard Specifications with the following:

424.08 Curb Ramps. Curb ramps shall be constructed according to the Americans with Disabilities Act Accessibility Guidelines (ADAAG), the Illinois Accessibility Code, and as shown on the plans.

Curb ramps shall be constructed to the same thickness as the adjacent sidewalk with a minimum thickness of 100 mm (4 in.).

424.09 Detectable Warnings. Detectable warnings shall consist of a surface of truncated domes meeting the requirements of the ADAAG and the details shown on the plans.

Detectable warnings shall be installed at curb ramps, medians and pedestrian refuge islands, at-grade railroad crossings, transit platform edges, and other locations where pedestrians are required to cross a hazardous vehicular way. Detectable warnings shall also be installed at alleys and commercial entrances when permanent traffic control devices are present. The installation shall be an integral part of the walking surface and only the actual domes shall project above the walking surface.

The product or method used for installing detectable warnings shall come with the following documents which shall be given to the Engineer prior to use.

- (a) Manufacturer's certification stating the product is fully compliant with the ADAAG.
- (b) Manufacturer's five year warranty.
- (c) Manufacturer's specifications stating the required materials, equipment, and installation procedures.

Products that are colored shall be colored their entire thickness.

The materials, equipment, and installation procedures used shall be according to the manufacturer's specifications.

424.10 Backfill. After the concrete has been cured, the spaces along the edges of the sidewalk and ramps shall be backfilled with approved material. The material shall be compacted until firm and the surface neatly graded.

424.11 Disposal of Surplus Material. Surplus or waste material shall be disposed of according to Article 202.03.

424.12 Method of Measurement. This work will be measured for payment in place and the area computed in square meters (square feet). Curb ramps will be measured for payment as sidewalk. No deduction will be made for detectable warnings located within the ramp.

Detectable warnings will be measured for payment in place and the area computed in square meters (square feet).

Earth excavation will be measured for payment according to Article 202.07.

424.13 Basis of Payment. This work will be paid for at the contract unit price per square meter (square foot) for PORTLAND CEMENT CONCRETE SIDEWALK, of the thickness specified.

Detectable warnings will be paid for at the contract unit price per square meter (square foot) for DETECTABLE WARNINGS.

Earth excavation will be paid for according to Article 202.08."

80146

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

Effective: September 1, 2000

Revised: June 22, 2005

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR part 26 and listed in the DBE Directory or most recent addendum.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100% state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100% state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor:

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE firms performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of

unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 13 % of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

- (a) The bidder documents that firmly committed DBE participation has been obtained to meet the goal; or
- (b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders may consult the DBE Directory as a reference source for DBE companies certified by the Department. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at www.dot.state.il.us.

BIDDING PROCEDURES. Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid not responsive.

- (a) In order to assure the timely award of the contract, the as-read low bidder shall submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement, the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the bidder to ensure that the postmark or receipt date is affixed within the seven (7) working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven (7) day submittal requirement and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other

bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.

- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. The signatures on these forms must be original signatures. All elements of information indicated on the said form shall be provided, including but not limited to the following:
 - (1) The name and address of each DBE to be used;
 - (2) A description, including pay item numbers, of the commercially useful work to be done by each DBE;
 - (3) The price to be paid to each DBE for the identified work specifically stating the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
 - (4) A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and
 - (5) If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).
- (d) The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five (5) working day period in order to cure the deficiency.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments

made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100% goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100% goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.
- (c) DBE as a subcontractor: 100% goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE firm does not count toward the DBE goal.
- (d) DBE as a trucker: 100% goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.
- (e) DBE as a material supplier:
 - (1) 60% goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
 - (2) 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
 - (3) 100% credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

GOOD FAITH EFFORT PROCEDURES. If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary

and reasonable steps are those which could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.
- (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
 - (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.
 - (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
 - (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a bidder to perform the work of a contract with its own

organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.

- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
 - (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
 - (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.
 - (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines that the bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will designate a five (5) working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.
- (c) The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five (5) working days after the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen

Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten (10) working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal.

- (a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (b) All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete its work on the contract for any reason, the Contractor shall make good faith efforts to find another DBE to substitute for the terminated DBE. The good faith efforts shall be

directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.

- (c) The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefor to the DBE by the Contractor, but not later than thirty (30) calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the Report shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.
- (d) The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.
- (e) Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department.

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

Revised: January 1, 2006

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 107-2004 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. Flaggers shall be illuminated by an overhead light source providing a minimum vertical illuminance of 108 lux (10 fc) measured 300 mm (1 ft) out from the flagger's chest. The bottom of any luminaire shall be a minimum of 3 m (10 ft) above the pavement. Luminaire(s) shall be shielded to minimize glare to approaching traffic and trespass light to adjoining properties.

The flagger vest shall be a fluorescent orange or fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 3 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

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: August 1, 2006

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 (FULLY REDIRECTIVE, RESETTABLE); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, NARROW); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, WIDE); or IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) of the test level specified.

Relocation of the devices will be paid for at the contract unit price per each for IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE); IMPACT ATTENUATORS, RELOCATE (SEVERE USE); or IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE); of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

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 μ m (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) \pm 15%
Whales (holes)	ASTM D 3887	7.5 \pm 2 holes/25 mm (1 in.)
Chorses (holes)	ASTM D 3887	15.5 \pm 2holes/25 mm (1 in.)
Instronball Burst	ASTM D 3887	830 kPa (120 psi) min.
Thickness	ASTM D 1777	1.0 \pm 0.1 mm (0.040 \pm 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."

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD (BDE)

Effective: November 1, 2005

Revised: April 1, 2006

Add the following paragraph to the end of Article 802.03 of the Standard Specifications:

“The warranty for light emitting diode (LED) modules, including the maintained minimum luminous intensities, shall cover a minimum of 60 months from the date of delivery.”

Revise Article 881.01 of the Standard Specifications to read:

“881.01 Description. This work shall consist of furnishing and installing a conventional pedestrian signal head or light emitting diode (LED) pedestrian signal head.”

Revise Article 881.02(a) of the Standard Specifications to read:

“(a) Pedestrian Signal Heads.....1078.02”

Revise the first paragraph of Article 881.04 of the Standard Specifications to read:

“881.04 Basis of Payment. This work will be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD or PEDESTRIAN SIGNAL HEAD, LED of the type specified and of the material type when specified.”

Revise Article 1078.02(b) of the Standard Specifications to read:

“(b) Optical Unit. Only symbolic walk (walking person) and don't walk (upraised palm) indications shall be used.

(1) Conventional Pedestrian Signal. Each signal section shall have an optical unit according to Article 1078.01(c), except the lamp for a 300 mm (12 in.) section shall be nominal 90 W, 1040 lumens with a minimum average rated life of 8,000 hours (0.91 years) and the lamp for a 225 mm (9 in.) section shall be nominal 54 W, 530 lumens with a minimum average rated life of 8,000 hours (0.91 years).

(2) LED Pedestrian Signal. The pedestrian LED signal heads shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, “Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules”, or applicable successor ITE specifications, except as modified herein. The LEDs utilized in the modules shall not be Aluminum Gallium Arsenide (AlGaAs) material technology. The LED signal heads shall also meet the following requirements:

a. Physical and Mechanical Requirements. The power supply for the LED module shall be integrated with the unit.

- b. Photometric Requirements. The illuminated portion of the module shall be uniformly and completely dispersed with the LEDs.
- c. Electrical Requirements. The pedestrian LED signal module shall be EPA Energy Star qualified.

The individual LEDs shall be wired such that a catastrophic loss or the failure of one LED will result in the loss of not more than five percent of the signal module light output.

- d. Warranty. The LED modules shall be warrantied according to Article 802.03."

80150.

LIGHT EMITTING DIODE (LED) SIGNAL HEAD (BDE)

Effective: April 1, 2002

Revised: November 1, 2005

Add the following paragraph to the end of Article 802.03 of the Standard Specifications:

"The warranty for light emitting diode (LED) modules, including the maintained minimum luminous intensities, shall cover a minimum of 60 months from the date of delivery."

Revise Article 880.01 of the Standard Specifications to read:

"880.01 Description. This work shall consist of furnishing and installing a conventional signal head, optically programmed signal head or light emitting diode (LED) signal head."

Revise Article 880.02(a) of the Standard Specifications to read:

"(a) Signal Heads.....1078.01"

Revise the first sentence of the first paragraph of Article 880.03 of the Standard Specifications to read:

"The signal head shall be installed on a post, bracket, span wire or mast arm as shown on the plans."

Revise the first paragraph of Article 880.04 of the Standard Specifications to read:

"880.04 Basis of Payment. This work will be paid for at the contract unit price each for SIGNAL HEAD, OPTICALLY PROGRAMMED SIGNAL HEAD, or SIGNAL HEAD, LED of the type specified and of the material type when specified."

Revise Article 1078.01 of the Standard Specifications to read:

"1078.01 Signal Head, Optically Programmed Signal Head and Light Emitting Diode (LED) Signal Head."

Add the following to Article 1078.01(c) of the Standard Specifications:

"(3) The LED signal section shall be according to the following:

- a. General Requirements. The LED signal head shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, "Vehicle Traffic Control Signal Heads, Part 2: LED Vehicle Traffic Signal Modules", and "Vehicle Traffic Control Signal Heads, Part 3: LED Vehicle Arrow Traffic Signal Modules", or applicable successor ITE specifications, except as modified herein. The LEDs utilized in the modules shall not be Aluminum Gallium Arsenide (AlGaAs) material technology.

- b. Physical and Mechanical Requirements. The power supply for the LED module shall be integrated with the unit.
- c. Photometric Requirements. The candlepower values for yellow 300 mm (12 in.) circular modules shall be equal to the corresponding values for green 300 mm (12 in.) circular modules as listed in Table 1 of Section 4 of the aforementioned ITE specification based on normal use in traffic signal operation over the operating temperature range.

The illuminated portion of the arrow module shall be uniformly and completely dispersed with the LEDs.

- d. Electrical Requirements. When applicable to the particular module type, the LED signal module shall be EPA Energy Star qualified. For yellow 300 mm (12 in.) circular and arrow modules, the wattage requirements shall be as follows:

Module Type	Maximum Watts (W) at 74 °C (165 °F)	Nominal Watts (W) at 25 °C (77 °F)
300 mm (12 in.) Yellow Circular	25	22
300 mm (12 in.) Yellow Arrow	12	10

The individual LEDs shall be wired such that a catastrophic loss or the failure of one LED will result in the loss of not more than five percent of the signal module light output.

- e. Warranty. The LED modules shall be warrantied according to Article 802.03."

80067

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

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."

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000

Revised: January 1, 2006

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 109.07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section

| 7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

80022

PAYROLLS AND PAYROLL RECORDS (BDE)

Effective: August 10, 2005

FEDERAL AID CONTRACTS. Add the following State of Illinois requirements to the Federal requirements contained in Section V of Form FHWA-1273:

"The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit payroll records to the Engineer each week from the start to the completion of their respective work. The submittals shall be on the Department's form SBÉ 48, or an approved facsimile. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate box ("No Work", "Suspended", or "Complete") checked on the form."

STATE CONTRACTS. Revise Section IV of Check Sheet #5 of the Recurring Special Provisions to read:

"IV. COMPLIANCE WITH THE PREVAILING WAGE ACT

1. **Prevailing Wages.** All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. If the Department of Labor revises the wage rates, the Contractor will not be allowed additional compensation on account of said revisions.
2. **Payroll Records.** The Contractor and each subcontractor shall make and keep, for a period of three years from the date of completion of this contract, records of the wages paid to his/her workers. The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid. Upon two business days' notice, these records shall be available, at all reasonable hours at a location within the State, for inspection by the Department or the Department of Labor.
3. **Submission of Payroll Records.** The Contractor and each subcontractor shall submit payroll records to the Engineer each week from the start to the completion of their respective work. The submittals shall be on the Department's form SBÉ 48, or an approved facsimile. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate box ("No Work", "Suspended", or "Complete") checked on the form.

Each submittal shall be accompanied by a statement signed by the Contractor or subcontractor which avers that: (i) such records are true and accurate; (ii) the hourly rate paid to each worker is not less than the general prevailing rate of hourly wages required by the Act; and (iii) the Contractor or subcontractor is aware that filing a payroll record that he/she knows to be false is a Class B misdemeanor.

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

80155

PERSONAL PROTECTIVE EQUIPMENT (PPE)

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

PLANTING WOODY PLANTS (BDE)

Effective: January 1, 2006

Revise the first and second paragraphs of Article 253.14 of the Standard Specifications to read:

"253.14 Period of Establishment. Prior to being accepted, the plants shall endure a period of establishment. This period shall begin in June and end in September of the same year. To qualify for inspection, plants shall have been in place, in a live healthy condition, on or before June 1 of the year of inspection. To be acceptable, plants shall be in a live healthy condition, representative of their species, at the time of inspection in the month of September.

When the planting work is performed by a subcontractor, this delay in inspection and acceptance of plants shall not delay acceptance of the entire project and final payment due if the Contractor requires and receives from the subcontractor a third party performance bond naming the Department as obligee in the full amount of the planting quantities listed in the contract, multiplied by their contract unit prices. The bond shall be executed prior to acceptance and final payment of the non-planting items and shall be in full force and effect until final inspection and acceptance of all plants including replacements. Execution of the third party bond shall be the option of the prime Contractor."

Revise Article 253.16 of the Standard Specifications to read:

"253.16 Method of Measurement. This work will be measured for final payment, in place, after the period of establishment. Trees, shrubs, and vines will be measured as each individual plant. Seedlings will be measured in units of 100 plants."

Revise Article 253.17 of the Standard Specifications to read:

"253.17 Basis of Payment. This work will be paid for at the contract unit price per each for TREES, SHRUBS, and VINES, of the species, root type, and plant size specified; and per unit for SEEDLINGS. Payment will be made according to the following schedule.

(a) Initial Payment. Upon planting, 75 percent of the pay item(s) will be paid.

(b) Final Payment. Upon inspection and acceptance of the plant material, or upon execution of a third party bond, the remaining 25 percent of the pay item(s) will be paid."

80148

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

Revised: November 1, 2005

Add the following paragraph after the last paragraph of Article 1001.01 of the Standard Specifications.

"For portland cement according to ASTM C 150, the bill of lading shall state if limestone has been added. The bill of lading shall also state that the limestone addition is not in excess of five percent by mass (weight) of the cement."

80139

PORTLAND CEMENT CONCRETE (BDE)

Effective: November 1, 2002

Add the following paragraph after the fourth paragraph of Article 1103.01(b) of the Standard Specifications:

"The truck mixer shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Add the following paragraph after the first paragraph of Article 1103.01(c) of the Standard Specifications:

"The truck agitator shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Add the following paragraph after the first paragraph of Article 1103.01(d) of the Standard Specifications:

"The nonagitator truck shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Revise the first sentence of the first paragraph of Article 1103.02 of the Standard Specifications to read:

"The plant shall be approved before production begins according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

80083

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

PERFORMED RECYCLED RUBBER JOINT FILLER (BDE)

Effective: November 1, 2002

Revise Article 503.02(c) of the Standard Specifications to read:

“(c) Performed Expansion Joint Filler.....1051”

Revise Article 637.02(d) of the Standard Specifications to read:

“(d) Performed Expansion Joint Filler.....1051”

Add the following Article to Section 1051 of the Standard Specifications:

“1051.10 Performed Recycled Rubber Joint Filler. Performed 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

RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)

Effective: December 1, 1986

Revised: January 1, 2006

Description. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications. A separate policy is required for each railroad unless otherwise noted.

NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
METRA NORTHEAST ILLINOIS REGIONAL COMMUTER RAILROAD CORPORATION COMMUTER RAIL DIVISION	52 @ 60 mph	2 @ 35mph
DOT/AAR No.: 386425F RR Division:	RR Mile Post: 37.10 RR Sub-Division:	
For Freight/Passenger Information Contact: Mr. Al Bobby For Insurance Information Contact: Mr. Kerry Brunette		Phone: 312-322-6947 Phone: 312-322-6991

DOT/AAR No.:
RR Division:

RR Mile Post:
RR Sub-Division:

For Freight/Passenger Information Contact:
For Insurance Information Contact:

Phone:
Phone:

Approval of Insurance. The original and one certified copy of each required policy shall be submitted to the following address for approval:

Illinois Department of Transportation
Bureau of Design and Environment
2300 South Dirksen Parkway, Room 326
Springfield, Illinois 62764

The Contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall submit to the Engineer evidence that the required insurance has been approved by the railroad(s). The Contractor shall also provide the Engineer with the expiration date of each required policy.

Basis of Payment. Providing Railroad Protective Liability and Property Damage Liability Insurance will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

34261

REINFORCEMENT BARS (BDE)

Effective: November 1, 2005

Revised: November 2, 2005

Revise Article 1006.10(a) of the Supplemental Specifications to read:

"(a) Reinforcement Bars. Reinforcement bars will be accepted according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reinforcement Bar and Dowel Bar Plant Certification Procedure". The Department will maintain an approved list of producers.

(1) Reinforcement Bars (Non-Coated). Reinforcement bars shall be according to ASTM A 706M (A 706), Grade 420 (60) for deformed bars and the following.

a. Chemical Composition. The chemical composition of the bars shall be according to the following table.

CHEMICAL COMPOSITION		
Element ^{1/}	Heat Analysis (% maximum)	Product Analysis (% maximum)
Carbon	0.30	0.33
Manganese	1.50	1.56
Phosphorus	0.035	0.045
Sulfur	0.045	0.055
Silicon	0.50	0.55
Nickel	2/	2/
Chromium	2/	2/
Molybdenum	2/	2/
Copper	2/	2/
Titanium	2/	2/
Vanadium	2/	2/
Columbium	2/	2/
Aluminum	2/, 3/	2/, 3/
Tin ^{4/}	0.040	0.044

Note 1/. The bars shall not contain any traces of radioactive elements.

Note 2/. There is no composition limit but the element must be reported.

Note 3/. If aluminum is not an intentional addition to the steel for deoxidation or killing purposes, residual aluminum content need not be reported.

Note 4/. If producer bar testing indicates an elongation of 15 percent or more and passing of the bend test, the tin composition requirement may be waived.

- b. Heat Numbers. Bundles or bars at the construction site shall be marked or tagged with heat identification numbers of the bar producer.
 - c. Guided Bend Test. Bars may be subject to a guided bend test across two pins which are free to rotate, where the bending force shall be centrally applied with a fixed or rotating pin of a certain diameter as specified in Table 3 of ASTM A 706M (A 706). The dimensions and clearances of this guided bend test shall be according to ASTM E 190.
 - d. Spiral Reinforcement. Spiral reinforcement shall be deformed or plain bars conforming to the above requirements or cold-drawn steel wire conforming to AASHTO M 32.
- (2) Epoxy Coated Reinforcement Bars. Epoxy coated reinforcement bars shall be according to Article 1006.10(a)(1) and shall be epoxy coated according to AASHTO M 284M (M 284) and the following.
- a. Certification. The epoxy coating applicator shall be certified under the Concrete Reinforcing Steel Institute's (CRSI) Epoxy Plant Certification Program.
 - b. Coating Thickness. The thickness of the epoxy coating shall be 0.18 to 0.30 mm (7 to 12 mils). When spiral reinforcement is coated after fabrication, the thickness of the epoxy coating shall be 0.18 to 0.50 mm (7 to 20 mils).
 - c. Cutting Reinforcement. Reinforcement bars may be sheared or sawn to length after coating, providing the end damage to the coating does not extend more than 13 mm (0.5 in.) back and the cut is patched before any visible rusting appears. Flame cutting will not be permitted."

80151

SEEDING AND SODDING (BDE)

Effective: July 1, 2004
Revised: August 1, 2006

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 uniform growth 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 uniform 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	
Inferno Tall Fescue	.20%
Audubon Red Fescue	15%
Rescue 911 Hard Fescue	15%
Rugby Kentucky Bluegrass	5%
Fults Pucinnellia Distas	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	Remarks
					Noxious Weeds No. per kg (oz) Max. Permitted*	
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 CAST-IN-PLACE CONSTRUCTION (BDE)

Effective: November 1, 2005

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for cast-in-place concrete construction items involving Class MS and SI concrete. Self-consolidating concrete may also be used for drilled shafts.

Materials. Materials shall be according to the following.

- (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 concrete that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

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:

Aggregate Blend Expansion = $(a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots$ etc.

Where: a, b, c, ... = percent of aggregate blend

A, B, C, ... = aggregate expansion according to ASTM C 1260

Mix Design Criteria. Article 1020.04 of the Standard Specifications shall apply except as follows:

- (a) The minimum cement factor shall be according to Article 1020.04 of the Standard Specifications or as specified. The maximum cement factor shall be 418 kg/cu m (7.05 cwt/cu yd). The cement factor shall not be reduced if a water-reducing, retarding, or high range water-reducing admixture is used.
- (b) The maximum allowable water/cement ratio shall be according to Article 1020.04 of the Standard Specifications or 0.44, whichever is lower.
- (c) The slump requirements shall not apply.
- (d) The coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. CA 11 shall not be used for drilled shafts or when the Engineer approves a horizontal flow distance greater than 9 m (30 ft). The fine aggregate proportion shall be a maximum 50 percent by mass (weight) of the total aggregate used.
- (e) The slump flow range shall be ± 50 mm (± 2 in.) of the Contractor target value, and within the overall Department range of 510 mm (20 in.) minimum to 710 mm (28 in.) maximum.
- (f) The visual stability index shall be a maximum of 1.
- (g) The J-ring value shall be a maximum of 100 mm (4 in.). The Contractor may specify a lower maximum in the mix design.
- (h) The L-box blocking ratio shall be a minimum of 60 percent. The Contractor may specify a higher minimum in the mix design.
- (i) The column segregation index shall be a maximum 15 percent.
- (j) The hardened visual stability index shall be a maximum of 1.

Test Methods. Illinois Test Procedures SCC-1, SCC-2, SCC-3, SCC-4, SCC-5, SCC-6, and Illinois Modified AASHTO T 22, 23, 121, 126, 141, 152, 177, 196, and 309 shall be used for testing of self-consolidating concrete mixtures.

Mix Design Submittal. The Contractor's Level III PCC Technician shall submit a mix design according to the "Portland Cement Concrete Level III Technician" course manual, except target slump information is not applicable and will not be required. However, a slump flow target range

shall be submitted. In addition, the design mortar factor may exceed 1.10 and durability test data will be waived.

A J-ring value shall be submitted if a lower mix design maximum will apply. An L-box blocking ratio shall be submitted if a higher mix design minimum will apply. The Contractor shall also indicate applicable construction items for the mix design.

Trial mixture information will also be required by the Engineer. A trial mixture is a batch of concrete tested by the Contractor to verify the Contractor's mix design will meet specification requirements. Trial mixture information shall include test results as specified in the "Portland Cement Concrete Level III Technician" course manual. Test results shall also include slump flow, visual stability index, J-ring value, L-box blocking ratio, column segregation index, and hardened visual stability index. For the trial mixture, the slump flow shall be near the midpoint of the proposed slump flow target range.

Trial Batch. A minimum 1.5 cu m (2 cu yd) trial batch shall be produced, and the self-consolidating concrete admixture dosage proposed by the Contractor shall be used. The slump flow shall be within 25 mm (1.0 in.) of the maximum slump flow range specified by the Contractor, and the air content shall be within the top half of the allowable specification range.

The trial batch shall be scheduled a minimum of 21 calendar days prior to anticipated use, and shall be performed in the presence of the Engineer.

The Contractor shall provide the labor, equipment, and materials to test the concrete. The mixture will be evaluated by the Engineer for strength, air content, slump flow, visual stability index, J-ring value, L-box blocking ratio, column segregation index, and hardened visual stability index.

Upon review of the test data from the trial batch, the Engineer will verify or deny the use of the mix design and notify the Contractor. Verification by the Engineer will include the Contractor's target slump flow range. If applicable, the Engineer will verify the Contractor's maximum J-ring value and minimum L-box blocking ratio.

A new trial batch will be required whenever there is a change in the source of any component material, proportions, dosage of the self-consolidating concrete admixture, batch sequence, mixing speed, mixing time, or as determined by the Engineer. The testing criteria for the new trial batch will be determined by the Engineer.

When necessary, the trial batches shall be disposed of according to Article 202.03 of the Standard Specifications.

Mixing Portland Cement Concrete. In addition to Article 1020.11 of the Standard Specifications, the mixing time for central-mixed concrete shall not be reduced as a result of a mixer performance test. Truck-mixed or shrink-mixed concrete shall be mixed in a truck mixer for a minimum of 100 revolutions.

Wash water, if used, shall be completely discharged from the drum or container before the succeeding batch is introduced.

The batch sequence, mixing speed, and mixing time shall be appropriate to prevent cement balls and mix foaming for central-mixed, truck-mixed, and shrink-mixed concrete.

Falsework and Forms. In addition to Articles 503.05 and 503.06 of the Standard Specifications, the Contractor shall design falsework and forms for full hydrostatic head pressure of the concrete. Forms shall be tight to prevent leakage of fluid concrete.

Placing and Consolidating. Concrete placement and consolidations shall be according to Article 503.07 of the Standard Specifications except as follows:

Revise the third paragraph of Article 503.07 of the Standard Specifications to read:

"Open troughs and chutes shall extend as nearly as practicable to the point of deposit. The drop distance of concrete shall not exceed 1.5 m (5 ft). If necessary, a tremie shall be used to meet this requirement. The maximum distance of horizontal flow from the point of deposit shall be 9 m (30 ft), unless approved otherwise by the Engineer. For drilled shafts, free fall placement will not be permitted."

Delete the sixth, seventh, eighth and ninth paragraphs of Article 503.07 of the Standard Specifications.

Revise the eleventh paragraph of Article 503.07 of the Standard Specifications to read:

"Concrete shall be placed in continuous layers. When it is necessary by reason of an emergency to place less than a complete horizontal layer in one operation, such layer shall terminate in a vertical bulkhead. In order that the concrete will not be injured and that there shall be no line of separation between the batches, the separate batches shall follow each other closely as recommended by the manufacturer of the self-consolidating concrete admixture(s). In no case shall the interval of time between the placing of successive batches be greater than 20 minutes. Concrete shall be rodded with a piece of lumber or conduit if the material has lost its fluidity prior to placement of additional concrete. Any other method for restoring the fluidity of the concrete shall be approved by the Engineer. If ready-mixed concrete is used, the requirements of Article 1020.11 shall apply. Delivery of mixed concrete shall be regulated so that there will not be an interruption in the placing of concrete in the forms, as recommended by the manufacturer of the self-consolidating concrete admixture(s). In no case shall the interval of time be greater than 20 minutes."

Quality Control by Contractor at Plant. The specified test frequencies for aggregate gradation, aggregate moisture, air content, unit weight/yield, and temperature shall be performed as indicated in the contract plans.

Slump flow, visual stability index, and J-ring or L-box tests shall be performed as needed to control production. The column segregation index test and hardened visual stability index test will not be required to be performed at the plant.

Quality Control by Contractor at Jobsite. The specified test frequencies for air content, strength, and temperature shall be performed as indicated in the contract plans.

Slump flow, visual stability index, and J-ring or L-box tests shall be performed on the first two truck deliveries of the day, and every 40 cu m (50 cu yd) thereafter. The Contractor shall select either the J-ring or L-box test for jobsite testing.

The column segregation index test will not be required to be performed at the jobsite. The hardened visual stability index test shall be performed on the first truck delivery of the day, and every 230 cu m (300 cu yd) thereafter. Slump flow, visual stability index, J-ring value or L-box blocking ratio, air content, and concrete temperature shall be recorded for each hardened visual stability index test.

The Contractor shall retain all hardened visual stability index cut cylinder specimens until the Engineer notifies the Contractor that the specimens may be discarded.

If mix foaming or other potential detrimental material is observed during placement or at the completion of the pour, the material shall be removed while the concrete is still plastic.

Quality Assurance by Engineer at Plant. For air content and aggregate gradation, quality assurance independent sample testing and split sample testing will be performed as indicated in the contract plans.

For slump flow, visual stability index, and J-ring or L-box tests, quality assurance independent sample testing and split sample testing will be performed as determined by the Engineer.

Quality Assurance by Engineer at Jobsite. For air content and strength, quality assurance independent sample testing and split sample testing will be performed as indicated in the contract plans.

For slump flow, visual stability index, J-ring or L-box, and hardened visual stability index tests, quality assurance independent sample testing will be performed as determined by the Engineer.

For slump flow and visual stability index quality assurance split sample testing, the Engineer will perform tests at the beginning of the project on the first three tests performed by the Contractor. Thereafter, a minimum of ten percent of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design. The acceptable limit of precision will be 25 mm (1 in.) for slump flow, and a limit of precision will not apply to the visual stability index.

For the J-ring or the L-box quality assurance split sample testing, a minimum of 80 percent of the total tests required of the Contractor will be witnessed by the Engineer per plant, which will

include a minimum of one witnessed test per mix design. The Engineer reserves the right to conduct quality assurance split sample testing. The acceptable limit of precision will be 25 mm (1 in.) for the J-ring value and ten percent for the L-box blocking ratio.

For each hardened visual stability index test performed by the Contractor, the cut cylinders shall be presented to the Engineer for determination of the rating. The Engineer reserves the right to conduct quality assurance split sample testing. A limit of precision will not apply to the hardened visual stability index.

80152

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)

Effective: July 1, 2004

Revised: November 1, 2005

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for precast concrete products.

Materials. Materials shall be according to the following.

- (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 concrete that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

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 mix design criteria shall be as follows:

- (a) The minimum cement factor shall be according to Article 1020.04 of the Standard Specifications or as specified. The maximum cement factor shall be 418 kg/cu m (7.05 cwt/cu yd).
- (b) The maximum allowable water/cement ratio shall be according to Article 1020.04 of the Standard Specifications or 0.44, whichever is lower.
- (c) The slump requirements of Article 1020.04 of the Standard Specifications shall not apply.
- (d) The coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. CA 11 shall not be used when the Engineer approves a horizontal flow distance greater than 9 m (30 ft). The fine aggregate proportion shall be a maximum 50 percent by mass (weight) of the total aggregate used.
- (e) The slump flow range shall be ± 50 mm (± 2 in.) of the Contractor target value, and within the overall Department range of 510 mm (20 in.) minimum to 710 mm (28 in.) maximum.
- (f) The visual stability index shall be a maximum of 1.
- (g) The J-ring value shall be a maximum of 100 mm (4 in.). The Contractor may specify a lower maximum in the mix design.
- (h) The L-box blocking ratio shall be a minimum of 60 percent. The Contractor may specify a higher minimum in the mix design.
- (i) The column segregation index shall be a maximum 15 percent.
- (j) The hardened visual stability index shall be a maximum of 1.

Mix Design Approval. The Contractor shall obtain mix design approval according to the Department's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products".

80132

STABILIZED SUBBASE AND BITUMINOUS SHOULDERS SUPERPAVE (BDE)

Effective: April 1, 2002
Revised: August 1, 2005

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 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.....	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 and density shall be plotted on the control charts within the following control limits:

Individual Test Control Limits	
Voids	±1.2%
Density ^{1/}	93.0 – 97.4% of G _{mm}

- 1/ Except when placed as first lift over unimproved subgrade. When the exception applies, the first lift over unimproved subgrade shall be compacted to an average density of not less than 95 percent nor greater than 102 percent of the target density obtained on the growth curve.

Replace Article 312.10 of the Standard Specifications with the following:

312.10 Placing. 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. This work shall be according to Article 312.10 as modified herein. 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

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: April 2, 2005

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting in accordance with Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

80143

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 MIXTURE IL-4.75 (BDE)

Effective: November 1, 2004

Description. This work shall consist of constructing bituminous concrete surface course or leveling binder with a Superpave, IL-4.75 mixture. Work shall be according to Section 406 of the Standard Specifications and the special provision "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as modified herein.

Materials.

- (a) Fine Aggregate. The fine aggregate shall be at least 50 percent manufactured sand meeting FA 20 gradation. The manufactured sand shall be stone sand, slag sand, steel slag sand, or combinations thereof. When used as leveling binder, steel slag sand will not be permitted.

The fine aggregate quality shall be Class B. The total minus 75 μm (No. 200) material in the mixture shall be free from organic impurities.

- (b) Reclaimed Asphalt Pavement (RAP). RAP will not be permitted.

- (c) Bituminous Material. The asphalt cement (AC) shall conform to Article 1009.05 of the Standard Specifications for SBS PG76-28 or SBR PG76-28, except the elastic recovery shall be a minimum of 80.

The AC shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. It shall be placed in an empty tank and not blended with other asphalt cements.

- (d) Mineral Filler. Mineral filler shall conform to the requirements of Article 1011.01 of the Standard Specifications, except it shall not be collected dust.

Laboratory Equipment.

- (a) Superpave Gyrotory Compactor. The Superpave gyrotory compactor (SGC) shall be used for all laboratory mixture compaction.

- (b) Ignition Oven. The ignition oven shall be used for determination of 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 calibration factor exceeds 1.5 percent other IDOT approved methods shall be utilized for determination of 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 PP 2 Standard Practice for Short and Long Term Aging of Hot Mix Asphalt (HMA)
- AASHTO PP 19 Standard Practice for Volumetric Analysis of Compacted 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 305 Standard Method of Test for Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures.
- AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method
- AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyrotory Compactor

(a) Mixture Composition. The job mix formula (JMF) shall conform to the following:

Sieve	Percent Passing
12.5 mm (1/2 in.)	100
9.5 mm (3/8 in.)	100
4.75 mm (No. 4)	90-100
2.36 mm (No. 8)	70-90
1.18 mm (No. 16)	50-65
600 µm (No. 30)	35-55
300 µm (No. 50)	15-30
150 µm (No. 100)	10-18
75 µm (No. 200)	8-10
AC Content	8% to 10%

(b) Volumetric Requirements.

Volumetric Parameter	Requirement
Design Air Voids	2.5 % at Ndesign 50
Voids in the Mineral Aggregate (VMA)	19.0% minimum
Voids Filled with Asphalt (VFA)	87-95%
Maximum Draindown	0.3%

- (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 shall be made on the basis of tests performed according to Illinois Modified T 283. To be considered acceptable by the Engineer 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 for 4 in. specimens or 0.85 for 6 in. specimens. Mixtures having TSRs less than these, either with or without an additive, will be considered unacceptable.

When 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.

Mixture Production. Plant modifications may be required to accommodate the addition of higher percentages of mineral filler as required by the JMF.

During production, mineral filler shall not be stored in the same silo as collected dust. This may require the wasting of any previously collected baghouse fines prior to production of the IL-4.75 mixture. Only dust collected during the production of IL-4.75 may be returned directly to the IL-4.75 mixture. Any additional minus 75 μm (No. 200) material needed to produce the IL-4.75 shall be mineral filler.

The mixture shall be produced within the temperature range recommended by the asphalt cement producer; but not less than 155 °C (310 °F).

The amount of moisture remaining in the finished mixture shall be less than 0.3 percent based on the weight of the test sample after drying.

Mixtures containing steel slag sand or aggregate having absorptions \geq 2.5 percent shall have a silo storage plus haul time of not less than 1.5 hours.

Control Charts/Limits. Control charts/limits and testing frequency shall be according to QC/QA requirements for Class I mixtures except as follows:

Parameter	Individual Test	Moving Average
% Passing		
1.18 mm (No. 16)	± 4%	± 3%
75 µm mm (No. 200)	± 1.0%	± 0.8%
Asphalt Content	± 0.2%	± 0.1%
Air Voids	± 1.0% (of design)	± 0.8% (of design)
Density	93.5 - 97.4%	

CONSTRUCTION REQUIREMENTS

Placement: The mixture shall be placed on a dry, clean surface when the air temperature in the shade is 10 °C (50 °F) or above. The mixture temperature shall be 155 °C (310 °F) or above and shall be measured in the truck just prior to placement.

When used as leveling binder, the mixture shall be overlaid within five days of being placed.

Lift Thickness.

- (a) Surface Course. The minimum and maximum compacted lift thickness for the IL-4.75 mixture shall be 19 mm (3/4 in.) and 32 mm (1 1/4 in.) respectively.
- (b) Leveling Binder. Density requirements for IL-4.75 mixture shall apply when the nominal, compacted thickness is 19 mm (3/4 in.) or greater.

Compaction. The compaction operation shall start immediately after the mixture has been placed. The Contractor shall provide a minimum of two steel-wheeled tandem rollers for breakdown (T_B) and one finish steel-wheeled roller (T_F) meeting the requirements of Article 406.16(a) and 1101.01(e) of the Standard Specifications except the minimum compression for all of the rollers shall be 49 N/mm (280 lb/in.) of roller width. Pneumatic-tired and vibratory rollers will not be permitted.

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for POLYMERIZED LEVELING BINDER (MACHINE METHOD), SUPERPAVE, IL-4.75, N50; and POLYMERIZED BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, IL-4.75, N50.

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 Gyrotory Compactor. The superpave gyrotory 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 Gyrotory 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.

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	1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)
	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:

Mixture	Parameter	Individual Test
12.5 mm / 9.5 mm	Ndesign \geq 90	92.0 – 96.0%
12.5 mm / 9.5 mm	Ndesign < 90	92.5 – 97.4%
19.0 mm / 25.0 mm	Ndesign \geq 90	93.0 – 96.0%
19.0 mm / 25.0 mm	Ndesign < 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

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

TEMPORARY EROSION CONTROL (BDE)

Effective: November 1, 2002

Revise the fifth sentence of the third paragraph of Article 280.04(a) of the Standard Specifications to read:

"This work may be constructed of hay or straw bales, extruded UV resistant high density polyethylene panels, erosion control blanket, mulch barrier, aggregate barriers, excavation, seeding, or mulch used separately or in combination, as approved, by the Engineer."

Add the following paragraphs after the fifth paragraph of Article 280.04(a) of the Standard Specifications.

"A ditch check constructed of extruded, UV resistant, high density polyethylene panels, "M" pins and erosion control blanket shall consist of the following materials:

Extruded, UV resistant, high density polyethylene panels shall have a minimum height of 250 mm (10 in.) and minimum length of 1.0 m (39.4 in.). The panels shall have a 51 mm (2 in.) lip along the bottom of the panel. Each panel shall have a single rib thickness of 4 mm (5/32 in.) with a 12 mm (1/2 in.) distance between the ribs. The panels shall have an average apparent opening size equal to 4.75 mm (No. 4) sieve, with an average of 30 percent open area. The tensile strength of each panel shall be 26.27 kN/m (1800 lb/ft) in the machine direction and 7.3 kN/m (500 lb/ft) in the transverse direction when tested according to ASTM D 4595.

"M" pins shall be at least 76 mm (3 in.) by 686 mm (27 in.), constructed out of deformed grade C1008 D3.5 rod (0.211 in. diameter). The rod shall have a minimum tensile strength of 55 MPa (8000 psi).

Erosion control blanket shall conform to Article 251.04.

A section of erosion control blanket shall be placed transverse to the flowline direction of the ditch prior to the construction of the polyethylene ditch check. The length of the section shall extend from the top of one side of the ditch to the top of the opposite side of the ditch, while the width of the section shall be one roll width of the blanket. The upstream edge of the erosion control blanket shall be secured in a 100 mm (4 in.) trench. The blanket shall be secured in the trench with 200 mm (8 in.) staples placed at 300 mm (1 ft) intervals along the edge before the trench is backfilled. Once the upstream edge of the blanket is secured, the downstream edge shall be secured with 200 mm (8 in.) staples placed at 300 mm (1 ft) intervals along the edge. The polyethylene ditch check shall be installed in the middle of the erosion control blanket, with the lip of each panel facing outward.

The ditch check shall consist of two panels placed back to back forming a single row. Placement of the first two panels shall be at the toe of the backslope or sideslope, with the panels extending across the bottom of the ditch. Subsequent panels shall extend both across the bottom of the ditch and up the opposite sideslope, as well as up the original backslope or sideslope at the distance determined by the Engineer.

The M pins shall be driven through the panel lips to secure the panels to the ground. M pins shall be installed in the center of the panels with adjacent panels overlapping the ends a minimum of 50 mm (2 in.). The pins shall be placed through both sets of panels at each overlap. They shall be installed at an interval of three M pins per one meter (39 in.) length of ditch check. The panels shall be wedged into the M pins at the top to ensure firm contact between the entire bottom of the panels and the soil."

80087

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.

57291

TRAFFIC SIGNAL GROUNDING (BDE)

Effective: April 1, 2006

Add the following paragraphs to the end of Article 807.01 of the Standard Specifications:

“The grounding system shall consist of a continuous, green, insulated conductor Type XLP, No. 6 AWG, stranded copper installed in raceways and bonded to each metal enclosure (handhole, post, mast arm pole, signal cabinet, etc.). All clamps shall be bronze or copper, UL approved.

A grounding cable with connectors shall be installed between each handhole cover and frame. The grounding cable shall be looped over cable hooks installed in the handholes and 1.5 m (5 ft) of slack shall be provided between the frame and cover.

All equipment grounding conductors shall terminate at the ground bus in the controller cabinet. The neutral conductor and the ground conductor shall be connected in the service installation. At no other point in the traffic signals system shall the neutral and ground conductors be connected.”

Revise Article 873.02 of the Standard Specifications to read:

“**873.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Electric Cable – Signal, Lead-in, Communication, Service, and Grounding	1076.04
(b) Conduit.....	1088.01”

Revise the last sentence of Article 873.05 of the Standard Specifications to read:

“The type specified will indicate the method of installation and whether the electric cable is Service, Signal, Lead-in, Communication, or Grounding.”

Revise the heading of Article 1076.04 of the Standard Specifications to read:

“**1076.04 Electric Cable – Signal, Lead-in, Communication, Service, and Grounding.**”

Add the following paragraph to the end of Article 1076.04 of the Standard Specifications:

“(e) Grounding Conductor. The cross linked polyethylene (XLP) insulated conductor shall be according to Articles 1066.02 and 1066.03. The stranded copper conductor shall be No. 6 AWG and the insulation color shall be green.”

TRAINING SPECIAL PROVISIONS (BDE) 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 4. 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 $\pm 5\%$
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 5μ A
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

WATER BLASTER WITH VACUUM RECOVERY (BDE)

Effective: April 1, 2006

Add the following to Article 783.02 of the Standard Specifications.

"(c) Water Blaster with Vacuum Recovery1101.17"

Add the following to Section 1101 of the Standard Specifications.

"1101.17 Water Blaster with Vacuum Recovery. The water blaster shall remove the stripe from the pavement using a high pressurized water spray with a vacuum recovery system to provide a clean, almost dry surface, without the use of a secondary cleanup process. The removal shall be to the satisfaction of the Engineer. The equipment shall contain a storage system that allows for the storage of the wastewater while retaining the debris. The operator shall be in immediate control of the blast head."

80163

WEIGHT CONTROL DEFICIENCY DEDUCTION (BDE)

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 SPEED LIMIT SIGNS (BDE)

Effective: April 2, 2004

Revised: January 1, 2006

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 or sideroad. 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 (BDE)

Effective: April 2, 2004

Revised: November 1, 2005

Revise Article 701.07(a) to read:

"(a) Not Measured. Traffic control and protection required under Standards 701001, 701006, 701011, 701101, 701106, 701301, 701311, 701400, and 701426 will not be measured for payment."

Revise the first paragraph of Article 701.07(b) to read:

"(b) Standards 701401, 701422, and 701446 will be measured for payment on an each basis only when the traffic control and protection applies to isolated stationary work areas and does not involve or is not a part of other protected areas."

Revise the Article 701.07(c) to read:

"(c) Measured As Lump Sum. Traffic control and protection required under Standards 701201, 701206, 701306, 701326, 701336, 701406, 701421, 701501, 701502, 701601, 701602, 701606, 701701 and 701801 will be measured for payment on a lump sum basis. Traffic control protection required under Standards 701401, 701422, and 701446 will be measured for payment on a lump sum basis, except as specified under Article 701.07(b). Where the Contractor's operations result in daily changing, or two or more work areas each of which requires traffic control according to one of the above Standards, each work area installation will not be paid for separately, but shall be included in the lump sum price for the type of protection furnished."

Revise the first paragraph of Article 701.08(a) to read:

"(a) Traffic control and protection will be paid for at the contract unit price each for TRAFFIC CONTROL AND PROTECTION STANDARD 701316; TRAFFIC CONTROL AND PROTECTION STANDARD 701321; TRAFFIC CONTROL AND PROTECTION STANDARD 701331; TRAFFIC CONTROL AND PROTECTION STANDARD 701401; TRAFFIC CONTROL AND PROTECTION STANDARD 701402; TRAFFIC CONTROL AND PROTECTION STANDARD 701411; TRAFFIC CONTROL AND PROTECTION STANDARD 701416; TRAFFIC CONTROL AND PROTECTION STANDARD 701422; TRAFFIC CONTROL AND PROTECTION STANDARD 701423; TRAFFIC CONTROL AND PROTECTION STANDARD 701431; or TRAFFIC CONTROL AND PROTECTION STANDARD 701446 at the location specified."

Revise the first paragraph of Article 701.08(b) to read:

"(b) Traffic control and protection indicated in Article 701.07(c) will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION STANDARD 701201; TRAFFIC CONTROL AND PROTECTION STANDARD 701206; TRAFFIC CONTROL

AND PROTECTION STANDARD 701306; TRAFFIC CONTROL AND PROTECTION STANDARD 701326; TRAFFIC CONTROL AND PROTECTION STANDARD 701336; TRAFFIC CONTROL AND PROTECTION STANDARD 701401; TRAFFIC CONTROL AND PROTECTION STANDARD 701406; TRAFFIC CONTROL AND PROTECTION STANDARD 701421; TRAFFIC CONTROL AND PROTECTION STANDARD 701422; TRAFFIC CONTROL AND PROTECTION STANDARD 701446; TRAFFIC CONTROL AND PROTECTION STANDARD 701501; TRAFFIC CONTROL AND PROTECTION STANDARD 701502; TRAFFIC CONTROL AND PROTECTION STANDARD 701601; TRAFFIC CONTROL AND PROTECTION STANDARD 701602, TRAFFIC CONTROL AND PROTECTION STANDARD 701606; TRAFFIC CONTROL AND PROTECTION STANDARD 701701; or TRAFFIC CONTROL AND PROTECTION STANDARD 701801."

80126

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.

80097

WORKING DAYS (BDE)

Effective: January 1, 2002

The Contractor shall complete the work within ~~180~~ working days.

80071

**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

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.