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 that 4:30 p.m. prevailing time twenty-one days prior to the letting of interest. This pre-qualification requirement applies to first time contractors, contractors renewing expired ratings, contractors maintaining continuous pre-qualification or contractors requesting revised ratings. To be eligible to bid, existing pre-qualification ratings must be effective through the date of letting.

REQUESTS FOR AUTHORIZATION TO BID

Contractors wanting to bid on items included in a particular letting must submit the properly completed "Request for Authorization to Bid/or Not For Bid Status" (BDE 124) and the ORIGINAL "Affidavit of Availability" (BC 57) to the proper office no later than 4:30 p.m. prevailing time, three (3) days prior to the letting date. This does not apply to Small Business Set-Asides or to the Target Market Program projects.

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. This does not apply to Small Business Set-Asides or to the Target Market Program projects.

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

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

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

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

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

IDOT IS NOT RESPONSIBLE FOR ANY E-MAIL FAILURES.

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

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

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

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

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

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

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

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

ADDENDUMS AND REVISIONS TO THE PROPOSAL FORMS

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

RETURN WITH BID

150

Proposal Submitted By
Name
Address
City

Letting March 11, 2011

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

NOTICE TO PROSPECTIVE BIDDERS
This proposal can be used for bidding purposes by only those companies that request and receive written AUTHORIZATION TO BID from IDOT's Central Bureau of Construction. This does not apply to Small Business Set-Asides or to the Target Market Program projects. (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. 60477
DUPAGE County
Section 532B
Route FAP 870
Project ACF-0870(012)
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. In addition, this proposal contains new statutory requirements applicable to the use of subcontractors and, in particular, includes the State Required Ethical Standards Governing Subcontractors to be signed and incorporated into all subcontracts.

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

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

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

1. All documents from the Proposal Cover Sheet through the Proposal Bid Bond

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

RETURN WITH BID

Illinois Department of Transportation

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. 60477
DUPAGE County
Section 532B
Project ACF-0870(012)
Route FAP 870
District 1 Construction Funds

4.10 miles of roadway reconstruction, additional lanes, dry land bridge construction, traffic signal modernization and interconnect on IL Route 53 from Army Trail Road to the Elgin O'Hare Expressway in Itasca and Addison.

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.

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

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

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

Amount of Bid			Proposal Guaranty	Amount of Bid			Proposal Guaranty
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.

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

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

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

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid Dollars	Cents

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

8. **AUTHORITY TO DO BUSINESS IN ILLINOIS.** Section 20-43 of the Illinois Procurement Code (30 ILCS 500/20-43) provides that a person (other than an individual acting as a sole proprietor) must be a legal entity authorized to do business in the State of Illinois prior to submitting the bid.

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

Check box Yes ☐
Check box No ☐

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

_____

_____

10. **EXECUTION OF CONTRACT**: The Department of Transportation will, in accordance with the rules governing Department procurements, execute the contract and shall be the sole entity having the authority to accept performance and make payments under the contract. Execution of the contract by the Chief Procurement Officer or the State Purchasing Officer is for approval of the procurement process and execution of the contract by the Department. Neither the Chief Procurement Officer nor the State Purchasing Officer shall be responsible for administration of the contract or determinations respecting performance or payment there under except as otherwise permitted in the Illinois Procurement Code.

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60477

State Job # - C-91-397-97
PPS NBR - 1-88120-2010
County Name - DUPAGE- -
Code - 43 - -
District - 1 - -
Section Number - 532B

Project Number
ACF-0870/012/

Route
FAP 870/
FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
A2002564	T-CARP CAROL SF 5'	EACH	5.000				
A2002920	T-CELTIS OCCID 2-1/2	EACH	21.000				
A2004820	T-GLED TRI-I SK 2-1/2	EACH	7.000				
A2005020	T-GYMNOCLA DIO 2-1/2	EACH	35.000				
A2006516	T-QUERCUS BICOL 2	EACH	18.000				
A2006616	T-QUERCUS IMBR 2	EACH	24.000				
A2006716	T-QUERCUS MACR 2	EACH	17.000				
A2008468	T-ULMUS AMER PRINC 2	EACH	21.000				
A2012116	T-AESCUL ASP 2 BB	EACH	16.000				
B2001616	T-CRAT CRU-I TF 2	EACH	22.000				
B2001666	T-CRATAE CRU-I SF 6'	EACH	21.000				
B2003074	T-MALUS CC TF 2	EACH	23.000				
B2003716	T-MALUS IS TF 2	EACH	21.000				
B2005410	T-PRUN FW SF KSFP 6'	EACH	17.000				
B2005469	T-PRUN VR SH SF CR 6'	EACH	44.000				

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FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
B2006116	T-SYRG PEK M TF 2	EACH	47.000				
B2006266	T-SYRING RET CL 6'	EACH	35.000				
B2006316	T-SYRG RT IS TF 2	EACH	29.000				
B2010070	T-CLADRASTIS KY 2	EACH	11.000				
B2013468	T-MALUS GRDC 2C TF BB	EACH	28.000				
C2000436	S-ARONIA ARB BRIL 3'	EACH	75.000				
C2011236	S-SYRING X PRS JM 3'	EACH	27.000				
D2002472	E-PINUS FLX VWP 6'	EACH	38.000				
D2003633	E-TAXUS MD HKS IY 3'	EACH	14.000				
E20210G1	V-PARTHEN QUIN EM 1G	EACH	2,346.000				
K0013030	P PL WETLND 2X4 DPPLG	UNIT	5.000				
K0029634	WEED CONTR PRE-EM GRN	POUND	50.000				
XX000970	PARKWAY RESTORATION	L SUM	1.000				
XX003516	CONN EX W MN NP 8	EACH	6.000				
XX003517	CONN EX W MN NP 6	EACH	13.000				

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Project Number
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Route
FAP 870/
FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
XX003531	WATER SER CONN 1	EACH	3.000				
XX003532	WATER SER CONN 1.5	EACH	7.000				
XX003668	PRECONSTRUCT VID TAP	L SUM	1.000				
XX003673	SANI SERV REP	EACH	3.000				
XX003778	FLUOR RUB VITON GASKT	EACH	25.000				
XX004689	SAN SERVICE ADJUSTED	EACH	4.000				
XX004997	WAT SER CONN 2	EACH	8.000				
XX005107	CONN EX W MN NP 12	EACH	7.000				
XX005478	D I WM 6 RJ	FOOT	430.000				
XX005479	D I WM 8 RJ	FOOT	230.000				
XX008401	BOX CULVERT REMOV	FOOT	526.000				
X0301423	NOISE AB WALL GRD MT	SQ FT	28,453.000				
X0321317	GRANULAR BACKFILL	CU YD	7,040.000				
X0322696	MAST ARM STL ST LT 15	EACH	15.000				
X0322782	SAN SEW PVC SDR 26 8	FOOT	140.000				

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FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0323005	AUX VALVE & VALVE BOX	EACH	9.000				
X0323160	VIDEO INSP OF SS	FOOT	7,344.000				
X0323792	LTG CONTR 1D CONS TY	EACH	2.000				
X0323840	WM LINE STOP 6	EACH	4.000				
X0323841	WM LINE STOP 8	EACH	4.000				
X0323842	WM LINE STOP 12	EACH	14.000				
X0325012	CONN EX W MN NP 10	EACH	1.000				
X0325134	WIRELESS INTERCON COM	EACH	3.000				
X0325318	LT WT CELL CONC FILL	CU YD	2,361.000				
X0325598	DRAIN SCUPPR DS-12M10	EACH	14.000				
X0325846	ABAND EX WATER MAIN	L SUM	1.000				
X0325885	STL CAS P AUG/JKD 36	FOOT	160.000				
X0327072	SAN SEW PVC SDR 26 15	FOOT	30.000				
X0327073	STL CAS P AUG/JKD 42	FOOT	110.000				
X0327083	ACCESS SHAFT	EACH	3.000				

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Code - 43 - -
District - 1 - -
Section Number - 532B

Project Number: ACF-0870/012/
Route: FAP 870/ FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0327084	AUX VLV BOX EXTENSION	FOOT	4.000				
X0327085	CASING PIPE OC 20 PVC	FOOT	30.000				
X0327086	SANITARY MANHOLE 1	EACH	1.000				
X0327087	SANITARY MANHOLE 2	EACH	1.000				
X0327088	SANITARY MANHOLE 3	EACH	1.000				
X0327089	SANITARY MANHOLE 4	EACH	1.000				
X0327090	SANITARY MANHOLE 5	EACH	1.000				
X0327091	SANITARY MANHOLE 6	EACH	1.000				
X0327094	VALVE BOX 6"	EACH	7.000				
X0327127	D I WTR MN FITTINGS	POUND	8,800.000				
X0327187	SS DIP CL 50 16	FOOT	30.000				
X0327188	D I WM 10 RJ	FOOT	20.000				
X0327189	D I WM 12 RJ	FOOT	1,510.000				
X0327190	STL CAS P AUG/JKD 24	FOOT	290.000				
X0327191	WATER MAIN REL 8	FOOT	4.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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Code - 43 - -
District - 1 - -
Section Number - 532B

Project Number
ACF-0870/012/

Route
FAP 870/
FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0327192	WATER MAIN REL 12	FOOT	15.000				
X0327193	SAN SEW GRND MOD/STAB	L SUM	1.000				
X0327194	SAN SEW PTMT INS 15	L SUM	1.000				
X0327195	CONCRETE PIPE CRADLE	EACH	2.000				
X0327196	CONN EX SAN MANHL SRR	EACH	1.000				
X0327197	CONN EX SAN MANH N AV	EACH	1.000				
X0327198	INSERTION VALVES 12	EACH	4.000				
X0327199	WATER MAIN HDD 12"	FOOT	535.000				
X0327200	MICROWV VEH SEN SSA	EACH	2.000				
X0327201	MICROWV VEH SEN SSM	EACH	4.000				
X0327202	CASING PIPE OC 24 PVC	FOOT	75.000				
X0327203	CASING PIPE OC 24 STL	FOOT	65.000				
X0327204	VALVE VAULT 4 DIA	EACH	7.000				
X0327205	VALVE VAULT 5 DIA	EACH	23.000				
X2070304	POROUS GRAN EMB SPEC	CU YD	251.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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Project Number
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Route
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FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X4021000	TEMP ACCESS- PRIV ENT	EACH	84.000				
X4022000	TEMP ACCESS- COM ENT	EACH	70.000				
X4023000	TEMP ACCESS- ROAD	EACH	23.000				
X4060826	P LB MM IL-4.75 N50	TON	441.000				
X4240500	PC CONC SIDEWALK SPL	SQ FT	3,852.000				
X4403800	MEDIAN SURF REMOVAL	SQ FT	3,993.000				
X5428800	CIP RC END SEC	CU YD	52.700				
X5539700	SS CLEANED	FOOT	7,344.000				
X6020088	MAN TA 8 DIA T1F CL	EACH	1.000				
X6020094	MAN TA 6D T1F CL R-P	EACH	11.000				
X6026050	SANITARY MANHOLE ADJ	EACH	52.000				
X6061930	CONC MED TSB6.18 MOD	SQ FT	11,642.000				
X6700410	ENGR FLD OFF A SPL	CAL MO	24.000				
X7010216	TRAF CONT & PROT SPL	L SUM	1.000				
X7030025	WET REF TEM TP T3 L&S	SQ FT	16,038.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X7030030	WET REF TEM TAPE T3 4	FOOT	448,624.000				
X7030040	WET REF TEM TAPE T3 6	FOOT	65,013.000				
X7030050	WET REF TEM TPE T3 12	FOOT	6,497.000				
X7030055	WET REF TEM TPE T3 24	FOOT	7,408.000				
X7810300	REC REF PVT MARKER	EACH	22.000				
X8302397	LT P A 25MH 15MA	EACH	4.000				
X8730250	ELCBL C 20 3C TW SH	FOOT	12,229.000				
X8900040	MOD TMP TR SIG INSTAL	EACH	2.000				
Z0001050	AGG SUBGRADE 12	SQ YD	246,425.000				
Z0007510	ENGINEERED BARRIER	SQ YD	1,410.000				
Z0013302	SEGMENT CONC BLK WALL	SQ FT	1,881.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0018800	DRAINAGE SYSTEM	L SUM	1.000				
Z0026407	TEMP SHT PILING	SQ FT	6,600.000				
Z0028462	GEOTEX RETAIN WALL	SQ FT	39.000				

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Project Number: ACF-0870/012/
Route: FAP 870/ FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
Z0030260	IMP ATTN TEMP FRN TL3	EACH	10.000				
Z0030330	IMP ATTN REL FRD TL3	EACH	6.000				
Z0030850	TEMP INFO SIGNING	SQ FT	3,132.000				
Z0033020	LUM SFTY CABLE ASMBLY	EACH	104.000				
Z0033046	RE-OPTIMIZE SIG SYS 2	EACH	15.000				
Z0042002	POROUS GRAN EMB SUBGR	CU YD	14,177.000				
Z0045000	PRESS CONNECT 12X6	EACH	2.000				
Z0048665	RR PROT LIABILITY INS	L SUM	1.000				
Z0054400	ROCK FILL	CU YD	219.000				
Z0056608	STORM SEW WM REQ 12	FOOT	5,981.000				
Z0056610	STORM SEW WM REQ 15	FOOT	700.000				
Z0056611	STORM SEW WM REQ 16	FOOT	590.000				
Z0056612	STORM SEW WM REQ 18	FOOT	675.000				
Z0056616	STORM SEW WM REQ 24	FOOT	2,046.000				
Z0056620	STORM SEW WM REQ 30	FOOT	518.000				

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Z0056622	STORM SEW WM REQ 36	FOOT	276.000				
Z0062456	TEMP PAVEMENT	SQ YD	53,453.000				
Z0067000	STEEL CASINGS 6	FOOT	125.000				
Z0073510	TEMP TR SIGNAL TIMING	EACH	14.000				
20101000	TEMPORARY FENCE	FOOT	4,029.000				
20101200	TREE ROOT PRUNING	EACH	48.000				
20101300	TREE PRUN 1-10	EACH	22.000				
20101350	TREE PRUN OVER 10	EACH	28.000				
20200100	EARTH EXCAVATION	CU YD	66,239.000				
20201200	REM & DISP UNS MATL	CU YD	52,540.000				
20300100	CHANNEL EXCAVATION	CU YD	413.000				
20400800	FURNISHED EXCAVATION	CU YD	2,730.000				
20800150	TRENCH BACKFILL	CU YD	26,986.000				
21001000	GEOTECH FAB F/GR STAB	SQ YD	3,161.000				
21101615	TOPSOIL F & P 4	SQ YD	92,858.000				

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21101625	TOPSOIL F & P 6	SQ YD	8,897.000				
21101630	TOPSOIL F & P 8	SQ YD	3,804.000				
21101645	TOPSOIL F & P 12	SQ YD	652.000				
21101685	TOPSOIL F & P 24	SQ YD	4,473.000				
21101805	COMPOST F & P 2	SQ YD	652.000				
25000210	SEEDING CL 2A	ACRE	0.900				
25000310	SEEDING CL 4	ACRE	1.800				
25000400	NITROGEN FERT NUTR	POUND	1,283.000				
25000600	POTASSIUM FERT NUTR	POUND	1,283.000				
25100630	EROSION CONTR BLANKET	SQ YD	135,298.000				
25200110	SODDING SALT TOLERANT	SQ YD	96,903.000				
25200200	SUPPLE WATERING	UNIT	180.800				
28000250	TEMP EROS CONTR SEED	POUND	101,017.000				
28000305	TEMP DITCH CHECKS	FOOT	885.000				
28000400	PERIMETER EROS BAR	FOOT	71,714.000				

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28000500	INLET & PIPE PROTECT	EACH	151.000				
28000510	INLET FILTERS	EACH	324.000				
28100107	STONE RIPRAP CL A4	SQ YD	721.000				
28200200	FILTER FABRIC	SQ YD	718.000				
35501308	HMA BASE CSE 6	SQ YD	3,349.000				
35501316	HMA BASE CSE 8	SQ YD	2,410.000				
35501321	HMA BASE CSE 9 1/4	SQ YD	952.000				
35501333	HMA BASE CSE 12 1/4	SQ YD	210.000				
40600100	BIT MATLS PR CT	GALLON	2,099.000				
40600300	AGG PR CT	TON	42.000				
40600895	CONSTRUC TEST STRIP	EACH	1.000				
40600982	HMA SURF REM BUTT JT	SQ YD	219.000				
40603310	HMA SC "C" N50	TON	646.000				
40603340	HMA SC "D" N70	TON	493.000				
40603595	P HMA SC "F" N90	TON	454.000				

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42000501	PCC PVT 10 JOINTED	SQ YD	211,911.000				
42001300	PROTECTIVE COAT	SQ YD	264,976.000				
42300200	PCC DRIVEWAY PAVT 6	SQ YD	884.000				
42300400	PCC DRIVEWAY PAVT 8	SQ YD	1,919.000				
42400200	PC CONC SIDEWALK 5	SQ FT	177,982.000				
42400300	PC CONC SIDEWALK 6	SQ FT	5,911.000				
42400410	PC CONC SIDEWALK 8	SQ FT	15,769.000				
42400800	DETECTABLE WARNINGS	SQ FT	4,998.000				
44000100	PAVEMENT REM	SQ YD	162,984.000				
44000158	HMA SURF REM 2 1/4	SQ YD	9,795.000				
44000200	DRIVE PAVEMENT REM	SQ YD	17,541.000				
44000500	COMB CURB GUTTER REM	FOOT	37,959.000				
44000600	SIDEWALK REM	SQ FT	65,706.000				
44003100	MEDIAN REMOVAL	SQ FT	106,810.000				
44004250	PAVED SHLD REMOVAL	SQ YD	1,614.000				

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44201723	CL D PATCH T4 6	SQ YD	1,750.000				
48101200	AGGREGATE SHLDS B	TON	589.000				
50105220	PIPE CULVERT REMOV	FOOT	257.000				
50200100	STRUCTURE EXCAVATION	CU YD	2,763.000				
50300225	CONC STRUCT	CU YD	798.300				
50300255	CONC SUP-STR	CU YD	3,480.500				
50300260	BR DECK GROOVING	SQ YD	7,195.000				
50300300	PROTECTIVE COAT	SQ YD	7,378.000				
50800205	REINF BARS, EPOXY CTD	POUND	1,111,880.000				
50800515	BAR SPLICERS	EACH	2,003.000				
51200959	FUR M S PILE 14X0.312	FOOT	20,006.000				
51202305	DRIVING PILES	FOOT	20,006.000				
51203200	TEST PILE MET SHELLS	EACH	14.000				
51500100	NAME PLATES	EACH	1.000				
52000110	PREF JT STRIP SEAL	FOOT	688.500				

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54010404	PCBC 4X4	FOOT	117.500				
54010606	PCBC 6X6	FOOT	119.000				
54213657	PRC FLAR END SEC 12	EACH	16.000				
54213660	PRC FLAR END SEC 15	EACH	27.000				
54213663	PRC FLAR END SEC 18	EACH	3.000				
54213675	PRC FLAR END SEC 30	EACH	4.000				
54213681	PRC FLAR END SEC 36	EACH	2.000				
54213693	PRC FLAR END SEC 48	EACH	2.000				
54213717	PRC FLAR END SEC 72	EACH	1.000				
54214512	PRC FL END S EQ RS 27	EACH	1.000				
54247150	GRATING-C FL END S 30	EACH	4.000				
54247170	GRATING-C FL END S 36	EACH	2.000				
54247190	GRATING-C FL END S 48	EACH	2.000				
54247230	GRATING-C FL END S 72	EACH	1.000				
54248140	GRT-C FL END S EQV 27	EACH	1.000				

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54248510	CONCRETE COLLAR	CU YD	6.000				
550A0050	STORM SEW CL A 1 12	FOOT	4,229.000				
550A0070	STORM SEW CL A 1 15	FOOT	1,609.000				
550A0090	STORM SEW CL A 1 18	FOOT	312.000				
550A0120	STORM SEW CL A 1 24	FOOT	311.000				
550A0140	STORM SEW CL A 1 30	FOOT	930.000				
550A0160	STORM SEW CL A 1 36	FOOT	110.000				
550A0190	STORM SEW CL A 1 48	FOOT	116.000				
550A0230	STORM SEW CL A 1 72	FOOT	126.000				
550A0340	STORM SEW CL A 2 12	FOOT	5,980.000				
550A0360	STORM SEW CL A 2 15	FOOT	2,889.000				
550A0380	STORM SEW CL A 2 18	FOOT	1,736.000				
550A0410	STORM SEW CL A 2 24	FOOT	4,246.000				
550A0430	STORM SEW CL A 2 30	FOOT	2,065.000				
550A0450	STORM SEW CL A 2 36	FOOT	2,065.000				

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550A0470	STORM SEW CL A 2 42	FOOT	2,349.000				
550A0480	STORM SEW CL A 2 48	FOOT	881.000				
550A0710	STORM SEW CL A 3 24	FOOT	552.000				
550A4200	SS CL A 1 EQRS 27	FOOT	98.000				
550A4710	SS CL A 1 EQRS 48	FOOT	180.000				
550B0310	STORM SEW CL B 2 6	FOOT	4.000				
550B0320	STORM SEW CL B 2 8	FOOT	2.000				
55100100	STORM SEWER REM 4	FOOT	93.000				
55100300	STORM SEWER REM 8	FOOT	63.000				
55100400	STORM SEWER REM 10	FOOT	328.000				
55100500	STORM SEWER REM 12	FOOT	9,055.000				
55100700	STORM SEWER REM 15	FOOT	3,540.000				
55100900	STORM SEWER REM 18	FOOT	1,644.000				
55101100	STORM SEWER REM 21	FOOT	251.000				
55101200	STORM SEWER REM 24	FOOT	3,462.000				

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55101400	STORM SEWER REM 30	FOOT	2,023.000				
55101600	STORM SEWER REM 36	FOOT	50.000				
55101800	STORM SEWER REM 42	FOOT	50.000				
55101900	STORM SEWER REM 48	FOOT	50.000				
56103300	D I WATER MAIN 12	FOOT	2,630.000				
56104900	WATER VALVES 6	EACH	4.000				
56105000	WATER VALVES 8	EACH	3.000				
56105200	WATER VALVES 12	EACH	20.000				
56106400	ADJ WATER MAIN 8	FOOT	300.000				
56106500	ADJ WATER MAIN 10	FOOT	300.000				
56106600	ADJ WATER MAIN 12	FOOT	300.000				
56106820	ADJ WATER MAIN 24	FOOT	300.000				
56200300	WATER SERV LINE 1	FOOT	140.000				
56200500	WATER SERV LINE 1 1/2	FOOT	390.000				
56200700	WATER SERV LINE 2	FOOT	500.000				

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56300100	ADJ SAN SEWER 8 LESS	FOOT	2,412.000				
56300200	ADJ SAN SEWER OVER 8	FOOT	300.000				
56300300	ADJ WATER SERV LINES	FOOT	5,309.000				
56400100	FIRE HYDNTS TO BE MVD	EACH	42.000				
56400300	FIRE HYDNTS TO BE ADJ	EACH	8.000				
56400400	FIRE HYDNTS RELOCATED	EACH	18.000				
56400600	FIRE HYDRANTS	EACH	1.000				
56400800	FIRE HYDNT & VAL MVD	EACH	6.000				
56400810	FIRE HYDRANT EXTEN	FOOT	12.000				
56400820	FIRE HYD W/AUX V & VB	EACH	10.000				
56500200	DOM WAT SER BOX MOVED	EACH	51.000				
56500600	DOM WAT SER BOX ADJ	EACH	43.000				
58700300	CONCRETE SEALER	SQ FT	6,340.000				
59300100	CONTR LOW-STRENG MATL	CU YD	50.000				
60107600	PIPE UNDERDRAINS 4	FOOT	720.000				

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60200105	CB TA 4 DIA T1F OL	EACH	5.000				
60200805	CB TA 4 DIA T8G	EACH	100.000				
60200905	CB TA 4 DIA T9F&G	EACH	2.000				
60201330	CB TA 4 DIA T23F&G	EACH	44.000				
60201340	CB TA 4 DIA T24F&G	EACH	255.000				
60204505	CB TA 5 DIA T8G	EACH	9.000				
60205030	CB TA 5 DIA T23F&G	EACH	1.000				
60205040	CB TA 5 DIA T24F&G	EACH	3.000				
60207605	CB TC T8G	EACH	16.000				
60208240	CB TC T24F&G	EACH	4.000				
60218400	MAN TA 4 DIA T1F CL	EACH	46.000				
60221000	MAN TA 5 DIA T1F OL	EACH	1.000				
60221100	MAN TA 5 DIA T1F CL	EACH	75.000				
60223800	MAN TA 6 DIA T1F CL	EACH	17.000				
60224446	MAN TA 7 DIA T1F CL	EACH	8.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
60236200	INLETS TA T8G	EACH	7.000				
60237470	INLETS TA T24F&G	EACH	1.000				
60250200	CB ADJUST	EACH	11.000				
60255500	MAN ADJUST	EACH	36.000				
60257900	MAN RECONST	EACH	7.000				
60260050	SAN MAN RECONST	EACH	8.000				
60260100	INLETS ADJUST	EACH	11.000				
60262700	INLETS RECONST	EACH	3.000				
60265700	VV ADJUST	EACH	49.000				
60266100	VV RECONST	EACH	7.000				
60266600	VALVE BOX ADJ	EACH	19.000				
60500040	REMOV MANHOLES	EACH	108.000				
60500050	REMOV CATCH BAS	EACH	65.000				
60500060	REMOV INLETS	EACH	102.000				
60600605	CONC CURB TB	FOOT	1,685.000				

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60602800	CONC GUTTER TB	FOOT	2,345.000				
60603500	COMB CC&G TB6.06	FOOT	277.500				
60603800	COMB CC&G TB6.12	FOOT	324.000				
60604400	COMB CC&G TB6.18	FOOT	11,252.500				
60605000	COMB CC&G TB6.24	FOOT	52,105.500				
60608300	COMB CC&G TM2.12	FOOT	2,940.000				
60608600	COMB CC&G TM6.06	FOOT	106.000				
60610400	COMB CC&G TM6.24	FOOT	246.000				
60618300	CONC MEDIAN SURF 4	SQ FT	31,389.000				
60624600	CORRUGATED MED	SQ FT	4,419.000				
60900515	CONC THRUST BLOCKS	EACH	19.000				
63000001	SPBGR TY A 6FT POSTS	FOOT	2,563.000				
63100045	TRAF BAR TERM T2	EACH	6.000				
63100085	TRAF BAR TERM T6	EACH	1.000				
63100167	TR BAR TRM T1 SPL TAN	EACH	8.000				

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63200310	GUARDRAIL REMOV	FOOT	417.000				
66900200	NON SPL WASTE DISPOSL	CU YD	7,468.000				
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000				
66900500	BETX SOIL ANALYSIS	EACH	1.000				
66900530	SOIL DISPOSAL ANALY	EACH	5.000				
67100100	MOBILIZATION	L SUM	1.000				
70103815	TR CONT SURVEILLANCE	CAL DA	730.000				
70106800	CHANGEABLE MESSAGE SN	CAL MO	68.000				
70300210	TEMP PVT MK LTR & SYM	SQ FT	1,797.000				
70300220	TEMP PVT MK LINE 4	FOOT	100,663.000				
70300240	TEMP PVT MK LINE 6	FOOT	7,607.000				
70300260	TEMP PVT MK LINE 12	FOOT	708.000				
70300280	TEMP PVT MK LINE 24	FOOT	456.000				
70301000	WORK ZONE PAVT MK REM	SQ FT	217,904.000				
70400100	TEMP CONC BARRIER	FOOT	1,550.000				

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70400200	REL TEMP CONC BARRIER	FOOT	1,200.000				
70500100	TEMP SPBGR TY A	FOOT	250.000				
70500615	TEMP TR BAR TERM T1	EACH	3.000				
70500625	TEMP TR BAR TERM T2	EACH	2.000				
72000100	SIGN PANEL T1	SQ FT	1,713.000				
72000200	SIGN PANEL T2	SQ FT	248.000				
72400100	REMOV SIN PAN ASSY TA	EACH	101.000				
72400200	REMOV SIN PAN ASSY TB	EACH	26.000				
72400310	REMOV SIGN PANEL T1	SQ FT	907.000				
72400320	REMOV SIGN PANEL T2	SQ FT	197.000				
72800100	TELES STL SIN SUPPORT	FOOT	2,724.000				
78000200	THPL PVT MK LINE 4	FOOT	3,424.000				
78000500	THPL PVT MK LINE 8	FOOT	237.000				
78000600	THPL PVT MK LINE 12	FOOT	123.000				
78000650	THPL PVT MK LINE 24	FOOT	110.000				

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78008200	POLYUREA PM T1 LTR-SY	SQ FT	6,750.000				
78008210	POLYUREA PM T1 LN 4	FOOT	55,870.000				
78008230	POLYUREA PM T1 LN 6	FOOT	32,466.000				
78008240	POLYUREA PM T1 LN 8	FOOT	933.000				
78008250	POLYUREA PM T1 LN 12	FOOT	1,922.000				
78008270	POLYUREA PM T1 LN 24	FOOT	2,657.000				
78100100	RAISED REFL PAVT MKR	EACH	2,478.000				
78100105	RAISED REF PVT MKR BR	EACH	72.000				
78200410	GUARDRAIL MKR TYPE A	EACH	33.000				
78201000	TERMINAL MARKER - DA	EACH	8.000				
78300100	PAVT MARKING REMOVAL	SQ FT	31,466.000				
78300200	RAISED REF PVT MK REM	EACH	852.000				
80400100	ELECT SERV INSTALL	EACH	2.000				
80400200	ELECT UTIL SERV CONN	L SUM	1.000		1,500.000		1,500.000
80500010	SERV INSTALL GRND MT	EACH	1.000				

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80500020	SERV INSTALL POLE MT	EACH	13.000				
81000600	CON T 2 GALVS	FOOT	21,853.000				
81000700	CON T 2 1/2 GALVS	FOOT	567.000				
81000800	CON T 3 GALVS	FOOT	829.000				
81001000	CON T 4 GALVS	FOOT	891.000				
81018500	CON P 2 GALVS	FOOT	5,047.000				
81018600	CON P 2 1/2 GALVS	FOOT	75.000				
81018700	CON P 3 GALVS	FOOT	4,655.000				
81018900	CON P 4 GALVS	FOOT	6,539.000				
81100600	CON AT ST 2 GALVS	FOOT	30.000				
81400100	HANDHOLE	EACH	93.000				
81400200	HD HANDHOLE	EACH	31.000				
81400300	DBL HANDHOLE	EACH	29.000				
81603090	UD 3#4#6GXLPUSE 1 1/4	FOOT	18,016.000				
81603115	UD 3#1 #1G XLPUSE 2	FOOT	2,373.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60477

State Job # - C-91-397-97
PPS NBR - 1-88120-2010
County Name - DUPAGE- -
Code - 43 - -
District - 1 - -
Section Number - 532B

Project Number
ACF-0870/012/

Route
FAP 870/
FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
81800290	A CBL 3-1C1/0 MESS W	FOOT	2,626.000				
81800415	A CBL 4-1C6 MESS WIRE	FOOT	2,395.000				
81900200	TR & BKFIL F ELECT WK	FOOT	39,866.000				
82102250	LUM SV HOR MT 250W	EACH	4.000				
82102400	LUM SV HOR MT 400W	EACH	141.000				
83050810	LT P A 47.5MH 15MA	EACH	89.000				
83057350	LT P WD 60 CL 4	EACH	5.000				
83057355	LT P WD 60 CL4 15MA	EACH	32.000				
83600200	LIGHT POLE FDN 24D	FOOT	930.000				
83800105	BKWY DEV TR B 11.5BC	EACH	4.000				
83800205	BKWY DEV TR B 15BC	EACH	89.000				
84100110	REM TEMP LIGHT UNIT	EACH	41.000				
84200500	REM LT UNIT SALV	EACH	42.000				
85000100	MAIN EX TR SIG INSTAL	WEEK	1.000				
85700205	FAC T4 CAB SPL	EACH	12.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
85700305	FAC T5 CAB SPL	EACH	2.000				
86000105	MASTER CONTROLLER SPL	EACH	2.000				
86200120	UNINTER POWER SUPPLY	EACH	14.000				
86400100	TRANSCEIVER - FIB OPT	EACH	14.000				
87100020	FOCC62.5/125 MM12SM12	FOOT	24,294.000				
87300925	ELCBL C TRACER 14 1C	FOOT	23,904.000				
87301215	ELCBL C SIGNAL 14 2C	FOOT	16,183.000				
87301225	ELCBL C SIGNAL 14 3C	FOOT	30,132.000				
87301245	ELCBL C SIGNAL 14 5C	FOOT	33,304.000				
87301255	ELCBL C SIGNAL 14 7C	FOOT	19,782.000				
87301305	ELCBL C LEAD 14 1PR	FOOT	42,232.000				
87301805	ELCBL C SERV 6 2C	FOOT	1,499.000				
87301900	ELCBL C EGRDC 6 1C	FOOT	11,569.000				
87502440	TS POST GALVS 10	EACH	4.000				
87502480	TS POST GALVS 14	EACH	12.000				

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Project Number
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Route
FAP 870/
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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
87502490	TS POST GALVS 15	EACH	1.000				
87502500	TS POST GALVS 16	EACH	26.000				
87502520	TS POST GALVS 18	EACH	2.000				
87700160	S MAA & P 24	EACH	1.000				
87700180	S MAA & P 28	EACH	2.000				
87700190	S MAA & P 30	EACH	1.000				
87700210	S MAA & P 34	EACH	3.000				
87700220	S MAA & P 36	EACH	1.000				
87700230	S MAA & P 38	EACH	5.000				
87700240	S MAA & P 40	EACH	3.000				
87700250	S MAA & P 42	EACH	5.000				
87700260	S MAA & P 44	EACH	2.000				
87700270	S MAA & P 46	EACH	1.000				
87700280	S MAA & P 48	EACH	4.000				
87700290	S MAA & P 50	EACH	1.000				

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Project Number
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Route
FAP 870/
FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
87700300	S MAA & P 52	EACH	2.000				
87700310	S MAA & P 54	EACH	2.000				
87700330	S MAA & P 56	EACH	5.000				
87700340	S MAA & P 58	EACH	1.000				
87700400	S MAA & P 60	EACH	3.000				
87700408	S MAA & P 64	EACH	1.000				
87700428	S MAA & P 74	EACH	1.000				
87702433	S MAA & P DMA 28 & 55	EACH	1.000				
87702970	STL COMB MAA&P 48	EACH	2.000				
87702980	STL COMB MAA&P 50	EACH	2.000				
87702990	STL COMB MAA&P 54	EACH	1.000				
87703010	STL COMB MAA&P 56	EACH	1.000				
87704554	S C MAA&P DMA 54 & 46	EACH	1.000				
87704559	S C MAA&P DMA 60 & 34	EACH	1.000				
87800100	CONC FDN TY A	FOOT	180.000				

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District - 1 - -
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Project Number
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Route
FAP 870/
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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
87800150	CONC FDN TY C	FOOT	56.000				
87800400	CONC FDN TY E 30D	FOOT	20.000				
87800415	CONC FDN TY E 36D	FOOT	541.000				
87800420	CONC FDN TY E 42D	FOOT	278.000				
87900200	DRILL EX HANDHOLE	EACH	1.000				
88001640	SH LED 3F2-3S 1-4S BM	EACH	1.000				
88030020	SH LED 1F 3S MAM	EACH	101.000				
88030050	SH LED 1F 3S BM	EACH	25.000				
88030080	SH LED 1F 4S MAM	EACH	1.000				
88030100	SH LED 1F 5S BM	EACH	22.000				
88030110	SH LED 1F 5S MAM	EACH	44.000				
88030210	SH LED 2F 3S BM	EACH	4.000				
88030220	SH LED 2F 5S BM	EACH	1.000				
88030240	SH LED 2F 1-3 1-5 BM	EACH	18.000				
88102717	PED SH LED 1F BM CDT	EACH	36.000				

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Project Number
ACF-0870/012/

Route
FAP 870/
FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
88102747	PED SH LED 2F BM CDT	EACH	18.000				
88102757	PED SH LED 3F BM CDT	EACH	4.000				
88200210	TS BACKPLATE LOU ALUM	EACH	146.000				
88500100	INDUCTIVE LOOP DETECT	EACH	135.000				
88600100	DET LOOP T1	FOOT	853.000				
88600700	PREFORM DETECT LOOP	FOOT	12,723.000				
88700200	LIGHT DETECTOR	EACH	24.000				
88700300	LIGHT DETECTOR AMP	EACH	7.000				
88800100	PED PUSH-BUTTON	EACH	80.000				
89000100	TEMP TR SIG INSTALL	EACH	12.000				
89501400	REL EM VEH PR SYS D U	EACH	14.000				
89501410	REL EM VEH PR SYS P U	EACH	7.000				
89502300	REM ELCBL FR CON	FOOT	6,768.000				
89502350	REM & RE ELCBL FR CON	FOOT	35.000				
89502375	REMOV EX TS EQUIP	EACH	12.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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County Name - DUPAGE- -
Code - 43 - -
District - 1 - -
Section Number - 532B

Project Number: ACF-0870/012/
Route: FAP 870/ FAU 2578

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
89502380	REMOV EX HANDHOLE	EACH	127.000				
89502385	REMOV EX CONC FDN	EACH	95.000				
89502500	REM TEMP TR SIG INST	EACH	2.000				

CONTRACT NUMBER **60477**

THIS IS THE TOTAL BID **$** _____

NOTES:

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

RETURN WITH BID

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

I. GENERAL

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

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

C. In addition to all other remedies provided by law, failure to comply with any assurance, failure to make any disclosure or the making of a false certification shall be grounds for the chief procurement officer to void the contract, or subcontract, and may result in the suspension or debarment of the bidder or subcontractor.

II. ASSURANCES

The assurances hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder.

A. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

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

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

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

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

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

The current salary of the Governor is $177,412.00. Sixty percent of the salary is $106,447.20.

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

B. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

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

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

C. Inducements

1. The Illinois Procurement Code provides:

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

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

D. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

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

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

E. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

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

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

F. Confidentiality

1. The Illinois Procurement Code provides:

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

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

G. Insider Information

1. The Illinois Procurement Act provides:

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

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

III. CERTIFICATIONS

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

A. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

B. Felons

1. The Illinois Procurement Code provides:

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

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

C. Debt Delinquency

1. The Illinois Procurement Code provides:

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

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

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.
The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

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

F. Educational Loan

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

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

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

G. Bid-Rigging/Bid Rotating

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

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

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

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

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

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

H. International Anti-Boycott

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

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

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

I. Drug Free Workplace

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

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

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

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

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

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

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

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

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

J. Disclosure of Business Operations in Iran

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

(1) More than 10% of the Company's revenues produced in or assets located in Iran involve oil-related activities or mineral-extraction activities; less than 75% of the Company's revenues produced in or assets located in Iran involve contracts with or provision of oil-related or mineral-extraction products or services to the Government of Iran or a project or consortium created exclusively by that government; and the Company has failed to take substantial action.

(2) The Company has, on or after August 5, 1996, made an investment of $20 million or more, or any combination of investments of at least $10 million each that in the aggregate equals or exceeds $20 million in any 12-month period, which directly or significantly contributes to the enhancement of Iran's ability to develop petroleum resources of Iran.

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

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

Check the appropriate statement:

/___/ Company has no business operations in Iran to disclose.

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

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

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

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.

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

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

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

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

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

M. Lobbyist Disclosure

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

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

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

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

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

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

Or

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

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

IV. DISCLOSURES

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

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

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Illinois Procurement Code provides that all bids of more than $25,000 shall be accompanied by disclosure of the financial interests of the bidder. This disclosed information for the successful bidder, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act, filed with the Procurement Policy Board, and shall be incorporated as a material term of the contract. Furthermore, pursuant to Section 5-5, the Procurement Policy Board may review a proposal, bid, or contract and issue a recommendation to void a contract or reject a proposal or bid based on any violation of the Procurement Code or the existence of a conflict of interest as provided in subsections (b) and (d) of Section 50-35.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.
The current annual salary of the Governor is $177,412.00.

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

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

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

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO ___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES ___ NO
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the bidding entity's or parent entity's distributive income? YES ___ NO __
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO __

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

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

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

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

Disclosure Form B must be completed for each bid submitted by the bidding entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, checked, and dated or the bidder may be considered nonresponsive and the bid will not be accepted.*

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

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

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

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A
Financial Information & Potential Conflicts of Interest Disclosure

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

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Code (30 ILCS 500). Vendors desiring to enter into a contract with the State of Illinois must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for bids in excess of $25,000, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)

NAME: _____

ADDRESS _____

_____

Type of ownership/distributable income share:

stock _____ sole proprietorship _____ Partnership _____ other: (explain on separate sheet):

% or $ value of ownership/distributable income share: _____

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

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

Yes ___ No __

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

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No __

2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor provide the name the State agency for which you are employed and your annual salary. _____

_____

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor? Yes ___ No __

4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15% in aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___ No __

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment 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 State Toll Highway Authority? Yes ___No __

2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of 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 60% of the annual salary of the Governor, are you entitled to receive (i) more than 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess 100% of the annual salary of the Governor? Yes ___ No __

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or 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 two 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 statues of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years. Yes ___No __

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

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

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

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

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

---

3. Communication Disclosure.

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

Name and address of person(s): _____

_____

_____

_____

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

Name of person(s): _____

Nature of disclosure: _____

_____

_____

_____

APPLICABLE STATEMENT

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

Completed by: ☐ _____ _____

Signature of Individual or Authorized Representative — Date

NOT APPLICABLE STATEMENT

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

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

☐ _____ _____

Signature of Authorized Representative — Date

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

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Other Contracts & Procurement Related Information Disclosure

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

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for bids in excess of $25,000, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The BIDDER shall identify whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes ___ No __
If "No" is checked, the bidder only needs to complete the signature box on the bottom of this page.

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

THE FOLLOWING STATEMENT MUST BE CHECKED

☐ _____ _____
Signature of Authorized Representative Date

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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.

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Illinois Department of Transportation

Contract No. 60477
DUPAGE County
Section 532B
Project ACF-0870(012)
Route FAP 870
District 1 Construction Funds

PART I. IDENTIFICATION

Dept. Human Rights # _____ Duration of Project: _____

Name of Bidder: _____

PART II. WORKFORCE PROJECTION

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

TABLE A

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

TABLE C

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

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

FOR DEPARTMENT USE ONLY

BC 1256 (Rev. 12/11/08)

Note: See instructions on page 2

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. 60477
DUPAGE County
Section 532B
Project ACF-0870(012)
Route FAP 870
District 1 Construction Funds

PROPOSAL SIGNATURE SHEET

The undersigned bidder hereby makes and submits this bid on the subject Proposal, thereby assuring the Department that all requirements of the Invitation for Bids and rules of the Department have been met, that there is no misunderstanding of the requirements of paragraph 3 of this Proposal, and that the contract will be executed in accordance with the rules of the Department if an award is made on this bid.

Firm Name _____

(IF AN INDIVIDUAL) Signature of Owner _____

Business Address _____

_____

Firm Name _____

By _____

(IF A CO-PARTNERSHIP) Business Address _____

_____

Name and Address of All Members of the Firm:

_____ _____

Corporate Name _____

By _____
Signature of Authorized Representative

(IF A CORPORATION)

_____
Typed or printed name and title of Authorized Representative

Attest _____
Signature

(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW) Business Address _____

Corporate Name _____

By _____
Signature of Authorized Representative

(IF A JOINT VENTURE)

_____
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.

Illinois Department of Transportation

Return with Bid

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

Item No. _____

Letting Date _____

KNOW ALL MEN BY THESE PRESENTS, That We _____

_____

as PRINCIPAL, and _____

_____ as SURETY, are held jointly, severally and firmly bound unto the STATE OF ILLINOIS in the penal sum of 5 percent of the total bid price, or for the amount specified in Article 102.09 of the "Standard Specifications for Road and Bridge Construction" in effect on the date of invitation for bids, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

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

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

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

In TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by

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

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

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
County of _____

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

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

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

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

My commission expires _____ _____
Notary Public

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

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

Illinois Department of Transportation

DBE Utilization Plan

(1) Policy

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

(2) Obligation

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

(3) Project and Bid Identification

Complete the following information concerning the project and bid:

Route _____ Total Bid _____

Section _____ Contract DBE Goal _____ (Percent) _____ (Dollar Amount)

Project _____

County _____

Letting Date _____

Contract No. _____

Letting Item No. _____

(4) Assurance

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

☐ Meets or exceeds contract award goals and has provided documented participation as follows:

Disadvantaged Business Participation _____ percent

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

☐ Failed to meet contract award goals and has included good faith effort documentation to meet the goals and that my company has provided participation as follows:

Disadvantaged Business Participation _____ percent

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

_____
Company

By _____

Title _____

Date _____

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

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

Bureau of Small Business Enterprises
2300 South Dirksen Parkway
Springfield, Illinois 62764

Local Let Projects
Submit forms to the
Local Agency

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

Illinois Department of Transportation

DBE Participation Statement

Subcontractor Registration _____ Letting _____

Participation Statement Item No. _____

(1) Instructions Contract _____

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

(2) Work

Pay Item No.	Description	Quantity	Unit Price	Total
			Total	

(3) Partial Payment Items

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

(4) Commitment

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

_____ _____

Signature for Prime Contractor Signature for DBE Firm

Title _____ Title _____

Date _____ Date _____

Contact _____ Contact Person _____

Phone _____ Phone _____

Firm Name _____ Firm Name _____

Address _____ Address _____

City/State/Zip _____ City/State/Zip _____

E _____

WC _____

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

PROPOSAL ENVELOPE

Illinois Department of Transportation

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. 60477
DUPAGE County
Section 532B
Project ACF-0870(012)
Route FAP 870
District 1 Construction Funds

Illinois Department of Transportation

SUBCONTRACTOR DOCUMENTATION

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

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

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

RETURN WITH SUBCONTRACT

STATE ETHICAL STANDARDS GOVERNING SUBCONTRACTORS

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

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

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

A. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

B. Felons

1. The Illinois Procurement Code provides:

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

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

RETURN WITH SUBCONTRACT

C. Debt Delinquency

1. The Illinois Procurement Code provides:

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

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

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.
The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction.. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

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

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

_____
Name of Subcontracting Company

_____ _____
Authorized Officer Date

RETURN WITH SUBCONTRACT

SUBCONTRACTOR DISCLOSURES

I. DISCLOSURES

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

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

B. Financial Interests and Conflicts of Interest

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

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the subcontracting entity or its parent entity, whichever is less, unless the subcontractor is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.
The current annual salary of the Governor is $177,412.00.

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

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

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

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES ___ NO___
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the subcontracting entity's or parent entity's distributive income? YES ___ NO __

   (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.)
4. Does anyone in your organization receive greater than 5% of the subcontracting entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO __

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

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

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

RETURN WITH SUBCONTRACT

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

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

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

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

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

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

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Code (30 ILCS 500). Subcontractors desiring to enter into a subcontract of a State of Illinois contract must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for subcontracts with a total value of $25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)

NAME: _____

ADDRESS _____

_____

Type of ownership/distributable income share:

stock _____ sole proprietorship _____ Partnership _____ other: (explain on separate sheet):

% or $ value of ownership/distributable income share: _____

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

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

Yes ___ No __

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

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No __

2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, provide the name the State agency for which you are employed and your annual salary. _____

_____

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor?
   Yes ___No __

4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___No __

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

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

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___No __

2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of your spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____
   _____

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of of 100% of the annual salary of the Governor? Yes ___No __

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor?
   Yes ___No __

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes ___No __

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___No __

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

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

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

(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 __

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3. Communication Disclosure.

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

Name and address of person(s): _____

_____

_____

_____

RETURN WITH SUBCONTRACT

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

Name of person(s): _____

Nature of disclosure: _____

_____

_____

_____

APPLICABLE STATEMENT

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

Completed by: ☐ _____ _____

Signature of Individual or Authorized Officer — Date

NOT APPLICABLE STATEMENT

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

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

☐ _____ _____

Signature of Authorized Officer — Date

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Subcontractor: Other Contracts & Procurement Related Information Disclosure

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

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for subcontracts with a total value of $25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS, SUBCONTRACTS, AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The SUBCONTRACTOR shall identify whether it has any pending contracts, subcontracts, including leases, bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes ___ No __
If "No" is checked, the subcontractor only needs to complete the signature box on the bottom of this page.

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

THE FOLLOWING STATEMENT MUST BE CHECKED

☐ _____ _____
Signature of Authorized Officer Date

Illinois Department of Transportation

NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway, in Springfield, Illinois until 10:00 o'clock a.m., March 11, 2011. All bids will be gathered, sorted, publicly opened and read in the auditorium at the Department of Transportation's Harry R. Hanley Building shortly after the 10:00 a.m. cut off time.

2. **DESCRIPTION OF WORK**. The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

   Contract No. 60477
   DUPAGE County
   Section 532B
   Project ACF-0870(012)
   Route FAP 870
   District 1 Construction Funds

4.10 miles of roadway reconstruction, additional lanes, dry land bridge construction, traffic signal modernization and interconnect on IL Route 53 from Army Trail Road to the Elgin O'Hare Expressway in Itasca and Addison.

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

   (b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.

4. **AWARD CRITERIA AND REJECTION OF BIDS**. This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Gary Hannig,
Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2011

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

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

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

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

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2007, (hereinafter referred to as the Standard Specifications); the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways" in effect on the date of invitation for bids and the "Supplemental Specifications and Recurring Special Provisions," adopted January 1, 2010, which apply to and govern the construction of FAP 870/FAU 2578 (IL 53), Section ACF-0870 (012), in DuPage County, Contract 60477, and in case of conflict with any or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF IMPROVEMENT

This improvement begins at a point on the centerline of Illinois Route 53 (FAP Route 870/FAU Route 2578) at Army Trail Road and extends approximately 4.1 miles north to the Elgin O'Hare Expressway. The improvement is located in the Villages of Itasca and Addison.

DESCRIPTION OF IMPROVEMENT

The proposed improvements will consist of the widening and reconstruction of Illinois Route 53 to four lanes with a barrier median. Other items of work include new combination concrete curb and gutter, a closed drainage system, traffic signal modernization, traffic signal interconnect, noise walls, a dry land bridge, pavement markings, and all incidental and collateral work necessary to complete the improvement as shown on the plans and as described herein.

MAINTENANCE OF ROADWAYS

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

Beginning on the date that work begins on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer, but shall not include snow removal operations. Traffic control and protection for maintenance of roadways will be provided by the Contractor as required by the Engineer.
If items of work have not been provided in the contract, or otherwise specified for payment, such items, including the accompanying traffic control and protection required by the Engineer, will be paid for in accordance with Article 109.04 of the Standard Specifications.

STATUS OF UTILITIES TO BE ADJUSTED

Effective: January 30, 1987 Revised: July 1, 1994

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

Name of Utility	Type	Location	Estimated Dates for Start and Completion of Relocation or Adjustments
Nicor	2", 4", and 6" Gas Mains	Various locations	
AT&T	Telephone Cable (underground)	Various locations	
Cable TV Comcast	Cable	(West side)-Sta. 49+30, Sta. 83+50, Sta. 102+75, Sta. 149+00- 150+00 (East side)-Sta. 169+80-183+80	
DuPage Water Commission	24" DIP Water Main		
DuPage County Public Works	Sanitary		
Village of Addison (water, sanitary)	Water Fire Hydrants Sanitary Manhole adjustments	Various locations	Part of construction contract
Village of Itasca (water, sanitary)	Water Fire Hydrants Sanitary	Various locations	Part of construction contract
ComEd	Power (underground)	Various locations	Approximately 3,600 feet of cable, 2 manholes, and 2 pad mount transformers will be in conflict with another 26 possible conflicts
ComEd	Aerial	Various locations	Approximately 96 poles are in conflict

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

Upon written notice from the Department, utilities have 90 days to relocate their facilities. The 90-day written notice will be sent out after the following occurs: 1) Right-of-way is clear for award. 2) Final plans have been sent out. 3) Utility permit received and the Department ready to issue permit. 4) If the permit has not been submitted, a 15 day letter notifying the utility company that they have 15 days to provide their permit application and the lapse of that time. Utilities may request a waiver in writing during the 90-day relocation period with a proposed schedule.

START OF WORK RESTRICTION

This project requires substantial utility relocation work to permit the construction of the proposed improvements. See Status of Utilities section of special provisions for additional information. The Contractor will not be allowed to proceed with any construction operations prior to **May 2, 2011** without approval from the Engineer.

Work will be permitted to start in isolated sections of the project area where utility relocation work has been completed. If the contractor elects to proceed with work in one of these isolated sections, an interim traffic control plan will need to be submitted for review and approval by the engineer. All costs incurred for the necessary interim traffic control measures will be borne by the Contractor.

COMPLETION DATE PLUS WORKING DAYS
Effective: September 30, 1985 Revised: January 1, 2007

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

"When a completion date plus working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by **11:59 PM on** October 31, 20**12** except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within **10** working days after the completion date for opening the roadway to traffic. Under extenuating circumstances the Engineer may direct that certain items of work, not affecting the safe opening of the roadway to traffic, may be completed within the working days allowed for clean-up work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

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

INTERIM COMPLETION DATE

In order to not delay the utility relocations for the project, the Contractor shall complete all tree removals 30 calendar days after the notice-to-proceed.

Article 108.09 “Failure to Complete the Work on Time” shall apply to this interim completion date.

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

POROUS GRANULAR EMBANKMENT, SUBGRADE
Effective: September 30, 1985 Revised: August 1, 2008

This work consists of furnishing, placing, and compacting porous granular material to the lines and grades shown on the plans or as directed by the Engineer in accordance with applicable portions of Section 207 of the Standard Specifications.

The material shall be used as a bridging layer over soft, pumpy, loose soil and for placing under water and shall conform with Article 1004.05 of the Standard Specifications except the gradation shall be as follows:

1. Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete

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

2. Gravel** and Crushed Gravel

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

* For undercut greater than18 inches (450 mm) the percent passing the 6 inch (150 mm) sieve may be 90 ± 10 and the 4 inch (100 mm) sieve requirements eliminated.

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

The porous granular material shall be placed in one lift when the total thickness to be placed is 2 feet (600 mm) or less or as directed by the Engineer. Each lift of the porous granular material shall be rolled with a vibratory roller meeting the requirements of Article 1101.01(g) of the Standard Specifications to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

A 3 inch (75 mm) nominal thickness top lift of capping aggregate having a gradation of CA 6 will be required when Aggregate Subgrade is not specified in the contract and Porous Granular Embankment, Subgrade will be used under the pavement and shoulders. Capping aggregate will not be required when embankment meeting the requirements of Section 207 of the Standard Specifications or granular subbase is placed on top of the porous granular material.

Construction equipment not necessary for the completion of the replacement material will not be allowed on the undercut areas until completion of the recommended thickness of the porous granular embankment subgrade.

Full depth subgrade undercut should occur at limits determined by the Engineer. A transition slope to the full depth of undercut shall be made outside of the undercut limits at a taper of 1 foot (300 mm) longitudinal per 1 inch (25 mm) depth below the proposed subgrade or bottom of the proposed aggregate subgrade when included in the contract.

Method of Measurement. This work will be measured for payment in accordance with Article 207.04 of the Standard Specifications.

When specified on the contract, the theoretical elevation of the bottom of the aggregate subgrade shall be used to determine the upper limit of Porous Granular Embankment, Subgrade. The volume will be computed by the method of average end areas.

Basis of Payment. This work shall be paid for at the contract unit price per cubic yard (cubic meter) for POROUS GRANULAR EMBANKMENT, SUBGRADE.

The Porous Granular Embankment, Subgrade shall be used as field conditions warrant at the time of construction. No adjustment in unit price will be allowed for an increase or decrease in quantities from the estimated quantities shown on the plans.

AGGREGATE SUBGRADE, 12" (300 MM)
Effective: May 1, 1990 Revised: August 1, 2008

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

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

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

2. Gravel* and Crushed Gravel

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

3. Crushed Concrete with Bituminous Materials**

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

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

** The Bituminous material shall be separated and mechanically blended with the crushed concrete so that the bituminous material does not exceed 40% of the final products.

The top size of the bituminous material in the final product shall be less than 4 inches (100 mm) and shall not contain more than 10.0% steel slag RAP or any material that is considered expansive by the Department.

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

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

Method of Measurement.

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

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

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

AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS
Effective: April 1, 2001 Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:

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

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

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

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

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

Add the following to Article 402.12 of the Standard Specifications:

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

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

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

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

(a) Upon construction of the temporary access, sixty percent of the contract unit price per each, of the type constructed, will be paid.

(b) Subject to the approval of the Engineer for the adequate maintenance and removal of the temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access."

BACKFILLING STORM SEWER UNDER ROADWAY
Effective: September 30, 1985 Revised: July 2, 1994

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

WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT)
Effective: February 1, 1996 Revised: January 1, 2007

Specific traffic control plan details and Special Provisions have been prepared for this contract. This work shall include all labor, materials, transportation, handling and incidental work necessary to furnish, install, maintain and remove all traffic control devices required as indicated in the plans and as approved by the Engineer.

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

Basis of Payment: All traffic control and protection will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

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

TRAFFIC CONTROL PLAN
Effective: September 30, 1985 Revised: January 1, 2007

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

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

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

SUGGESTED STAGES OF CONSTRUCTION AND TRAFFIC CONTROL PLAN SHEETS.

STANDARDS:

701006, 701011, 701201, 701311, 701321, 701326, 701336, 701501, 701602, 701606, 701701, 701801, 701901, and 704001

DETAILS:

TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS AND DRIVEWAYS (TC 10)
RAISED REFLECTIVE PAVEMENT MARKERS (SNOW PLOW RESISTANT) (TC-11)
DISTRICT ONE TYPICAL PAVEMENT MARKINGS (TC-13)
TRAFFIC CONTROL AND PROTECTION AT TURN BAYS (TO REMAIN OPEN TO TRAFFIC) (TC 14)
PAVEMENT MARKING LETTERS AND SYMBOLS FOR TRAFFIC STAGING (TC 16)
SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS (TC 18)
ARTERIAL ROAD INFORMATION SIGN (TC 22)

SIGNING AND PAVEMENT MARKING TREATMENT FOR RAILROAD CROSSINGS (TC-23)

SPECIAL PROVISIONS:

Work Zone Traffic Control
Traffic Control Plan
Temporary Pavement
Type III Temporary Tape for Wet Conditions
Temporary Information Signing
Traffic Control for Work Zone Areas
Pavement Marking Removal (BDE)
Post Mounting of Signs
Maintenance of Roadways
Truck Mounted/Trailer Mounted Attenuators

SUPPLEMENTAL SPECIFICATIONS – Work Zone Traffic Control Devices

CONCRETE NOISE ABATEMENT WALLS (ABSORPTIVE AND REFLECTIVE) (DIST 1)
Effective: September 5, 2008 Revised: July 25, 2010

This work shall consist of furnishing the design, shop drawings, materials, post anchorage, and construction of noise abatement walls (noise walls) according to these special provisions, the contract plans and and/or as directed by the Engineer.

General. The noise abatement walls shall consist of panels spanning between vertical posts supported by concrete foundations (ground mounted) or attached to/supported by another structure (structure mounted) as shown on the plans. The design, material, fabrication and construction shall comply with this Special Provision and the requirements specified by the noise wall supplier selected by the Contractor for use on this project. The walls shall have no omissions or gap except as detailed.

The Contractor shall verify the locations for proposed ground mounted wall for conflicts and realign or redesign the wall to avoid any conflicts. The Contractor shall inform the Engineer in writing of any conflicts before realigning or redesigning the wall.

Post spacing shall avoid existing and proposed underground utilities and storm sewers.

Wall components shall be fabricated and erected to produce a precast concrete reflective noise wall system and/or an absorptive noise reduction system at the locations indicated herein. The noise reduction system shall satisfy the acoustical requirements stated in these special provisions. An absorptive noise reduction system may be used as an alternate to a reflective noise wall system. Wooden walls will not be allowed as substitutes.

All appurtenances behind, in front of, under, over, mounted upon, or passing through, such as drainage structures, fire hydrant access, highway signage, emergency access, utilities, and storm sewers shall be accounted for in design of the wall.

Submittals. The Contractor shall prepare a wall and foundation design submittal and submit to the Engineer; the Department's Bureau of Bridges and Structures will review the submittal for approval.

The noise walls shall be designed and constructed to extend to the minimum lines, grades and dimensions of the wall envelope, with no omissions or gaps, as shown on the contract plans and as directed by the Engineer.

Complete design calculations for wall panels, posts, foundations, and all connections and shop drawings shall be submitted to the Department for review and approval no later than 90 days prior to beginning construction of the wall. The time required for the preparation and review of these submittals shall be charged to the allowable contract time. Delays caused by untimely submittals or insufficient data will not be considered justifications for any time extensions. No additional compensation will be made for any additional material, equipment or other items found necessary to comply with the project specifications as a result of the Engineer's review. The Contractor will be required to submit the necessary shop drawings. All submittals shall be signed and sealed by a Structural Engineer licensed in Illinois.

Submittals shall include all details, dimensions, quantities and cross sections necessary for the construction of the noise abatement walls and will include but not be limited to:

(1) A plan view of the wall indicating the stations and offsets required to locate the drilled shaft foundations. The proposed foundation diameter(s) and spacing(s) shall be indicated with all changes to the horizontal alignment shown. Each panel and post shall be numbered and any changes in type or size shall be noted. The centerline of any utilities passing under the wall and locations of expansion joints, access doors, lighting, signing, curb cuts, and drainage structures shall also be shown.

(2) An elevation view of the wall, indicating the elevations of the top of the posts and panels as well as the elevations of the bottom of the panels, tops of the shaft foundations, all steps in wall system, the finished grade line, and vertical clearances to existing utilities and storm sewers. Each post size and length, panel type and size, and foundation depth shall be designated.

(3) A typical cross section(s) that shows the panel, post, foundation or bridge parapet, and the elevation relationship between existing ground conditions and the finished grade as well as slopes adjacent to the wall.

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

(5) All details for the steps in the bottom of panels shall be shown. The bottom of the panels shall be located at or below the theoretical bottom of panel line shown on the contract plans. The theoretical bottom of panel line is assumed to be 8 in (200 mm) below the finished grade line at front face of the wall for ground mounted noise walls and at the top of the structure for structure mounted noise walls, unless otherwise shown on the contract plans.

(6) Tops of the panels and posts shall extend to or above the theoretical top of wall line shown on the contract plans. All panel tops shall be cast and placed horizontally with any changes in elevation accomplished by stepping adjacent panel sections at posts. Steps shall not exceed 1 ft (300 mm) in height, except within the last 50 ft (15 m) where 2 ft (600 mm) steps will be permitted.

(7) All panel types shall be detailed. The details shall show panel orientation, all dimensions necessary to cast and fabricate each type of panel, the reinforcing steel, and location of post or foundation connection hardware as well as lifting devices embedded in the panels and posts. The Noise Reduction Coefficient (NRC) of each panel of the absorptive face shall be noted.

(8) All post types shall be detailed. The details shall show all dimensions necessary to cast and/or fabricate each type of post, the reinforcing steel, connecting plates, and anchorage details. Post spacing for walls shall be limited to a distance that does not over stress the supporting structure.

(9) Details of wall panels with appurtenances attached to or passing through the wall, as shown on the contract plans, such as utilities, emergency access doors, framed openings, drainage structures, signs, etc. shall be shown. Any modifications to the design or location of these appurtenances to accommodate a particular system shall also be submitted.

(10) All architectural panel treatment, including color, texture and form liner patterns shall be shown. All joints shall be placed horizontal or vertical.

(11) The details for the connection between panels and posts as well as their connection to the foundation, independent beam, retaining wall, and/or bridge parapet shall be shown. Foundation details including details showing the dimensions, reinforcement and post anchorage system for the drilled shaft foundations shall be shown.

(12) Testing, certifications and reports from independent laboratories showing that the panel's sound Transmission Loss (TL) and NRC for the panel and post deflection satisfy the criteria shown in the design criteria section of this specification. The testing for the flame spread, smoke density and freeze-thaw/salt scaling requirements described in the materials section of this specification shall also be submitted.

(13) Manufacturer recommended installation requirements, a sequence of construction and a detailed bill of materials shall be included.

(14) The color of the wall panels and support posts identified by Federal Standard 595-B color number.

The Contractor shall deliver to the Department, attention Mr. Rick Wanner (847-705-4172), a 2 ft x 2 ft (600 mm x 600 mm) sample of the colors, textures and patterns proposed for use on the project for approval. The samples must be made at the same plant that will be making the product for the noise walls under this contract and be representative of those which will be tested per this specification. Once the color sample is approved, a batch shall be designated by batch number and date and will remain the standard for the entire project.

The Contractor shall submit site access plans showing access and limits of the work areas for the installation of the wall. Any required traffic controls shall be according to the requirements in the special provision for TRAFFIC CONTROL PLAN.

The initial submittal shall include three (3) sets of shop drawings and calculations. One set of drawings will be returned to the Contractor with any corrections indicated. The Contractor shall do no work or ordering of materials for the structure until the Engineer has approved the submittal.

Design Criteria. The wall system shall be designed to withstand wind pressure, applied perpendicular to the panels in either direction, according to the AASHTO Guide Specifications for Structural Design of Sound Barriers, 1989 and interims. The concrete and steel components shall be designed according to the AASHTO Standard Specifications for Highway Bridges with a design life of 35 years unless otherwise noted. The wall system shall be designed to withstand active earth pressure and live load surcharge at locations indicated on the plans. The contractor shall be responsible for the structural adequacy of the panels, posts, foundations and connections as well as overall wall overturning stability. Prestressed and/or post tensioned panel concepts will not be permitted.

The design wind loading shall be as specified on the plans but not less than 35 psf (1.7 kN/m^2) when located on bridge structures, retaining walls or traffic barriers. This loading can be reduced to 25 psf (1.2 kN/m^2) for ground mounted walls where it is located more than a distance equal to the height of the wall away from the edge of pavement. When a sound wall is also required to support earth pressures, the service design active earth pressure shall be based on an equivalent fluid pressure of 40 pounds per cubic foot (641 kg/m^3) and a live load surcharge pressure equal to not less than 2 feet (600 mm) of earth pressure. The earth pressure fill height shall be defined by the proposed grade line elevation and the theoretical bottom of panel line. For structure mounted noise walls, the dead weight must not exceed 55 psf (2.6 kPa) of wall face area.

For ground mounted walls, Reinforcement of the concrete foundation shafts shall consist of a minimum of 8-#5 (#15) vertical bars symmetrically placed and tied with #3 (#10) ties at 6 in. (150 mm) centers. An additional tie shall be provided at the top and bottom of the foundation. As an alternative to the ties, a #3 (#10) spiral at a 6 in. (150 mm) pitch with an additional 1 1/2 turns at the top and bottom of the foundation or an equivalent 4 x 4 – W12.3 x W7.4 welded wire fabric may be substituted. The post shall be connected to the foundation by embedding the post inside the concrete foundation shaft. Embedded posts shall extend into the foundation shafts a minimum of 80 percent of the shaft length. The posts may alternatively be mounted to the foundation shafts with base plates and anchor bolts as required by design. The minimum number of anchor bolts per post shall be 4-1 in. (M24) diameter bolts with a minimum embedment of 18 in. (450 mm).

The material and construction of the foundations (drilled shafts) for ground mounted noise walls shall be according to Section 516 except that the payment for the drilled shaft and reinforcement will be included with the payment for the NOISE ABATEMENT WALL, GROUND MOUNTED.

The shaft foundation dimensions shall be determined using Broms method of analysis. Soil borings from prior soil investigations are shown in the plans. The design shall utilize a factor of safety of 2.0, applied to the soil shear strength if cohesive or the unit weight if granular, and account for the effects of a sloping ground surface and water table indicated on the plans. The following should be assumed for the foundation design:

Effective unit weight	70 pcf (1120 kg/m^3)
Internal friction angle	30 degrees from Station 83+50 to Station 175+50
	27 degrees from Station 175+50 to Station 178+00
Cohesion intercept	0 ksf (0 kg/m^3)

The post spacing for structure mounted noise walls shall be as shown on the plans but in no case greater than 15 feet (4.6 m) center to center.

Except where otherwise indicated on the plans, the maximum post spacing for ground mounted noise walls shall be as specified in the Contractor's approved design.

The maximum allowable panel deflection shall be no more than the panel length (L) divided by 240 (L/240). The vertical posts shall have a maximum deflection of (H/180) where H is the height of the post above the foundation. A lateral load report shall be submitted to the Engineer indicating that the above noted design lateral loads can be applied to the panels and/or posts without exceeding noted deflection tolerance. The test shall apply lateral loads to the panel simulating uniform wind pressure.

The design shall account for the presence of all appurtenances mounted on or passing through the wall such as drainage structures, existing or proposed utilities, emergency access doors and other items.

Corrugations, ribs or battens on the panel must be oriented vertically when erected. The panels shall be designed to prevent entrapment and ponding of water. The walls shall not have openings allowing the perching or nesting of birds or the collection of dirt, debris or water.

The walls shall not have handholds or grips promoting climbing of the walls. Any bolts or fasteners used to connect material to the supporting panel, posts, or foundations shall be recessed or embedded in concrete, hidden from view and weather exposure. No external mechanical fastening devices such as frames or clips shall be used for these connections. The post to foundation connection shall utilize a corrosion protection system that is designed to last 75 years.

The noise abatement material shall be designed to achieve a sound TL equal to or greater than 20 dB in all one-third octave bands from 100 hertz to 5000 hertz, inclusive, when tested according to ASTM E-90. The sound absorptive material shall have a minimum NRC as indicated in Table 1.

Table 1

Noise Wall No.	From	To	Noise Wall Side	NRC*	Comments
Wall #1	Sta. 83+50	Sta. 89+00	Main Route	Reflective	
	Sta. 83+50	Sta. 89+00	Residential	Reflective	
Wall #2	Sta. 90+00	Sta. 96+00	Main Route	Absorptive - 0.80	
	Sta. 90+00	Sta. 96+00	Residential	Reflective	
Wall #3	Sta. 88+55	Sta. 94+50	Main Route	Absorptive - 0.80	
	Sta. 88+55	Sta. 94+50	Residential	Reflective	
Wall #4	Sta. 172+00	Sta. 178+00	Main Route	Reflective	
	Sta. 172+00	Sta. 178+00	Residential	Reflective	

* For the side of the wall specified as reflective, no minimum NRC is required.

The NRC shall be determined per ASTM E795, tested according to ASTM C423 (mounting type A). The ratio of noise absorptive material on the panel surface to total wall area (including posts) shall be greater than 90 percent. NRC testing shall be performed on coated samples, utilizing the stain that will be applied for color.

Access Doors

All access doors shall be designed to fit within the design of the noise wall as shown on the plans. Doors shall be complete with hardware and locking devices. Each door shall provide a 3 ft (0.9 m) wide by 7 ft (2.1 m) high minimum clear access opening. Both door jambs shall be securely fastened to anchored posts. Front and back face of the installed door shall be flush with the faces of the noise wall.

Perimeter and internal door frame shall consist of welded hot dip galvanized steel channels and miscellaneous angle stiffeners and plates designed to provide support for noise wall panels to match the noise wall material as specified in this special provision. Infill noise panel geometry and color shall match the adjacent noise wall panels. Noise wall panels shall be fastened to steel frames as per panel manufacturer's recommendations. The door, jambs, head, hinges, door appurtenances, and adjacent ground mounted posts shall be designed to withstand the wind pressure of 25 psf (122 kg/m^2) with the door in fully open and fully closed positions and support the weight of the door and a 300 lb (136 kg) vertical load on the non-hinged side of the door. Provide steel bracing as required. Door bottom shall be equipped with drainage holes to avoid accumulation of trapped moisture.

Door jambs and head section shall be hot dip galvanized steel. Door hinges shall be barrel type, edge mount, extra heavy-duty, hot dip galvanized steel or stainless steel. The hinges shall be designed to support the weight of door assembly, wind loads on the open door, and a 300 lb (136 kg) vertical load on the non-hinged side of the door.

Door pulls shall be provided on both sides of access door(s). Door locking hardware shall be hasp-type to be used with a padlock and shall be located according to local fire department or ComEd requirements as applicable. A solid steel Knox-Box shall be provided and mounted near the hasp location at the steel post on the locking hardware side of door. The Knox-box for emergency access doors shall be according to local fire department requirements. The Knox-box for access door at the Dynamic Messaging Sign (DMS) shall be according to ComEd requirements.

Doors shall be equipped with lifting bolts or beams as required for safe lifting of door units.

Materials. Noise wall materials shall conform to the supplier's standards, AASHTO Specifications for noise walls and the following:

(a) Reinforcement bars shall satisfy ASTM A706 Grade 60 (400). Welded wire fabric shall be according to AASHTO M 55.

(b) Anchor bolts shall conform to ASTM F1554 Grade 55 or 105.

(c) The precast elements shall be according to applicable portions of Section 1042 (Exception: Coarse Aggregate shall meet the requirements of Article 1004.02(f)). Additionally, dry cast concrete element will not be permitted. Wooden or steel materials will not be allowed as substitutes for the panels.

(d) For sound absorptive panels, the manufacturer shall provide test information from an independent lab that the panels are durable. This information shall be either a freeze/thaw test according to AASHTO T 161 (ASTM C 666) Procedure A or B, and it shall be a salt scaling test according to ASTM C 672.

For the freeze/thaw test, a minimum of three specimens shall have been tested. The maximum weight (mass) loss after 300 cycles shall be 7.0 percent. The panel shall have no cracks, delamination (applies to composite material panel), or other excessive physical distress upon completion of the test.

For the salt scaling test, the test method shall be modified as outlined in Appendix D of the Guidelines for Evaluating the Performance of Highway Sound Barriers by the Highway Innovative Technology Evaluation Center (HITEC), A Service Center of the Civil Engineering Research Foundation, CERF REPORT: HITEC 96-04, Product 24 (October 1996). The maximum weight (mass) loss after 50 cycles using a 3 percent sodium chloride solution shall be 0.2 psf (0.1 kg/m^2). The panel shall have no cracks, delamination (applies to composite material panel), or other excessive physical distress upon completion of the test.

For sound reflective panels, evidence of durability by one of the two previously mentioned tests is required for all materials except Class PC concrete.

(e) The manufacturer for the noise abatement wall shall provide their quality control plan for testing the product, and test results shall be provided upon request by the Engineer. Manufacturers on the Approved List of Certified Precast Concrete Producers who are approved for noise abatement walls will be considered in compliance with this requirement.

(f) Steel plates and posts shall conform to AASHTO M 270 (M 270 M) Grade 36 (250) or 50 (345). All portions of the post shall be galvanized according to AASHTO M111 and ASTM A385. Steel bolts, nuts, washers and anchor bolts shall be galvanized according to AASHTO M232. The portion of steel posts exposed to view shall then be painted with a paint system in the shop according to the special provision for Surface Preparation and Painting of Galvanized Steel Traffic Structures. The cost for Surface Preparation and Painting of Galvanized Steel Traffic Structures shall be included in the contract unit price for NOISE ABATEMENT WALL of the type required. The color of the paint system shall closely match the panels.

(g) Lifting inserts cast into the panels shall be hot dipped galvanized.

(h) Non shrink grout shall be according to Article 1024.

(i) The color of both sides of the panels, posts and other visible elements shall be a light brown earth tone unless stated otherwise on the contract plans Colors shall be achieved through the use of integral pigments or stains, which are in compliance with the environmental regulation of the State of Illinois. Components manufactured with integral pigment shall be tested and certified in conformance to ASTM C979. Stains shall be non film forming, penetrating stains. Stains shall be applied to concrete at the cured age of the manufacturer's recommendation. Surface preparation and application shall be according to manufacturer written recommendations. Coloring of concrete elements shall be accomplished using a single component water based, sound absorptive, penetrating, architectural stain that is weather resistant. Stains and/or pigments must be applied at the manufacturing plant; application in the field on site will not be allowed. The final color shall be consistent with the quality and appearance of the approved sample.

The finish shall consist of a rolled Ashlar Stone finish and shall have a minimum 0.75 in (19 mm) impression.

(j) With the exception of the steel and Portland cement concrete elements of the wall, all materials shall be tested for flame spread and smoke density developed according to ASTM E84. The material must exhibit a flame-spread index less than 10 and a smoke density developed value of 10 or less.

Fabrication. All precast units shall be manufactured according to Section 504 and the following requirements and tolerances with respect to the dimensions shown on the approved shop drawings.

(a) The minimum reinforcement bar cover shall be 1 1/2 in (40 mm).

(b) All reinforcement shall be epoxy coated

(c) Panel dimensions shall be within 1/4 in (6 mm).

(d) All hardware embedded in panels or posts shall be within 1/4 in (6 mm).

(e) Angular distortion with regard to panel squareness, defined as the difference between the two diagonals, shall not exceed 1/2 in (13 mm).

(f) Surface defects on formed surfaces measured on a length of 5 ft (1.5 m) shall not be more than 0.10 in (2.5 mm).

(g) Posts shall be installed plumb to within 1/2 in (13 mm) of vertical for every 15 ft (5 m) of height and to within 1/2 in (13 mm) of the station and offset indicated on the approved shop drawings.

(h) Drilled shaft foundations shall be placed within 2 in (50 mm) of the station and offset indicated on the approved shop drawings.

(i) Panel reinforcement and lifting devices shall be set in place to the dimension and tolerances shown on the plans and these special provisions prior to casting.

The date of manufacture, the production lot number, and the piece-mark shall be clearly noted on each panel.

Absorptive material shall be permanently attached to their supporting elements and no external mechanical fastening systems such as frames or clips shall be used. Any bolts or fasteners used shall be recessed or embedded below the surface.

The panels, posts and other visible elements shall be fabricated with a light brown earth tone color following the procedures noted in the materials section of this special provision unless otherwise shown on the contract plans.

Any chipping, cracks, honeycomb, or other defects, to be allowed, shall be within acceptable standards for precast concrete products according to Section 1042.

Construction. The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include any costs related to this technical assistance in the contract unit price for Noise Abatement Wall of the type specified. The instructions provided by the wall supplier are guidelines and do not relieve the contractor of the responsibility to adhere to contract requirements.

It is recommended that all bottom panels be installed for a length of wall prior to placing middle or top panels. After bottom panels are in-place, finish grading can be accomplished with heavy equipment by reaching over the in-place panels.

Site excavations and/or fill construction shall be completed to plan elevations and profiles prior to the start of wall foundation construction. All underground utility or drainage structure installation shall be completed prior to foundation installation. The ground elevations as shown on the plans and the approved noise wall shop drawings shall be verified by the contractor and discrepancies corrected prior to material fabrication. Buried utilities shall be marked to verify proper clearance from the drilled foundations. The Contractor should consider overhead obstruction such as electric and telephone wires prior to wall erection.

For ground mounted walls, if the soils encountered during drilling of the foundations do not satisfy the design strengths shown on the contract plans, the Engineer shall be notified to evaluate the required foundation modifications. The shaft foundation will normally require additional length, which may be paid separately under Article 104.03. All drilled shaft excavations shall be filled with concrete within 6 hours of their initiation. The concrete for the drilled shaft foundations shall be placed against undisturbed, in-place soils. The concrete at the top of the shaft shall be shaped to provide the panels on each side of the post adequate bearing area and correct elevation per the approved shop drawings.

The panels shall be delivered to the project site in full truckload quantities. They may be off-loaded individually or by forklift with a solid steel plate spanning between the forks. Providing uniform, fully distributed bearing support to the underside of the panels. Units shall be shipped, handled and stored in such a manner as to minimize the danger of staining, chipping, spalling, development of cracks, fractures, and excessive bending stresses. Panels shall be stored and shipped in bundles, on edge. Any touch up and repair is at the Contractor's expense and shall be carried out according to the manufacturer's recommendations or as directed by the Engineer.

Method of Measurement. Noise abatement walls will be measured in square feet (square meters) from the wall envelope, defined by the theoretical top of wall line to the theoretical bottom of panel line for the length of the wall (ground mounted or structure mounted) as shown on the contract plans.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for NOISE ABATEMENT WALL, GROUND MOUNTED and/or NOISE ABATEMENT WALL, STRUCTURE MOUNTED.

Drilled shafts, concrete, reinforcement bars and other elements for structures supporting NOISE ABATEMENT WALL, STRUCTURE MOUNTED will not be paid for under this item, but will paid as specified elsewhere under their specific pay items.

EPOXY COATING ON REINFORCEMENT (DISTRICT ONE)
Effective: January 1, 2007 Revised: July 20, 2010

For work outside the limits of bridge approach pavement, all references in the Highway Standards and Standard Specifications for reinforcement, dowel bars and tie bars in pavement, shoulders, curb, gutter, combination curb and gutter and median, and chair supports for CRC pavement, shall be epoxy coated, unless noted on the plan.

BITUMINOUS PRIME COAT FOR HOT-MIX ASPHALT PAVEMENT (FULL DEPTH) (D-1)
Effective: May 1, 2007

Revise Article 407.06(b) of the Standard Specifications to read:

"A bituminous prime coat shall be applied between each lift of HMA according to Article 406.05(b) at a rate of 0.02 to 0.05 gal/sq yd (0.1 to 0.2 L/sq m), the exact rate to be determined by the Engineer."

Revise the second paragraph of Article 407.12 of the Standard Specifications to read:

"Prime Coat will be paid for at the contract unit price per gallon (liter) or per ton (metric ton) for BITUMINOUS MATERIALS (PRIME COAT)."

FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (D-1)
Effective: May 1, 2007 Revised: January 15, 2010

Add the following to the gradation tables of Article 1003.01(c) of the Standard Specifications:

FINE AGGREGATE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	3/8	No. 4	No. 8	No. 16	No. 200
FA 22	100	6/	6/	8±8	2±2

FINE AGGREGATE GRADATIONS (metric)					
	Sieve Size and Percent Passing				
Grad No.	9.5 mm	4.75 mm	2.36 mm	1.16 mm	75 µm
FA 22	100	6/	6/	8±8	2±2

6/ For the fine aggregate gradations FA 22, the aggregate producer shall set the midpoint percent passing, and the Department will apply a range of ± ten percent. The midpoint shall not be changed without Department approval.

Revise Article 1003.03(a) of the Standard Specifications to read:

"(a) Description. Fine aggregate for HMA shall consist of sand, stone sand, chats, slag sand, or steel slag sand. For gradation FA 22, uncrushed material will not be permitted."

Revise Article 1003.03 (c) of the Standard Specifications to read:

"(c) Gradation. The fine aggregate gradation for all HMA shall be FA1, FA 2, FA 20, FA 21 or FA 22. When Reclaimed Asphalt Pavement (RAP) is incorporated in the HMA design, the use of FA 21 Gradation will not be permitted.

Gradation FA 1, FA 2, or FA 3 shall be used when required for prime coat aggregate application for HMA."

COARSE AGGREGATE FOR HOT-MIX ASPHALT (HMA) (D-1)
Effective: March 16, 2009

Revise Article 1004.03 of the Standard Specifications to read:

1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA). The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	Gravel Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA All Other	Stabilized Subbase or Shoulders	Gravel Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag Crushed Concrete The coarse aggregate for stabilized subbase, if approved by the Engineer, may be produced by blending aggregates according to Article 1004.04(a).
HMA High ESAL Low ESAL	IL-25.0, IL-19.0, or IL-19.0L	Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF)
HMA High ESAL Low ESAL	C Surface IL-12.5,IL-9.5, or IL-9.5L	Gravel (only when used in IL-9.5L) Crushed Gravel Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag (except when used as leveling binder)

Use	Mixture	Aggregates Allowed
HMA High ESAL	D Surface IL-12.5 or IL-9.5	Crushed Gravel Crushed Stone (other than Limestone) Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag (except when used as leveling binder) Limestone may be used in Mixture D if blended by volume in the following coarse aggregate percentages: Up to 25% Limestone with at least 75% Dolomite. Up to 50% Limestone with at least 50% any aggregate listed for Mixture D except Dolomite. Up to 75% Limestone with at least 25% Crushed Slag (ACBF) or Crushed Sandstone.
HMA High ESAL	E Surface IL-12.5 or IL-9.5	Crushed Gravel Crushed Stone (other than Limestone and Dolomite) Crushed Sandstone No Limestone. Dolomite may be used in Mixture E if blended by volume in the following coarse aggregate percentages: Up to 75% Dolomite with at least 25% Crushed Sandstone, Crushed Slag (ACBF), or Crushed Steel Slag. When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 25% to a maximum of 75% of either Slag by volume. Up to 50% Dolomite with at least 50% of any aggregate listed for Mixture E. If required to meet design criteria, Crushed Gravel or Crushed Stone (other than Limestone or Dolomite) may be blended by volume in the following coarse aggregate percentages: Up to 75% Crushed Gravel or Crushed Stone (other than Limestone or Dolomite) with at least 25% Crushed Sandstone, Crushed Slag (ACBF), or Crushed Steel Slag. When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 25% to a maximum of 50% of either Slag by volume.

Use	Mixture	Aggregates Allowed
HMA High ESAL	F Surface IL-12.5 or IL-9.5	Crushed Sandstone No Limestone. Crushed Gravel, Crushed Concrete, or Crushed Dolomite may be used in Mixture F if blended by volume in the following coarse aggregate percentages: Up to 50% Crushed Gravel, Crushed Concrete or Crushed Dolomite with at least 50% Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or any Other Crushed Stone (to include Granite, Diabase, Rhyolite or Quartzite). When Crushed Slag (ACBF) or Crushed Steel Slag are used in the blend, the blend shall contain a minimum of 50% to a maximum of 75% of either Slag by volume.

(b) Quality. For surface courses and binder courses when used as surface course, the coarse aggregate shall be Class B quality or better. For Class A (seal or cover coat), other binder courses, and surface course IL-9.5L (Low ESAL), the coarse aggregate shall be Class C quality or better. For All Other courses, the coarse aggregate shall be Class D quality or better.

(c) Gradation. The coarse aggregate gradations shall be as listed in the following table.

Use	Size/Application	Gradation No.
Class A-1, 2, & 3	3/8 in. (10 mm) Seal	CA 16
Class A-1	1/2 in. (13 mm) Seal	CA 15
Class A-2 & 3	Cover	CA 14
HMA High ESAL	IL-25.0 IL-19.0 IL-12.5 IL-9.5	CA 7 [1/] or CA 8 [1/] CA 11 [1/] CA 16 and/or CA 13 CA 16
HMA Low ESAL	IL-19.0L IL-9.5L	CA 11 [1/] CA 16
HMA All Other	Stabilized Subbase or Shoulders	CA 6 [2/], CA 10, or CA 12

1/ CA 16 or CA 13 may be blended with the gradations listed.

2/ CA 6 will not be permitted in the top lift of shoulders.

HOT MIX ASPHALT MIXTURES, EGA MODIFIED PERFORMANCE GRADED (PG) ASPHALT BINDER
Effective: March 16, 2009

Description. This work shall consist of constructing Hot Mix Asphalt (HMA) mixtures containing ethylene-glycidyl-acrylate (EGA) Modified Performance Graded (PG) Asphalt Binder. Work shall be according to Sections 406, 1030, and 1032 of the Standard Specifications, except as modified herein.

The asphalt binder shall meet the following requirements:

EGA Modified Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 "Standard Specification for Performance Graded Asphalt Binder" for the grade shown on the plans. An ethylene-glycidyl-acrylate (EGA) terpolymer with a maximum of 0.3 percent polyphosphoric acid by weight of asphalt binder, shall be added to the base asphalt binder to achieve the specified performance grade. Asphalt modification at hot-mix asphalt plants will not be allowed. The modified asphalt binder shall be smooth, homogeneous, and be according to the requirements shown in the following table for the grade shown on the plans.

Ethylene-Glycidyl-Acrylate (EGA) Modified Asphalt Binders		
Test	Asphalt Grade EGA PG 70-22 EGA PG 70-28	Asphalt Grade EGA PG 76-22 EGA PG 76-28
Separation of Polymer Illinois Test Procedure, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions.	4 (2) max.	4 (2) max.
TEST ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240)		
Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, %	60 min.	70 min.

HOT MIX ASPHALT MIXTURE IL-4.75 (DIST 1)
Effective: January 1, 2007 Revised: April 1, 2010

Description. This work shall consist of constructing Hot-Mix Asphalt (HMA) surface course or leveling binder with an IL-4.75 mixture. Work shall be according to Sections 406, 1030, 1031 and 1032 of the Standard Specifications except as modified herein.

Materials.

Fine Aggregate: Revise Note 2 of Article 1030.02 of the Standard Specifications to read:

(a) Gradation. The fine aggregate gradation for IL-4.75 shall be FA 1, FA 2, FA 20 or FA 22.

When the 4.75 mix is used as leveling binder, steel slag sand will not be permitted.

The fine aggregate quality shall be Class B. The total minus No. 200 (75 μm) material in the mixture shall be free from organic impurities.

(b) Reclaimed Asphalt Pavement (RAP). Only processed RAP over 3/8 in. (9.5 mm) screen will be permitted in the 4.75 mm mix. A maximum of 15 percent RAP will be allowed.

(c) Asphalt Binder (AB). The AB shall be either Elvaloy or SBS/SBR; both shall be either PG 76 -22 or PG 76 -28. The AB shall meet the requirements of Article 1032.05(b) of the Standard Specifications; however the elastic recovery of the AB shall be 80 minimum.

The AB 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.

Mixture Design. Add the following to Article 1030.04(b) of the Standard Specifications

"(4) IL 4.75 Mixture.

Volumetric Parameter	Requirement
Design Air Voids	4.0% at Ndesign 50
Voids in the Mineral Aggregate (VMA)	18.5% minimum
Voids Filled with Asphalt (VFA)	72 - 85%
Dust/AC Ratio	1.0
Density (% of Max Specific Gravity)	93.0 - 97.4
Maximum Drain-down	0.3%

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 any previously collected bag house dust in a storage silo prior to production of the IL-4.75 mixture to be wasted. Only metered bag house dust may be returned back directly to the mix. Any additional minus No. 200 (75 μm) material needed to produce the IL-4.75 shall be mineral filler.

As an option, collected bag-house dust may be used in lieu of manufactured mineral filler, provided; 1) there is enough is available for the production of the IL-4.75 mix for the entire project and 2) a mix design was prepared with collected bag-house dust.

The mixture shall be produced within the temperature range recommended by the asphalt cement producer; but not less than 325 °F (165 °C).

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 contain steel slag sand or aggregate having absorptions ≥ 2.5 percent shall have a silo storage plus haul time of not less than 1.5 hours.

Control Charts/Limits.

Add the following to Control Limits table in Article 1030.04(d)(4) of the Standard Specifications:

Parameter	Individual Test	Moving Average
% Passing		
No. 16 (1.18 mm)	± 4%	± 3%
No. 200 (75 μm)	± 1.5%	± 1.0%
Asphalt Binder Content	± 0.3%	± 0.2%
Air Voids	± 1.2% (of design)	± 1.0% (of design)

CONSTRUCTION REQUIREMENTS

Compaction.

Add the following after the first paragraph of Article 406.07(a) of the Standard Specifications:

"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 1101.01(e), except the minimum compression for all of the rollers shall be 280 lb/in. (49 N/mm) of roller width. Pneumatic-tired and vibratory rollers will not be permitted."

LIGHTWEIGHT CELLULAR CONCRETE FILL (DISTRICT ONE)
Effective: November 11, 2001 Revised: January 20, 2010

DESCRIPTION

This work consists of providing lightweight cellular concrete fill at the required location(s) according to the details and dimensions shown in the plans, and as directed by the Engineer.

MATERIALS

The materials shall meet the following requirements:

Cement. Type I or Type III Portland cement shall comply with Section 1001 of the Standard Specifications. Pozzolans and finely divided minerals will not be permitted.

Water. Water shall be potable and shall meet the requirements of Section 1002 of the Standard Specifications.

Foaming Agent. A commercially available product handled in a manner that meets the recommendations of the manufacturer.

Other Concrete Admixtures. Concrete admixtures may be used only when approved by the Engineer. The concrete admixtures shall meet the requirements of Articles 1021.01 - 1021.04 of the Standard Specifications.

CELLULAR CONCRETE

The cellular concrete shall have the following properties:

	Class II	Class IV
Cast Density ASTM C138	24-30 pcf (384-480 kg/m^3)	36-42 pcf (577-673 kg/m^3)
Minimum Compressive Strength ASTM C495-Modified		
@7 days	30 psi (207 kpa)	90 psi (620 kpa)
@28 days	40 psi (276 kpa)	120 psi (827 kpa)
Freeze-thaw Resistance (min cycles @ relative Pc=70%) per ASTM C666-Modified	N/A	300 cycles
Coefficient Permeability (cm/sec) per ASTM D2434		
@17 kpa (2.5 psi)	1.3×10^{-3}	4.4×10^{-6}
@124 kpa (18 psi)	1.2×10^{-4}	3.1×10^{-7}
Water Absorption Long term immersion As % of cast density (120) days per ASTM C796-Modified	20% max.	14% max.

Within 15 calendar days after execution of the contract the Contractor shall submit the following:

Manufacturer's specifications, catalog cuts, and other engineering data needed to demonstrate compliance with specified requirements. These shall include test reports by test laboratories.

Written approval of the subcontractor and equipment by the manufacturer of the cellular concrete.

The temperature of the cellular concrete mixture at the point of discharge shall not be below 45 °F (7.2 °C) nor greater than 95 °F (35 °C).

EQUIPMENT

Only automated proportioning mixing and placing equipment approved by the manufacturer of the cellular concrete shall be used. The batch plant scales shall be inspected and calibrated by a reputable scale servicing company. Bulk cement shall be weighed on a scale which shall operate within a tolerance of 1 1/2 percent of the weight of the cement per batch. The plant shall be equipped with an automatic batch counter and automatic timer to account for the foam in the mixer.

CONSTRUCTION REQUIREMENTS

Prior to installation. The ground surface shall be cleared of debris, sharp objects and trees. Tree stumps shall be either removed or cut to the level of the ground surface.

All wheel tracks or ruts in excess of 3 inches (76 mm) in depth shall be graded smooth or otherwise filled with soil to provide a reasonable smooth surface.

If required in the plans, a geotechnical fabric for ground stabilization shall be placed according to Section 210 of the Standard Specifications.

If a geomembrane liner is required in the plans, this work shall be done according to the special provision for "Geomembrane Impermeable Liner."

If any items are to be enclosed in the fill, the items shall be set to the final location both horizontally and vertically prior to installation of the cellular concrete.

There shall be no standing water in the area to be filled. If necessary, dewatering shall be continuous during the time the cellular concrete is constructed.

The air temperature shall not be less than 35 °F (1.7 °C) at the time of placement.

Cellular concrete shall not be placed during periods of precipitation unless placed in an enclosed, covered area.

Installation. The cellular concrete shall be placed in accordance with the installation procedures provided by the manufacturer of the cellular concrete. After mixing, it shall be promptly placed in the final location, and in a manner to prevent segregation. Each lift of the Class II Cellular Concrete shall be placed to a maximum depth of 4 ft (1.2 m) and Class IV Cellular Concrete shall be placed to a maximum depth of 2 ft (0.6 m). Intermediate lifts may be placed horizontal. Only the top lift shall be sloped to grade.

The cellular concrete shall be placed using a hose. It will not be allowed to flow more than 10 feet from where it is deposited to its final position.

The final surface elevation of the cellular concrete shall be within 0.1 $\pm$ ft (30 $\pm$ mm) of the plan elevation.

The final surface of the cellular concrete shall be covered with a bituminous prime coat meeting the requirements of Article 1032 of the Standard Specifications at a rate of 0.05 to 0.10 gal/sq yd (0.2 to 0.5 L/sq m). The prime coat will not be paid for separately but shall be included in the contract unit price for the cellular concrete. The Engineer may waive the requirement for the prime coat based on design and project requirements.

Testing. During placement of the initial batches, the density shall be checked and adjustments made to obtain the specified cast density at the point of placement. Density of the mix shall only be adjusted by increasing or decreasing the foam.

Eight strength test specimens will be required for the first four testing locations and a minimum of four strength test specimens thereafter. Specimens shall by obtained for each 300 cu yd (230 cu m) of engineered fill placed or for each four hours of placement. The contractor shall supply EPS (expanded polystyrene) four cell molds with EPS tops for 3 in. x 6 in. (75 mm x 150 mm) test specimens. The cylinders will be protected from vandalism or environmental extremes by the use of a cure box in the field. This box will be provided by the contractor.

The specimens shall be tested by the Department in accordance with ASTM C495, except that they shall be removed from the EPS molds and air dried at a temperature of 70 ± 10 °F (21.1 ± 5.5 °C) and a relative humidity of 50 ± 30% for three days prior to strength testing.

Additional specimens shall be tested to monitor the compressive strength. The last 2 specimens from each series should be tested at 28 days. The manufacturer may require special handling and testing techniques of the engineered fill.

Density tests shall be completed at a minimum rate of one per hour of placement. Additional tests shall be done if adjustments are made to the materials. These tests shall be documented.

Loading. Construction activities may be resumed on the material upon approval by the Engineer when a penetration rate of 1.5 in/blow (38 mm/blow) or less has been obtained with the Dynamic Cone Penetration (DCP) test as described in the Manual of Test Procedures/Geotech Manual.

METHOD OF MEASUREMENT

Contract quantity. When the project is constructed essentially to the lines, grades or dimensions shown on the plans and the Contractor and the Engineer have agreed in writing the plan quantities are accurate, no further measurement will be required. Payment will be made for the quantities shown in the contract for the various items involved except that if errors are discovered after work has been started, appropriate adjustments will be made.

When the plans have been altered or when disagreement exists between the Contractor and the Engineer as to the accuracy of the plan quantities, either party shall, before any work is started which would affect the measurement, have the right to request in writing and thereby cause the quantities involved to be measured as hereinafter specified.

Measured Quantities. Lightweight Cellular Concrete Fill will be measured in its final position and the volume in cubic yards (cubic meters) computed by method of average end areas. The dimensions used in calculating the average end areas shall not exceed the neat lines shown in the plans unless ordered in writing by the Engineer.

BASIS OF PAYMENT

This work will be paid for at the contract unit price per cubic yard (cubic meter) for LIGHTWEIGHT CELLULAR CONCRETE FILL of the class specified.

TEMPERATURE CONTROL FOR CONCRETE PLACEMENT (DISTRICT ONE)
Effective: May 1, 2007

Delete the second and third sentences of the second paragraph of Article 1020.14(a) of the Standard Specifications.

TEMPORARY PAVEMENT
Effective: March 1, 2003 Revised: April 10, 2008

Description. This work shall consist of constructing a temporary pavement at the locations shown on the plans or as directed by the engineer.

The contractor shall use either Portland cement concrete according to Sections 353 and 354 of the Standard Specifications or HMA according to Sections 355, 356, 406 of the Standard Specifications, and other applicable HMA special provisions as contained herein. The HMA mixtures to be used shall be specified in the plans. The thickness of the Temporary Pavement shall be as described in the plans. The contractor shall have the option of constructing either material type if both Portland cement concrete and HMA are shown in the plans.

Articles 355.08 and 406.11 of the Standard Specifications shall not apply.

The removal of the Temporary Pavement, if required, shall conform to Section 440 of the Standard Specification.

Method of Measurement. Temporary pavement will be measured in place and the area computed in square yards (square meters).

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for TEMPORARY PAVEMENT and TEMPORARY PAVEMENT (INTERSTATE).

Removal of temporary pavement will be paid for at the contract unit price per square yard (square meter) for PAVEMENT REMOVAL.

USE OF RAP (DIST 1)
Effective: January 1, 2007 Revised: September 15, 2010

In Article 1030.02(g) of the Standard Specifications, delete the last sentence of the first paragraph in (Note 2).

Revise Section 1031 of the Standard Specifications to read:

"**SECTION 1031. RECLAIMED ASPHALT PAVEMENT**

1031.01 Description. Reclaimed Asphalt Pavement (RAP) results from the cold milling or crushing of an existing Hot-Mix Asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction. The contractor can also request that a processed pile be tested by the Department to determine the aggregate quality as described in Article 1031.04, herein.

1031.02 Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. Stockpiles shall be identified by signs indicating the type and size as listed below (i.e. "Homogenous Surface").

Prior to milling or removal of an HMA pavement, the Contractor may request the District to provide verification of the existing mix composition to clarify appropriate stockpile.

(a) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures and represent: 1) the same aggregate quality, but shall be at least C quality; 2) the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag); 3) similar gradation; and 4) similar asphalt binder content.

If approved by the Engineer, combined single pass surface/binder millings may be considered “homogenous” with a quality rating dictated by the lowest coarse aggregate quality present in the mixture.

(b) Conglomerate 5/8. Conglomerate 5/8 RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate 5/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 5/8 in. (16 mm) or smaller screen.

(c) Conglomerate 3/8. Conglomerate 3/8 RAP stockpiles shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least B quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate 3/8 RAP shall be processed prior to testing by crushing to where all RAP shall pass the 3/8 in (9.5 mm) or smaller screen.

(d) Conglomerate Variable Size. Conglomerate variable size RAP shall consist of RAP from Class I, Superpave (High ESAL), HMA (High ESAL), or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least B quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate variable size RAP shall be processed prior to testing by crushing and screening to where all RAP is separated into various sizes. All the conglomerate variable size RAP shall pass the 3/4 in. (19 mm) screen and shall be a minimum of two sizes.

(e) Conglomerate “D” Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from Class I, Superpave (High or Low ESAL), HMA (High or Low Esal), or equivalent mixtures. The coarse aggregate in this RAP may be crushed or round but shall be at least D quality. This RAP may have an in consistent gradation and/or asphalt binder content.

(f) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as “Non-Quality”.

RAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

1031.03 Testing. When used in HMA, the RAP shall be sampled and tested either during or after stockpiling.

For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Before extraction, each field sample shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

(a) Testing Conglomerate 3/8 and Conglomerate Variable Size. In addition to the requirements above, conglomerate 3/8 and variable size RAP shall be tested for maximum theoretical specific gravity (G_{mm}) at a frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

(b) Evaluation of Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation and, when applicable G_{mm}. Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	Homogeneous/ Conglomerate	Conglomerate "D" Quality
1 in. (25 mm)		± 5%
3/4 in. (19 mm)		
1/2 in. (12.5 mm)	± 8%	± 15%
No. 4 (4.75 mm)	± 6%	± 13%
No. 8 (2.36 mm)	±5%	
No. 16 (1.18 mm)		± 15%
No. 30 (600 μm)	± 5%	
No. 200 (75 μm)	± 2.0%	± 4.0%
Asphalt Binder	± 0.4% 1/	± 0.5%
G_{mm} G_{mm}	±0.02 2/ ±0.03 3/	

1/ The tolerance for conglomerate 3/8 shall be ± 0.3 %.

2/ Applies only to conglomerate 3/8. When variation of the G_{mm} exceeds the ± 0.02 tolerance, a new conglomerate 3/8 stockpile shall be created which will also require an additional mix design.

3/ Applies only to conglomerate variable size. When variation of the G_{mm} exceeds the ± 0.03 tolerance, a new conglomerate variable size stockpile shall be created which will also require an additional mix design.

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt binder content test results fall outside the appropriate tolerances, the RAP shall not be used in HMA unless the RAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the Illinois Test Procedure, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)".

1031.04 Quality Designation of Aggregate in RAP. The quality of the RAP shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

(a) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) surface mixtures are designated as containing Class B quality coarse aggregate.

(b) RAP from Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder and IL-9.5L surface mixtures are designated as Class D quality coarse aggregate.

(c) RAP from Class I, Superpave (High ESAL), or HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.

(d) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.

Aggregate Quality Testing of RAP:

The processed pile shall have a maximum tonnage of 5,000 tons (4500 metric tons). The pile shall be crushed and screened with 100 percent of the material passing the 3/4 in. (19 mm) sieve. The pile shall be tested for AC content and gradation and shall conform to all requirements of Article 1031.03 Testing, herein. Once the uniformity of the gradation and AC content has been established, the Contractor shall obtain a representative sample with district oversight of the sampling. This sample shall be no less than 50 lbs (25 kg) and this sample shall be delivered to a Consultant Lab, prequalified by the Department for extraction testing according to Illinois Modified AASHTO T 164. After the AC has been extracted, the Consultant Lab shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid directly by the Contractor. The District will forward the sample to the BMPR Aggregate Lab for MicroDeval Testing, according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent will be applied for all HMA applications.

1031.05 Use of RAP in HMA. The use of RAP in HMA shall be as follows.

(a) Coarse Aggregate Size. The coarse aggregate in all RAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.

(b) Use in HMA Surface Mixtures (High and Low ESAL). RAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall be either homogeneous or conglomerate 3/8 or variable size in which the coarse aggregate is Class B quality or better.

(c) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be homogeneous, conglomerate 5/8, or conglomerate 3/8, conglomerate variable size, in which the coarse aggregate is Class C quality or better.

(d) Use in Shoulders and Subbase. RAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be homogeneous, conglomerate 5/8, conglomerate 3/8, conglomerate variable size, or conglomerate DQ.

(e) The use of RAP shall be a contractor's option when constructing HMA in all contracts. When the Contractor chooses the RAP option, the percentage of RAP shall not exceed the amounts indicated in the table for a given N Design.

Maximum Mixture RAP Percentage

HMA Mixtures [1/ 3/]		Maximum % RAP	
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified
30	30/40 [2/]	30	10
50	25/40 [2/ 4/]	15/25 [2/]	10 [4/]
70	25/30 [2/]	10/20 [2/]	10
90	25/30 [2/]	10/15 [2/]	10
105	25/30 [2/]	10/15 [2/]	10

1/ For HMA Shoulder and Stabilized Sub-Base (HMA) N-30, the amount of RAP shall not exceed 50 percent of the mixture.
2/ Value of Max percent RAP if 3/8 Rap or conglomerate variable size RAP is utilized.
3/ When RAP exceeds 20 percent the AC shall be PG58 -22. However, when RAP exceeds 20 percent and is used in full depth HMA pavement the AC shall be PG58 -28.
4/ Polymerized Leveling Binder, IL-4.75 is 15 percent

1031.06 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP material meeting the above detailed requirements.

RAP designs shall be submitted for volumetric verification. If additional RAP stockpiles are tested and found that no more than 20 percent of the results, as defined under "Testing" herein, are outside of the control tolerances set for the original RAP stockpile and HMA mix design, and meets all of the requirements herein, the additional RAP stockpiles may be used in the original mix design at the percent previously verified.

1031.07 HMA Production. The coarse aggregate in all RAP used shall be equal to or less than the nominal maximum size requirement for the HMA mixture being produced.

To remove or reduce agglomerated material, a scalping screen, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If the RAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAP and either switch to the virgin aggregate design or submit a new RAP design. When producing mixtures containing conglomerate 3/8 or conglomerate variable size RAP, a positive dust control system shall be utilized.

HMA plants utilizing RAP shall be capable of automatically recording and printing the following information.

(a) Drier Drum Plants

(1) Date, month, year, and time to the nearest minute for each print.

(2) HMA Mix number assigned by the Department

(3) Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton)

(4) Accumulated dry weight of RAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton)

(5) Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.

(6) Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.

(7) Residual asphalt binder in the RAP material (per size) as a percent of the total mix to the nearest 0.1 unit.

(8) Aggregate and RAP moisture compensators in percent as set on the control panel (Required when accumulated or individual aggregate and RAP are printed in wet condition).

(b) Batch Plants

(1) Date, month, year, and time to the nearest minute for each print.
(2) HMA mix number assigned by the Department.
(3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram)
(4) Mineral filler weight to the nearest pound (kilogram).
(5) Individual RAP Aggregate weight to the nearest pound (kilogram).
(6) Virgin asphalt binder weight to the nearest pound (kilogram)
(7) Residual asphalt binder of each RAP size material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

1031.08 RAP in Aggregate Surface Course and Aggregate Shoulders. The use of RAP in aggregate surface course and aggregate shoulders shall be as follows.

(a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except “Other”. The testing requirements of Article 1031.03 shall not apply.

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

USE OF RECLAIMED ASPHALT SHINGLES (RAS) (D-1)
Effective: August 15, 2010

Description. Reclaimed Asphalt Shingles (RAS) meeting Type I or Type 2 requirements will be permitted in SMA and "Other" HMA mixtures as specified herein. RAS shall be a clean and uniform material with a maximum of 1.5 percent foreign material (i.e. material other than aggregate, asphalt binder and fiberglass or cellulose fibers). All RAS used shall come from a BMPR approved processing facility.

Definitions. RAS shall meet either Type I or Type 2 requirements as specified herein.

(a) Type I. Type I RAS shall be processed, preconsumer asphalt shingle waste resulting from the manufacture of residential asphalt roofing shingles.

(b) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

Stockpiles. RAS shall be ground and processed to 100 percent passing the 3/8 in. sieve. RAS shall be uniform in gradation and asphalt binder content and meet the testing requirements specified herein. Type 1 and Type 2 RAS shall be stockpiled separately and shall not be intermingled. Each stockpile shall be signed indicating what type of RAS is present.

Unless otherwise approved by the Engineer, mechanically blending a maximum of 5.0 percent by weight of the aggregate blend in HMA design, manufactured sand (FM20 or FM 22) with the processed RAS will be permitted to improve workability. The sand shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The sand shall be accounted for in the mix design and during HMA production.

Records identifying the shingle processing facility supplying the RAS, RAS type and lot number shall be filed by Department contract number and kept for a minimum of 3 years.

Testing. RAS shall be sampled and tested during stockpiling.

For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 500 tons (450 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 1000 tons (900 metric tons).

Before extraction, each field sample shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

Evaluation of Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation and, when applicable G_{mm}. Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	± 5 %
No. 30 (600 μm)	± 4%
No. 200 (75 μm)	± 2.0 %
Asphalt Binder Content	± 1.5 %
G_{mm}	± 0.04

If more than 20 percent of the individual sieves are out of the gradation tolerances, or if more than 20 percent of the asphalt binder content test results fall outside the specified tolerance, the RAS shall not be used in HMA unless the RAS representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

Use of RAS in HMA. Type 1 or Type 2 RAS may be used in Stone Matrix Asphalt and HMA "All Other" mixtures.

(a) SMA and IL-4.75

(1) The maximum allowable RAS usage in SMA and IL 4.75 shall be as follows:

a. RAS shall not exceed 5.0 percent by total mass of total mix.
b. If used in conjuction with Reclaimed Asphalt Pavement (RAP) the contribution of asphalt binder from the RAS and RAP combined shall not exceed 20 percent of the total asphalt binder.

(2) The virgin asphalt binder grade shall be as follows:

	Percent RAS/RAP Asphalt Binder Replacement			
	< 10%		10-20%	
Mix Type	Type 1	Type 2	Type 1	Type 2
SMA or IL 4.75 mm Mix	PG 76-28	PG76-28	PG 70-28	PG 70-28

b) HMA "All Other"

(1) The maximum allowable RAS usage in HMA "All Other" mixtures shall be as follows:

a. RAS shall not exceed 5.0 percent by total weight of mix.
b. If used in conjuction with Reclaimed Asphalt Pavement (RAP) the contribution of asphalt binder from the RAS and RAP combined shall not exceed 40 percent of the total asphalt binder.

(2) Virgin asphalt binder grade shall be as follows:

	Percent RAS Asphalt Binder Replacement			
	< 20%		20-40%	
Mix Type	Type 1	Type 2	Type 1	Type 2
"All Other"	PG 58-22	PG58-28	PG 58-28	PG 58-28

HMA Mix Designs. RAS and RAS/RAP designs shall be submitted for volumetric verification. Type 1 and Type 2 RAS are not interchangeable in a mix design.

HMA Production. If the QC/QA test results for the HMA mixture containing RAS or RAS/RAP require corrective action after the AJMF has been established, the Contractor shall cease production of the mixture and either switch to the virgin aggregate design or submit a new RAS or RAS/RAP design.

RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that mixture production is halted when RAS flow is interrupted.

When producing HMA containing RAS, a positive dust control system shall be utilized.

HMA plants utilizing RAS shall be capable of automatically recording and printing the following information.

(a) Dryer Drum Plants.

(1) Date, month, year, and time to the nearest minute for each print.

(2) HMA mix number assigned by the Department.

(3) Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

(4) Accumulated dry weight of RAS in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

(5) Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.

(6) Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.

(7) Residual asphalt binder in the RAS material as a percent of the total mix to the nearest 0.1 percent.

(8) Aggregate and RAS moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAS are printed in wet condition.)

(b) Batch Plants.

(1) Date, month, year, and time to the nearest minute for each print.
(2) HMA mix number assigned by the Department.
(3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).

(4) Mineral filler weight to the nearest pound (kilogram).
(5) RAS weight to the nearest pound (kilogram).
(6) Virgin asphalt binder weight to the nearest pound (kilogram).
(7) Residual asphalt binder in the RAS material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter."

WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE

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

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

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

Apply the granular herbicide using a drop or rotary-type designed to apply granular herbicide or insecticides. Calibrate application equipment to use according to manufacturer's directions. Check frequently to be sure equipment is working properly and distributing granules uniformly. Do not use spreaders that apply material in narrow concentrated bands. Avoid skips or overlaps as poor weed control or crop injury may occur. More uniform application may be achieved by spreading half of the required amount of product over the area and then applying the remaining half in swaths at right angles to the first. Apply the granular herbicide at the rate of 100 lbs/acre (112 kg/ha) or 2.3 lbs/1000 sq. ft. (11.2 kg/1000 sq. meters).

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

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

TYPE III TEMPORARY TAPE FOR WET CONDITIONS
Effective: February 1, 2007

Description. This work shall consist of furnishing, installing, maintaining and removing Type III Temporary Pavement Marking Tape for Wet Conditions.

Type III Temporary Tape shall meet the requirements of Article 1095.06 of the Standard Specifications.

Initial minimum reflectance values under dry and wet conditions shall be as specified in Article 1095.06. The marking tape shall maintain its reflective properties when submerged in water. The wet reflective properties shall be verified by a visual inspection method performed by the Department. The surface of the material shall provide an average skid resistance of 50 BPN when tested according to ASTM E 303.

Prior to application a surface preparation adhesive shall be applied to a clean, dry road surface. The pavement marking tape shall have a pre-coated pressure sensitive adhesive and shall require no activation procedures.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for WET TEMPORARY PAVEMENT MARKING TAPE TYPE III of the line width specified, and at the contract unit price per square foot (square meter) for WET TEMPORARY PAVEMENT MARKING TYPE III LETTERS AND SYMBOLS.

TEMPORARY INFORMATION SIGNING

Effective: November 13, 1996 Revised: January 2, 2007

Description.

This work shall consist of furnishing, installing, maintaining, relocating for various states of construction and eventually removing temporary informational signs. Included in this item may be ground mount signs, skid mount signs, truss mount signs, bridge mount signs, and overlay sign panels which cover portions of existing signs.

Materials.

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

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

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

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

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

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

GENERAL CONSTRUCTION REQUIREMENTS

Installation.

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

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

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

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

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

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

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

EMBANKMENT I

Description. This work shall be according to Section 205 of the Standard Specifications except for the following.

Material. All material shall be approved by the District Geotechnical Engineer. The proposed material must meet the following requirements.

a) The laboratory Standard Dry Density shall be a minimum of 1450 kg/cu m (90 lb/cu ft) when determined in accordance with AASHTO T 99.

b) The organic content shall be less than ten percent determined in accordance with AASHTO designation T 194 (Wet Combustion).

c) Soils which demonstrate the following properties should be restricted to the interior of the embankment and shall be covered on both the sides and top of the embankment by a minimum of 900 mm (3 ft) of soil not considered detrimental in terms of erosion potential or excess volume change.

    1) A grain size distribution with less than 35 percent passing the number 75 um (#200) sieve.
    2) A plasticity index (PI) of less than 11.
    3) A liquid limit (LL) in excess of 45.

d) Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present.

CONSTRUCTION REQUIREMENTS

Samples. Embankment material shall be sampled, tested, and approved before use. The contractor shall identify embankment sources, and provide equipment as the Engineer requires, for the collection of samples from those sources.

Samples will be furnished to the Geotechnical Engineer a minimum of three weeks prior to use in order that laboratory tests for approval and compaction can be performed. Embankment material placement cannot begin until tests are completed and approval given.

Placing Material. In addition to Article 202.03, broken concrete, reclaimed asphalt with no expansive aggregate, or uncontaminated dirt and sand generated from construction or demolition activities shall be placed in 150 mm (6 in.) lifts and disked with the underlying lift until a uniform homogenous material is formed. This process also applies to the overlaying lifts. The disk must have a minimum of 600 mm (24 in.) diameter blade.

Compaction. Soils classification for moisture content control will be determined by the Soils Inspector using visual field examination techniques and the IDH Textural Classification Chart.

When tested for density in place each lift shall have a maximum moisture content as follows.

a) A maximum of 110 percent of the optimum moisture for all forms of clay soils.

b) A maximum of 105 percent of the optimum moisture for all forms of clay loam soils.

SETTLEMENT WAITING PERIOD
Station 112+25 to Station 113+75

A waiting period of 30 days is required after the completion of the embankment construction and placement of Aggregate Subgrade, 12 inches prior to the beginning of paving operations.

ENGINEER'S FIELD OFFICE TYPE A (SPECIAL)
Effective: March 31, 1998

Revise the first paragraph of Article 670.02 to read:

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

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

> The facilities shall also include solid waste disposal consisting of 8 waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service.

Revise the fifth paragraph of Article 670.02 to read:

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

Add the following to Article 670.02:

A weekly cleaning service for the office shall be provided.

Revise subparagraph (a) of Article 670.02 to read:

(a) 6 desks with minimum working surface 1.1m x 750 mm (42″x30″) each and 6 non-folding chairs with upholstered seats and backs.

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

(c) 2 four-post drafting table with minimum top size of 950 mm x 1.2 m (37 1/2″ x 48”)

Revise subparagraph (d) of Article 670.02 to read:

(d) 2 free standing 4 drawer legal size file cabinet with lock and an underwriters' laboratories insulated file device 350 degrees one hour rating.

Revise subparagraph (e) of Article 670.02 to read:

(e) 8 folding chairs.

Revise subparagraph (h) of Article 670.02 to read:

(h) 2 electric desk type tape printing calculator and two pocket scientific notation calculators with a 1000 hour battery life or with a portable recharger.

Revise subparagraph (i) of Article 670.02 to read:

(i) 4 telephones, with touch tone, where available, 2 telephone answering machines, 4 contractor furnished cell phones, and 5 telephones lines including one line for the fax machine, and two lines for the exclusive use of the Engineer. Internet connection- An internet service connection using telephone DSL, cable broadband, or CDMA wireless technology shall be provided. Additionally, an 802.11g/N wireless router shall be provided, which will allow connection by the Engineer and up to four Department staff.

Revise subparagraph (j) of Article 670.02 to read:

(k) 1 plain paper fax machine including maintenance and supplies.

Revise subparagraph (l) of Article 670.02 to read:

(l) 1 electric water cooler dispenser including water service.

Add the following subparagraphs to Article 670.02:

(m) 1 1.2m x 1.8m (4′x6′) chaulk board or dry erase board.

(n) 1 complete first aid kit

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

SUPPLEMENTAL WATERING

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

Schedule: See the plans for supplemental watering dates. Watering will only begin after the successful completion of all period of establishment requirements.

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

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

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

Turf and Perennial Plants: 3 gallons per square yard Trees: 10 gallons per tree Shrubs: 3 gallons per shrub Vines: 2 gallons per vine

Method of Application: A spray nozzle that does not damage small plants must be used when watering perennial plants or turf. Water shall be applied at the base of the plant to keep as much water as possible off plant leaves. An open hose may be used to water trees, shrubs, and vines if mulch and soil are not displaced by watering. Water shall trickle slowly into soil and completely soak the root zone. The Contractor must supply metering equipment as needed to assure the specified application rate of water.

Method of Measurement: Supplemental watering will be measured in units of 1000 gallons (3,785 liters) of water applied as directed.

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

PROTECTION OF EXISTING TREES

The Contractor shall be responsible for taking measures to minimize damage to the tree limbs, tree trunks, and tree roots at each work site. All such measures shall be included in the contract price for other work except that payment will be made for TREE TRUNK PROTECTION, TEMPORARY FENCE, TREE ROOT PRUNING, and TREE PRUNING.

A. Earth Saw Cut of Tree Roots (Root Pruning):

1. Whenever proposed excavation falls within a drip-line of a tree, the Contractor shall:

a. Root prune 6-inches behind and parallel to the proposed edge of trench a neat, clean vertical cut to a minimum depth directed by the Engineer through all affected tree roots.

b. Root prune to a maximum width of 4-inches using a “Vermeer” wheel, or other similar machine. Trenching machines will not be permitted.

c. Exercise care not to cut any existing utilities.

d. If during construction it becomes necessary to expose tree roots which have not been precut, the Engineer shall be notified and the Contractor shall provide a clean, vertical cut at the proper root location, nearer the tree trunk, as necessary, by means of hand-digging and trimming with chain saw or hand saw. Ripping, shredding, shearing, chopping or tearing will not be permitted.

2. Whenever curb and gutter is removed for replacement, or excavation for removal of or construction of a structure is within the drip line/root zone of a tree, the Contractor shall:

a. Root prune 6-inches behind the curbing so as to neatly cut the tree roots.

b. Depth of cut shall be 12 inches for curb removal and replacement and 24 inches for structural work. Any roots encountered at a greater depth shall be neatly saw cut at no additional cost.

c. Locations where earth saw cutting of tree roots is required will be marked in the field by the Engineer.

3. All root pruning work is to be performed through the services of a licensed arborist to be approved by the Engineer.

Root pruning will be paid for at the contract unit price each for TREE ROOT PRUNING, which price shall be payment for all labor, materials and equipment.

B. Temporary Fence:

1. The Contractor shall erect a temporary fence around all trees within the construction area to establish a “tree protection zone” before any work begins or any material is delivered to the jobsite. No work is to be performed (other than root pruning), materials stored or vehicles driven or parked within the “tree protection zone”.

2. The exact location and establishment of the “tree protection zone” fence shall be approved by the Engineer prior to setting the fence.

3. The fence shall be erected on three sides of the tree at the drip-line of the tree or as determined by the Engineer.

4. All work within the “tree protection zone” shall have the Engineer’s prior approval. All slopes and other areas not regarded should be avoided so that unnecessary damage is not done to the existing turf, tree root system ground cover.

5. The grade within the “tree protection zone” shall not be changed unless approved by the Engineer prior to making said changes or performing the work.

The fence shall be similar to wood lath snow fence (48 inches high), plastic poly-type or and other type of highly visible barrier approved by the Engineer. This fence shall be properly maintained and shall remain up until final restoration, unless the Engineer directs removal otherwise. Tree fence shall be supported using T-Post style fence posts. **Utilizing re-bar as a fence post will not be permitted.**

Temporary fence will be paid for at the contract unit price per foot for TEMPORARY FENCE, which price shall include furnishing, installing, maintaining, and removing.

C. Tree Limb Pruning:

1. The Contractor shall inspect the work site in advance and arrange with the Roadside Development Unit (847.705.4171) to have any tree limbs pruned that might be damaged by equipment operations at least one week prior to the start of construction. Any tree limbs that are broken by construction equipment after the initial pruning must be pruned correctly within 72 hours.

Tree limb pruning will be paid for at the contract unit price per each for TREE PRUNING (1 TO 10 INCH DIAMETER) and/or TREE PRUNING (OVER 10 INCH DIAMETER), which price shall included labor, materials, and equipment.

D. Removal of Driveway Pavement and Sidewalk:

1. In order to minimize the potential damage to the tree root system(s), the Contractor will not be allowed to operate any construction equipment or machinery within the “tree protection zone” located between the curb or edge of pavement and the right-of-way property line.

2. Sidewalk to be removed in the areas adjacent to the “tree protection zones” shall be removed with equipment operated from the street pavement. Removal equipment shall be Gradall (or similar method), or by hand or a combination of these methods. The method of removal shall be approved by the Engineer prior to commencing any work.

3. Any pavement or pavement related work that is removed shall be immediately disposed of from the area and shall not be stockpiled or stored within the parkway area under any circumstances.

E. Backfilling:

1. Prior to placing the topsoil and/or sod, in areas outside the protection zone, the existing ground shall be disked to a depth no greater than one (1”), unless otherwise directed by the Engineer. No grading will be allowed within the drip-line of any tree unless directed by the Engineer.

F. Damages:

1. In the event that a tree not scheduled for removal is injured such that potential irreparable damage may ensure, as determined by the Roadside Development Unit, the Contractor shall be required to remove the damage tree and replace it on a three to one (3:1) basis, at his own expense. The Roadside Development Unit will select replacement trees from the pay items already established in the contract.

2. The Contractor shall place extreme importance upon the protection and care of trees and shrubs which are to remain during all times of this improvement. It is of paramount importance that the trees and shrubs which are to remain are adequately protected by the Contractor and made safe from harm and potential damage from the operations and construction of this improvement. If the Contractor is found to be in violation of storage or operations within the "tree protection zone" or construction activities not approved by the Engineer, a penalty shall be levied against the Contractor with the monies being deducted from the contract. The amount of the penalty shall be two hundred fifty dollars ($250.00) per occurrence per day.

ADJUSTING WATER MAIN
ADJUSTING WATER SERVICE LINES

Description. Remove a section of existing water main/service that conflicts with the proposed storm sewer and install a new ductile iron water main/copper water service line adjusted as necessary to enable installation of proposed storm sewer and to satisfy the vertical separation requirements of Section 41-2.01 of the "Standard Specifications for Water and Sewer Main Construction in Illinois".

This work includes furnishing and installing water main/service pipe, fittings, restraint devices, connection couplings, corporation stops, curb stops, b-boxes, and backfill material as indicated on the "Water Main Adjustment/Casing" detail included in the plans and as necessary to connect the realigned water main/service line to the existing water main/service line.

Where indicated on the Plans or specified by the Engineer, a casing pipe, casing spacers, and casing end seals will be included as indicated on the "Water Main Adjustment/ Casing" detail provided in the plans. All work shall otherwise conform to sections 561 and 563 of the Standard Specifications.

Basis of Payment. This work shall be paid for at the contract unit price per foot for ADJUSTING WATER MAIN of the pipe diameter specified or ADJUSTING WATER SERVICE LINES; which price shall include shut-down of existing water main/service, excavation, sheeting and shoring, removal of existing water main/service pipe, installation of all necessary items and materials, placement of compacted backfill, pressure testing, offsite disposal of surplus excavated materials and removed water main/service pipe, and disinfection and flushing of the shut-down section of the existing water main system. Trench Backfill shall be included in the cost of this item.

Where required, casing pipe and all associated appurtenances and work will be paid for under casing pipe in trench.

WATER MAIN QUALITY STORM SEWER PIPE

Description: This work consists of providing and installing water main quality pipe for storm sewers as shown on the Drawings and shall be in accordance with Section 550; the Special Provisions for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER"; as specified herein, and in accordance with the latest revision of the "Standard Specifications" and the "Standard Specifications for Water and Sewer Main Construction in Illinois", except as revised herein; as required for a complete and proper installation.

Water Main Crossings:

Whenever water mains and service lines are encountered in the course of storm sewer construction, notify the Engineer to determine the construction necessary to comply with the provisions of Section 31.1.02A of the "Standard Specifications for Water and Sewer Main Construction in Illinois".

Materials:

Water main quality storm sewer pipe shall be Class 50 ductile iron pipe conforming to the pipe specified in "DUCTILE IRON WATER MAIN" above, polyvinyl chloride pipe (P.V.C.) Class 160 psi DR 26 conforming to ASTM D2241, or DR 25 P.V.C. conforming to AWWA C905.

P.V.C. water main quality storm sewer pipe shall be connected to new storm sewer manholes, catch basins and inlets with flexible rubber couplings with stainless steel sealing bands, unless the Standard Specifications or Special Provisions written for the I.D.O.T. project allow for direct connection of P.V.C. pipe to these precast concrete structures using mortar joints.

The Drainage Schedules in the I.D.O.T. roadway reconstruction project Plans show which storm sewers are to be water main quality pipe. The Contractor shall provide additional water main quality pipe as called for on the Village of Itasca Water and Sewer Replacement project Drawings.

The Village of Itasca Water and Sewer Replacement project Drawings also show where storm sewer pipe called out as Water Main Quality Pipe on the I.D.O.T. roadway reconstruction project Plans does not need to be Water Main Quality Pipe. The revisions/changes required to eliminate unnecessary water main quality pipe are not the Contractor's responsibility until a field directive or change order is initiated by I.D.O.T. and/or the I.D.O.T. construction manager/engineer.

Basis of Payment: The Contractor will be paid for storm sewer construction as part of the I.D.O.T. roadway reconstruction project using STORM SEWER CLASS A and STORM SEWER WM REQD pay items.

The difference in cost between STORM SEWER CLASS A pipe and STORM SEWER WM REQD pipe will be determined for the Village of Itasca using the Contract Unit Prices in the I.D.O.T. roadway reconstruction project for these two pay items, based on the size of the pipe installed. The Contractor will not be party to the cost sharing/cost difference of storm sewer pipe materials as this will be an accounting process between I.D.O.T. and the Village of Itasca.

BOX CULVERT REMOVAL

Description. This work shall consist of the removal and satisfactory disposal of existing box culverts. All work shall be according to the requirements of Section 501 of the Standard Specifications and details provided on the plans and as directed by the Engineer.

Construction Requirements. The removal of existing culverts shall satisfy the requirements of Section 501.02 of the Standard Specifications and details provided on the plans.

Method of Measurement. Box culvert removal will be measured for payment in place, in feet along the invert of the culvert.

Any excavation necessary to perform the removal of existing culverts shall be considered included in this item of work and will not be measured for payment.

Removal and disposal of all headwalls or aprons attached to the culvert will not be measured for payment.

Basis of Payment. The removal of existing culverts shall be paid for at the contract unit price per foot for BOX CULVERT REMOVAL which price shall include the removal and disposal any culvert and any headwalls or aprons attached to culvert designated for removal. Also, included is the filling of holes or depressions left after removing the culvert and leveling the ground surface.

REMOVE EXISTING CULVERTS

Description. This work shall consist of the removal of reinforced concrete, PVC, clay, ductile iron and corrugated metal storm culverts.

Construction Requirements. Existing culverts shall be removed, hauled off-site, and disposed of by the Contractor in accordance with Article 202.03 of the Standard Specifications. Trenches resulting from the removal of pipes shall be backfilled in accordance with the applicable requirements of Article 550.07.

Method of Measurement. This work will be measured for payment per foot.

Basis of Payment. This work will be paid for at the contract unit price per foot for REMOVE EXISTING CULVERTS of various diameters and shall include all excavation, backfilling, and removal and disposal of the culverts.

STORM SEWER, CLASS A

Description. This work shall be performed in accordance with Section 550 except that the pipe material shall be Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe meeting the requirements of Section 1042.

GRATING FOR CONCRETE FLARED END SECTION 72"
GRATING FOR CONCRETE FLARED END SECTION EQUIVALENT ROUND-SIZE 27"

Description. This work shall consist of furnishing and installing grating of the necessary dimensions to fit IDOT standards 542301, *Precast Reinforced Concrete Flared End Section*" for 72" pipe and 542306, *Precast Reinforced Concrete Elliptical Flared End Section* for equivalent round-size 27" pipe.

Materials. Materials and fabrication shall conform to Article 542.07(b)(2). Grating will be trapezoidal in shape and shall conform to IDOT Standard drawing 542311, *Grating for Concrete Flared End Section*, except with revised structural members and overall dimensions.

Basis of Payment. Payment for GRATING FOR FLARED END SECTION 72" or GRATING FOR CONCRETE FLARED END SECTION EQUIVALENT ROUND-SIZE 27" will be paid for at the contract unit price per EACH. The price shall include all attachments and hardware necessary to install the grating on the end section (including any holes required in the structure), and all labor, equipment, tools and incidentals necessary to complete the work as specified.

MANHOLE, TYPE A, 8' DIAMETER

Description: This work shall consist of constructing a manhole MANHOLES, TYPE A, 8' DIAMETER in accordance with Section 602 and per Highway Standard 602416, *Manhole Type A 8' Diameter*.

Basis of Payment: This work will be paid for at the contract unit price per each for MANHOLE of the type or type and diameter specified, and with the type of frame and grate or frame and lid specified.

RESTRICTOR MANHOLES

Description. This work shall consist of constructing manholes with restrictors, together with the necessary cast iron frames and grates or lids.

Construction Requirements. This work shall be completed in accordance with applicable portions of Section 602 of the Standard Specifications and the details in the plans.

Manhole structures shall be Type A per IDOT Standard 602406, "*Manhole Type A 6' Diameter*" modified as depicted on the plans. The restrictor plate should have a sharp-edged opening, centered horizontally, of the diameter and at the elevation shown on the plans.

The steel restrictor plate shall be placed between pairs of 3"x3"x3/8" steel angles placed along the bottom and both vertical edges of the restrictor plate. Vertical steel angles should extend the full length from the bottom to the top of the restrictor plate. Horizontal steel angles should extend from vertical angle to vertical angle. All steel angles and the restrictor plate shall be galvanized after fabrication.

Each section of steel angle shall be fastened to the manhole wall and base using 3/8" stainless steel studs with nuts and expansion anchors. Fasteners shall be uniformly spaced along each angle with a 6" space from each end. A minimum of 3 fasteners shall be used on each horizontal angle and a minimum of 6 fasteners shall be used on each vertical angle.

Basis of Payment. All work will be paid for at the Contract unit price per each for MANHOLES, TYPE A, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE.

STEEL CASINGS

Description. Where indicated on the Plans or specified by the Engineer sanitary, storm and water utility pipes shall be installed in a watertight casing pipe placed in the excavated trench. This work shall be performed in accordance with the detail provided in the Plans and as directed by the Engineer.

Materials.

Casing pipe –

Ductile Iron Pipe - AWWA-C151, Class 50 with rubber gasket push-on joints (AWWA-C111)

OR

Steel Pipe - ASTM A139, Grade B, minimum yield strength 35,000 psi, minimum wall thickness 0.375 inch with welded joints. All pipe shall be coated inside and out with at least one shop coat of an approved primer paint. In addition the external surface shall be treated with one coat of coal tar epoxy or asphaltum paint. The full circumference of any joints shall be welded such that the casing pipe is continuous

OR

Where indicated as permitted on the plans, PVC casing pipe conforming to the City requirements may be used.

Casing spacers - The utility (carrier) pipe shall be inserted into and supported within the casing pipe by the use of casing spacers. Spacers shall have a stainless steel shell with PVC lining, stainless steel bolts, and ultra high molecular weight polymer runners (Cascade Waterworks Mfg. Co. Model CCS or approved equal). Spacers shall be configured to provide restraint against utility pipe movement due to flotation. Spacer interval shall be as recommended by the manufacturer.

Self-restraining casing spacers - Additionally force mains and water mains shall be installed with self-restraining casing spacers that provide axial thrust restraint to prevent pipe joint separation. Restrained casing spacers (Uni-Flange or approved equal) shall be provided at all pipe joints.

Void space fill - The void space between the casing pipe and the utility (carrier) pipe shall be filled with sand or other approved material.

End seals - Ends of the casing pipe shall be sealed with rubber end seals secured in place with stainless steel bands (Cascade Waterworks Mfg. Co. Model CCES or approved equal).

Basis of Payment. This work will be paid for at the contract unit price per foot for STEEL CASINGS, of the diameter specified.

VIDEO INSPECTION OF STORM SEWER
STORM SEWERS TO BE CLEANED

This work shall be completed in accordance with the applicable portions of Section 550 of the Standard Specifications for Road and Bridge Construction, as directed by the Engineer, and as specified herein.

Description:
This work shall consist of the inspection and cleaning of all existing storm sewers to remain that lie beneath proposed pavement. Work consists of furnishing all labor, equipment, and materials necessary to video various sized storm sewers and providing a DVD formatted copy of the video, including an inspection narrative and written (typed) report.

Scope of Work:
The Contractor shall furnish the Department a DVD color copy of all inspected storm sewers, at inspection rates of 3 to 5 feet per minute, unless otherwise designated. The color video shall include a narrative stating the location and explanation of deficiencies. The deficiencies to be noted include cracked pipe, collapsed pipe, joint leaks, failed patches, subsidence, or intrusions to the pipe. All suspect areas shall be viewed by the camera in such a way as to make a clear analysis of the system. The quality of said DVD shall be such that all deficiencies are clear and visible. A written (typed) report shall be prepared to list all deficiencies of the various sized storm sewers inspected. The report shall include the location of each deficiency, an explanation of the deficiency found, and a recommendation for repairs.

Replacement of pipe shall be at the discretion of the Engineer upon review of the inspection videos. Removal and replacement of pipes shall be constructed according to Sections 551 and 550, respectively.

Equipment:
The TV camera required in this contract shall have a lens capable of viewing or rotating 360 degrees. The number of units of equipment on hand shall be adequate to insure the completion of the work. All equipment to be used in the execution of this contract shall be in a safe working condition and shall be subject to approval or disapproval by the Engineer. Equipment that is disapproved shall be repaired or removed from the job as required by the Engineer.

General:
Video inspection shall be performed after the removal of the existing pavement and placement and compaction of the proposed aggregate subgrade. Inspection shall be completed before placement of any proposed concrete or bituminous pavement to enable repair work to be performed as required by the Engineer. The Engineer or designated representative will monitor the video inspection operations to assure compliance with the specifications outlined.

Cleaning shall occur once all repair work is completed.

Measurement:
The storm sewer that is to be videoed and cleaned shall be measured in feet, regardless of pipe size, from inside edge to inside edge between inlets, manholes, or catch basins. Storm sewer removal will be measured according to Article 551.05 and replacement pipes will be measured according to Article 550.09. Any cleaning necessary to perform the video inspection will not be measured for payment.

Basis of Payment:
This work will be paid for at the contract unit price per Foot for VIDEO INSPECTION OF STORM SEWER or STORM SEWERS TO BE CLEANED. Such payment shall be full compensation for all work and materials required to complete the video inspection, furnish a narrated DVD color copy of the inspection, provide a typed report as required, clean the sewers, and dispose of any debris removed.

Storm sewer removal will be paid for according to Article 551.06. Replacement pipes will be paid according to Article 550.10.

CONCRETE MEDIAN, TYPE SB-6.18 (MODIFIED)

Description. This work shall consist of constructing a concrete median in accordance with Section 606 of the Standard Specifications, the details in the plans and as specified herein.

Method of Measurment. This work will be measured for payment in square feet. The concrete curb and gutter around the solid concrete median will not be measured separately for payment.

Basis of Payment. This work shall be paid for at the contract unit price per square foot for CONCRETE MEDIAN, TYPE SB-6.18 (MODIFIED), which payment shall constitute full compensation for furnishing and placing all materials, labor, tools, and equipment and incidentals to complete the work as specified herein.

PORTLAND CEMENT CONCRETE SIDEWALK, SPECIAL

Description. This work shall consist of constructing a portland cement concrete sidewalk with a variable height curb in accordance with Section 424 of the Standard Specifications, the details in the plans and as specified herein.

Method of Measurment. This work will be measured for payment in place and the area computed in square feet.

Basis of Payment. This work shall be paid for at the contract unit price per square foot for PORTLAND CEMENT CONCRETE SIDEWALK, SPECIAL, which payment shall constitute full compensation for furnishing and placing all materials, labor, tools, and equipment and incidentals to complete the work as specified herein.

MEDIAN SURFACE REMOVAL

Description: This work shall consist of the removal and satisfactory disposal of all existing concrete median surface shown on the plans or as directed by the Engineer.

All work shall be in accordance with the applicable portions of Section 440 of the Standard Specifications.

Method Of Measurement: Concrete median surface removal shall be measured for payment in place and the area computed in square feet. Any removal or damage to the existing concrete median surface outside the designated limits shown on the plans or as directed by the Engineer will not be measured for payment.

Basis Of Payment: This work will be paid for at the contract unit price per square feet for MEDIAN SURFACE REMOVAL. The contract unit price shall include removing and resetting all frame and lids and or grates located within the removal area.

SANITARY MANHOLES TO BE ADJUSTED

Description. This work shall consist of adjusting sanitary manholes to final grade. Sanitary manholes to be adjusted shall be fitted with an external chimney seal such as "Adaptor Inc." or approved equal. Existing chimney seals may be adjusted and reused if considered suitable for reuse by the Engineer. This work shall otherwise be performed in accordance with the applicable portions of Section 602.

Basis of Payment. This work will be paid for at the contract unit price per each for SANITARY MANHOLES TO BE ADJUSTED which price shall include new chimney seals where required.

SANITARY MANHOLES TO BE RECONSTRUCTED

Description. This work shall consist of adjusting sanitary manholes to final grade. Sanitary manholes to be adjusted shall be fitted with an external chimney seal such as "Adaptor Inc." or approved equal. Existing chimney seals may be adjusted and reused if considered suitable for reuse by the Engineer. This work shall otherwise be performed in accordance with the applicable portions of Section 602.

Basis of Payment. This work will be paid for at the contract unit price per each for SANITARY MANHOLES TO BE RECONSTRUCTED which price shall include new chimney seals where required.

FIRE HYDRANTS TO BE ADJUSTED

Description. This work shall consist of adjusting existing fire hydrants, with auxiliary valves when applicable, to conform to proposed grades.

Work shall otherwise conform to the applicable portions of Section 564 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per each for FIRE HYDRANTS TO BE ADJUSTED.

DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED

Description. This work shall consist of adjusting domestic water service boxes (b-boxes) to final grade.

This work shall otherwise conform to Section 565 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per each for DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED.

DRAINAGE SCUPPERS, DS-12M10

Description.
This work shall consist of furnishing and installing Drainage Scuppers along with all necessary hardware, labor equipment in accordance with the Plans, and as directed by the Engineer. The materials and other requirements are as shown on the plans.

Method of Measurement
Drainage Scuppers, DS-12M10 will be measured for payment per each installed, completed and accepted.

Basis of Payment.
This work shall be paid for at the contract unit price per each for DRAINAGE SCUPPERS, DS-12M10, which payment shall constitute full compensation for furnishing and installing the scupper (frame and grate), downspouts, anchor studs and accessories, and for furnishing all labor, equipment, tools, and incidentals necessary to complete the work as specified.

The Contractor may substitute structural weldments of equal section and configuration in lieu of the cast iron option shown on the plans. Cost for any substitution shall be included in the unit price bid for this item and shall include any required submittals to the Engineer for review and approval.

ROCK FILL
Effective: October 15, 1995 Revised: January 1, 2007

Description.
This work shall consist of furnishing, transporting, and placing rock fill for ground stabilization.

Materials
The material shall be as required in Article 1005.01 of the Standard Specifications. It shall not contain objectionable quantities of dirt, sand, clay, or rock fines as defined under gabions and slope mattresses, Article 284.02.

The material shall be well graded with a maximum stone dimension of 8 inches (200 mm). No more than 35% shall have a dimension less than 2 inches (50 mm).

Method of Measurement
Rock fill will be measured for payment in cubic yards, in accordance with Article 311.08.

Basis of Payment.
This work shall be paid for at the contract unit price per cubic yard for ROCK FILL, which payment shall constitute full compensation for furnishing and placing all materials, labor, tools, and equipment and incidentals to complete the work as specified herein.

TEST HOLES

Description.
This item shall consist of excavation for the purpose of locating existing utilities at locations where conflict is possible with the proposed construction.

Construction Requirements
Test holes will be dug at locations authorized by the Engineer. The Contractor shall be responsible for notifying the utility concerned.

After the Engineer has verified the location of the utility, the test hole shall be backfilled with either the excavated material or crushed limestone with CA-7 gradation, as directed by the Engineer. Any excess material shall be disposed of in accordance with Article 202.03.

Basis of Payment.
This item shall not be paid for separately, but shall be included in the contract unit price for STORM SEWERS of the type and diameter specified. No separate payment will be made for stone used to backfill the test holes.

STEEL CASING PIPE, AUGERED AND JACKED, 42"

Description. Where indicated on the Plans sanitary, storm and water utility pipes shall be installed in a watertight casing pipe that has been augered and jacked in place. This work shall be performed in accordance with the detail provided in the Plans and as directed by the Engineer.

Methods and Materials.
Casing pipe –

Steel Pipe - ASTM A139, Grade B, minimum yield strength 35,000 psi, minimum wall thickness 0.375 inch with welded joints. All pipe shall be coated inside and out with at least one shop coat of an approved primer paint. In addition the external surface shall be treated with one coat of coal tar epoxy or asphaltum paint. The full circumference of any joints shall be welded such that the casing pipe is continuous

Casing spacers - The utility (carrier) pipe shall be inserted into and supported within the casing pipe by the use of casing spacers. Spacers shall have a stainless steel shell with PVC lining, stainless steel bolts, and ultra high molecular weight polymer runners (Cascade Waterworks Mfg. Co. Model CCS or approved equal). Spacers shall be configured to provide restraint against utility pipe movement due to flotation. Spacer interval shall be as recommended by the manufacturer.

Self-restraining casing spacers - Additionally force mains and water mains shall be installed with self-restraining casing spacers that provide axial thrust restraint to prevent pipe joint separation. Restrained casing spacers (Uni-Flange or approved equal) shall be provided at all pipe joints.
Void space fill - The void space between the casing pipe and the utility (carrier) pipe shall be filled with sand or other approved material.

End seals - Ends of the casing pipe shall be sealed with rubber end seals secured in place with stainless steel bands (Cascade Waterworks Mfg. Co. Model CCES or approved equal).
Jacking and receiving pits shall be located so as to avoid conflicts with existing utilities.

The casing pipe shall be installed using equipment that encases the hole as the earth is removed. Augering without the concurrent installation of a casing pipe will be not permitted. All joints in casing pipe shall be continuously welded. The casing pipe shall extend the entire length indicated on the plans and be installed in a manner that will not disrupt rail traffic nor surface grades and facilities. The introduction of water as an excavator is prohibited.

The shoring with the augering/jacking pits shall be designed, erected, supported, braced, and maintained such that it will safely support all vertical and lateral loads that may be imposed on it during construction.

Any unsuitable dirt and debris removed during construction shall be properly disposed of. Excavation of the casing pipe and jacking and receiving pits shall conform to Section 202. Backfilling of the jacking and receiving pits shall conform to Article 550.07 using Trench Backfill as specified in Section 208.

Basis of Payment. This work will be paid for at the contract unit price per foot for STEEL CASING PIPE, AUGERED AND JACKED, 42". All excavation and disposal, shoring design, construction, and removal, trench backfill, carrier pipe installation, casing spacers, void space fill, end seals, and all other materials, equipment and labor necessary to complete this work will be included in this price. The carrier pipe will be paid for under the applicable pay item for that type of pipe.

TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR

Effective: September 1, 1995 Revised: January 1, 2007

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

Basis of Payment: This work will be paid for at the contract unit price each for TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR.

RECESSED REFLECTIVE PAVEMENT MARKERS

Description. This work shall consist of setting reflective pavement markers in a recessed groove in the pavement. The recessed pavement markers shall be used to supplement other pavement markings, similar to the use of Raised Reflective Pavement Markers.

Materials. The reflective pavement marker shall be a 3M 190 series pavement marker or Engineer approved equivalent. The reflector holder shall be a MarkerOne Series R100 reflector holder or Engineer approved equivalent. The epoxy used shall be as recommended by the pavement marker manufacturer.

Installation. Spacing and orientation of the pavement markers shall be as detailed in the plans or as directed by the Engineer.

A recessed groove shall be cut in the pavement 5.25" wide, 0.9" deep on a 15.5" diameter. An additional 4.5' long grove shall taper from 0" (normal pavement) to 0.3" depth (full-recessed). For 1-way markers heading uphill, uphill grind taper may be omitted.

The recessed area shall be cleaned free of all loose material, and dry before the placement of the pavement marker. All excess material resulting from the construction of the recessed area shall be completely removed from the surface of the roadway by means of vacuum sweeper truck. The pavement marker shall be cemented with epoxy in the center of the 0.9" deep recessed groove.

Inspection. A straight edge shall be placed across the recess to check that the top of the marker is below the pavement. Inspection and acceptance shall be according to Article 781.04 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price each for RECESSED REFLECTIVE PAVEMENT MARKER, which price shall be payment in full for all labor, equipment, and materials necessary to complete the work as specified.

EROSION CONTROL BLANKET

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

Delete Article 251.04(a) Excelsior Blanket.

PLANTING WOODY PLANTS

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

Delete Article 253.03 Planting Time and substitute the following:

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

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

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

- American Hornbeam (Carpinus caroliniana)
- Hackberry (Celtis occidentalis)
- American Yellowwood (Cladrastis lutea)
- Hawthorn (Crataegus spp.)
- Crabapple (Malus spp.)
- American Hophornbeam (Ostraya virginiana)
- Schubert Chokecherry (Prunus virginiana 'Schubert')
- Pear (Pyrus spp.)
- Oak (Quercus spp.)
- Lilac (Syringa spp.)

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

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

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

Add the following to Article 253.05 Transportation:

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

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

The Roadside Development Unit (847.705.4171) will place the marking flags and outline each area for mass or solid planting. Allow a minimum of seven (7) days prior to installation for layout.

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

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

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

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

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

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

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

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

Delete Article 253.11 and substitute the following:

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

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

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

Delete Article 253.12 Wrapping and substitute the following:

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

Add the following to Article 253.13 Bracing:

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

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

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

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

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

Delete Article 253.17 Basis of Payment and substitute the following:

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

TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER

SUMMARY: Trench, backfill, and compact as shown on the Drawings, as specified herein and as needed for installation of water main in accordance with the "Standard Specifications for Water and Sewer Main Construction in Illinois".

QUALITY ASSURANCE: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

Comply with requirements of governmental agencies having jurisdiction.

GRANULAR PIPE BEDDING AND COVERING MATERIALS: Provide well graded, washed, mixture of gravel or crushed stone aggregate free of clay, loam, dirt, calcareous or other foreign matter conforming to the IDOT "Standard Specifications" gradation No. CA 11 or the Standard Specifications for Water and Sewer Construction in Illinois, with the following gradation:

Sieve Size	Percent Passing
1-inch	100%
3/4-inch	84 -100%
1/2-inch	30 - 60%
No. 4	0 -12%
No. 16	0 - 6%

1. For flexible thermoplastic pipes, including sanitary sewer pipes: Comply with ASTM D2321, Class I or II as modified below.
   a. Exclude sharp angular granular materials.
   b. Limit maximum particle size to 1/2-inch.
   c. Do not use Class II materials in wet conditions.
2. For rigid pipes comply with ASTM C12, Bedding Class B.

EXCAVATED BACKFILL MATERIALS IN NON-PAVED AREAS OUTSIDE THE ROUTE 53 RIGHT-OF-WAY: Provide soil materials free from organic matter, rubble, or frozen material, containing no rocks or lumps over 6 inches, and with not more than 15 percent of the rocks or lumps larger than 2 inches.

GRANULAR BACKFILL MATERIALS: Provide IDOT gradation CA 6 material complying with applicable provisions in Article 208.02 of the IDOT Standard Specifications and these special provisions.

GEOTECHNICAL FABRIC: Provide geotechnical fabric for separation of granular material and native soil in areas where trench is over excavated to remove unsuitable materials.

1. Acceptable manufacturers:
   a. Mirafi: 160N.
   b. Synthetic Industries: 601.
   c. Amaco: 4551.
   d. Or approved equal.

WATER MAIN REPAIR: Repair water main or water services damaged during construction using products of type and manufacturers as approved by the Owner.

Pipe couplings for joining sections of cut water main where a section of new pipe is used to replace a broken pipe.

1. Acceptable manufacturers:
   a. Dresser Style 38.
   b. Smith-Blair CC-441.
   c. Or equal.
2. Repair clamps for broken or cracked pipe and sealing of existing corporation stop opening.
   a. Use full-circle single band all stainless steel clamps.
   b. Acceptable manufacturers:
      (1) Dresser Style 360.
      (2) Smith-Blair 200 Series.
      (3) Or equal.
   c. Replace damaged service corporation stops by installation of full-circle single band all stainless steel clamps, with service outlet, matching manufacturer's and styles used for repair of a cracked pipe.

DRAIN TILE REPAIR:

1. Replacement pipe: New pipe of the same size. Use new PVC plastic SDR 26 pipe per ASTM D3034.
2. Use flexible couplings with non-shear stainless steel bands for connecting new pipe to old pipe.
3. Provide CA 11 aggregate for backfill material under drain tile and replacement pipe.

GENERAL CONSTRUCTION REQUIREMENTS:

1. Protection of existing facilities:
   a. Unless shown to be removed, protect existing structures, conduits, active utility lines and all other facilities shown on the Drawings or otherwise made known to the Contractor. If damaged, repair, replace, or restore to a condition equal to or better than the original condition at no additional cost to the Owner.
   b. Notify all persons, firms, corporations, or agencies owning or using any existing structures, conduits, or utilities which may be affected by the Work prior to the start of construction.
   c. Make arrangements to locate, maintain, protect, and/or relocate facilities to complete the Work.
   d. Make such exploration as is necessary to determine the exact location of underground utilities.
   e. Exercise care during the progress of work in the area to prevent damage to the utilities.

f. Whenever it becomes necessary to relocate underground gas mains, telephone conduit, or electrical lines or support utility poles, the utility company involved will make such relocation or provide pole support. Notify the utility company promptly.

g. Whenever it becomes necessary to relocate water or other pipes or conduits in direct conflict with proposed pipe (exclusive of culverts) which are not shown on the Drawings, obtain the direction from the Engineer for the relocation. Compensation will be allowed only for such quantities as determined by the Engineer.

h. Do not obstruct accessibility of fire hydrants.

TRENCHING:

1. Do not advance trench excavation more than 50 feet ahead of completed pipe installation except as approved by the Engineer.
2. Provide and maintain sheeting, shoring, and bracing necessary for protection of the Work, adjacent property, and for the safety of personnel.
   a. Remove temporary sheeting and bracing after backfilling to an elevation which will prohibit caving of exposed sidebanks.
   b. Fill voids left by the withdrawal of sheeting with compacted sand.
   c. The Engineer may direct that supports in trenches be cut off at any specific elevation to protect adjacent facilities or property. Compensation for support left in place will be negotiated.
   d. No extra payment will be made for the supports left in place without the direction of the Engineer.
   e. Do not leave supports within 4 feet of the ground or pavement surface in place without the permission of the Engineer.
3. Provide pumping, bailing, wellpointing, and construct ditches and dikes required to dewater and drain ground water, sewage, or stormwater to keep the excavation and site dry for the completion of the Work.
4. Excavation:
   a. Excavate by open cut unless otherwise indicated on the Drawings.
   b. Excavate trenches to the depths and grades necessary for the pipelines with allowances for bedding material.
   c. Over excavate organic, soft, spongy, or otherwise unsuitable soils found at or below the bottom of the trench to meet firm subsoil or as determined by the Engineer.
   d. Comply with the following maximum trench widths at the top of pipelines:

Nominal Pipe Sizes (inches)	Maximum Trench Widths (inches)
12 or smaller	30
14 - 18	36
20 - 24	42
27 - 30	48
36 and larger	1-1/3 times pipe OD

   e. Where the trench width exceeds the maximum limitations, provide higher strength pipe, or embed or cradle the pipe in concrete to achieve the necessary load factor as determined by the Engineer at no additional cost.

EXCAVATION FOR APPURTENANCES:

1. Excavate for valve vaults, manholes and similar structures to the depths as shown on the Drawings and to a distance sufficient to leave at least 12 inches clear between outer surfaces and the embankment or shoring that may be used to hold and protect the banks.
2. Over depth excavation beyond depths indicated on the Drawings, that has not been directed, will be considered unauthorized. Fill with sand, gravel, or lean concrete as determined by the Engineer, and at no additional cost to the Owner.

BEDDING AND COVERING OF PIPE: Bedding is defined as the shaped and tamped material which supports the pipes. Covering is defined as the compacted material which protects and covers the pipes. Provide continuous bedding and covering for underground pipelines, except where concrete encasement, concrete cradles, ramming or boring or jacking are indicated.

Pipe bedding:

1. Provide compacted granular pipe bedding and covering material with a minimum thickness of 4 inches under pipe barrels and 2 inches under bells.
2. Wherever the trench is over excavated, refill the trench bottom to the required pipeline grade with granular pipe bedding and covering material, or granular material conforming to the IDOT "Standard Specifications" gradation No. CA 11.
    a. Removal and replacement of material, or unsuitable material, to a depth of one-foot below pipe barrel outside diameter is considered incidental to installation of the pipe.
3. Wherever the trench is over excavated to remove unsuitable material, install geotechnical fabric between native soil and granular material:
    a. Install fabric to cover bottom and sides of trench to heights as follows:
        (1) Sanitary sewer, force main, and water main; to envelop entire bedding and covering material and overlap 1-foot at the top.
        (2) Where undercut is of a depth that requires more than one piece of fabric to provide envelope, provide sewn seams between sections of fabric.
4. Wherever two or more pipes or conduits are placed in the same trench or excavated area, backfill the trench with granular pipe bedding and covering material to support the uppermost pipe or conduit.
5. Provide sand bedding with a minimum thickness of 3 inches under electrical and wiring conduits and cables.

Pipe covering:

1. Following placement of pipe and inspection of joints, provide compacted granular pipe bedding and covering material for the full width of the trench to 12 inches above the top of the pipe for all pipe sizes and types.
2. Place granular pipe bedding and covering material in uniform loose layers not exceeding 8 inches thick.
    a. Compact each layer firmly by ramming or tamping with tools approved by the Engineer in such a manner as not to disturb or injure the pipe to yield a minimum density of 95 percent of maximum dry density as determined according to ASTM D1557 or AASHTO-T180.
3. Where trench is widened by installation of structures or jacking pits, extend bedding and covering materials to total width of excavations.

TRENCH BACKFILLING AND COMPACTING: Backfill trench from the top of pipe cover to topsoil, paving subgrade, or foundation level.

For trench in lawns, parkways, and other improved areas not subject to vehicular traffic outside the right-of-way of Route 53:

1. Backfill with excavated materials in uniform loose layer not exceeding 12 inches thick.
2. Compact each layer of granular backfill materials to yield a minimum of 85 percent of maximum dry density as determined according to ASTM D1557 or AASHTO-T180.

For trenches within 2 feet of any existing or proposed pavement, curb and gutter, sidewalk, or other paved areas, or for trenches in lawns and parkways inside the right-of-way of Route 53:

1. Backfilling with granular backfill materials:
    a. Place in uniform loose layer not exceeding 8 inches thick and compact with vibrating roller or equivalent.
    b. Water jetting may not be used in lieu of vibratory compaction.
    c. The top 16 inches shall be CA 6 crushed stone or crushed gravel.
2. Compacting requirements:
    a. Compact each layer of granular backfill materials to yield a minimum density of 95 percent of maximum dry density as determined according to ASTM D1557 or AASHTO T-180.
    b. Determine the density of compacted backfill at intervals of not more than 500 feet at locations selected by the Engineer.
    c. Provide the services of an independent testing laboratory for the density tests.
3. Maintain temporary pavement or Class D Patch level with adjoining pavement surfaces until the road is resurfaced.

BACKFILL AND BEDDING FOR APPURTENANCES:

1. Provide 6 inches of granular bedding material unless otherwise shown on the Drawings.
2. Do not backfill until new concrete has properly cured, and any required tests have been accepted.
3. Backfill in lawns and landscaped areas outside the Route 53 right-of-way with excavated materials.
4. Backfill in pavement around manholes, catch basins, inlets, valve vaults, and other structures as determined by the Engineer with granular backfill materials.

FLOWABLE FILL TRENCH BACKFILL MATERIALS: Provide controlled low strength material (CLSM) where shown on the Drawings or as required during construction in accordance with direction from the Engineer.

1. Provide a proportioned cement, fly ash, fine aggregate and water mix.
2. Comply with IDOT Section 593 for Controlled Low-Strength Material, Backfill (CLSM) for material mix design criteria and testing.
    a. Acceptable products:
        (1) Geofill by Mix Onsite,
        (2) Or equal.

FINISH GRADING:

1. Provide finish grading and filling to achieve the lines and grades.
2. Slope grades to drain away from structures.

3. Except where mounding over trenches is specified, grade smooth areas of the Work including previously grassed areas that have been disturbed, and adjacent transition areas.
4. Fill and compact depressions from settlement and round tops of embankments and breaks in grade.
5. Protect newly graded areas from traffic and erosion. Repair settlement or washing away that may occur prior to surface restoration and re-establish grades to the required elevations at no additional cost to the Contract.
6. Remove unsuitable and surplus excavated materials not used for backfilling from the project site.
7. Do not deposit on public or private property without written permission from property owner or authorized representative of appropriate public agency.

TEMPORARY PAVEMENT:

1. Provide a premixed hot-mix asphalt wearing surface for use during the period between backfilling the trench and constructing the permanent pavement patches at locations open to thru traffic and intersections or as determined by the Engineer.
2. Remove the temporary pavement at the time of Class D patching or permanent pavement construction.

WATER MAIN REPAIR:

1. Whenever existing water mains and water service pipes are damaged during construction, stop the pipe installation work and immediately repair the damaged portion of the existing piping.
2. Contact the Engineer and the Village of Itasca immediately to report the location and extent of the damage.
3. Repair the water main with methods complying with the “Standards for Water and Sewer Main Construction in Illinois”, and any additional requirements required by the Village of Itasca.
4. Utilize only materials of repair as specified in these Special Provisions or as dictated by the Village of Itasca.
5. Where water services have been stripped or pulled from the water main, replace the corporation stop as instructed by the Engineer and the Village of Itasca, and replace the water service pipe to a point as determined by the Village of Itasca.
6. Comply with disinfection requirements as dictated by the Village of Itasca.
7. Do not cover the repair until work is inspected and approved by Village of Itasca.

GRANULAR BACKFILL:

Description. Granular backfill shall be placed in all trenches crossing driveways, sidewalks, curb and gutter and all proposed and existing roadways, within the right-of-way of Route 53; from the top of bedding and covering material to the top of the existing surface. Granular backfill shall be placed in all trenches in unpaved areas within the right-of-way of Route 53 from the top of bedding and covering material to within 6 inches of the existing surface. Installation of the granular backfill shall be in accordance with Section 208 of the “Standard Specifications for Road and Bridge Construction,” latest edition and the Special Provision for “TRENCHING BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER” and the details shown on the Drawings.

Granular backfill shall consist of CA 6 compacted to 95% of maximum density at optimum moisture as determined by the Modified Standard Proctor Test. The top 12" of the trench up to the bottom of the existing pavement shall be CA 6 crushed stone or crushed gravel, compacted with the same requirements. Granular backfill shall be mechanically compacted in 8-inch lifts from top of the bedding and covering material. No jetting will be allowed.

CA 6 shall be used to fill from the bottom of the existing pavement to the top of the existing pavement until the Class D Patches are installed. CA 6 shall be included in the measurement for payment for GRANULAR BACKFILL. Removal of CA 6 shall be included in the cost of CLASS D PATCHES, of the type and thickness specified. TEMPORARY PAVEMENT shall be installed at locations open to thru traffic and intersections. Removal of temporary pavement shall be included in the cost of CLASS D PATCHES, of the type and thickness specified.

Method of Measurement. Granular backfill for water main and sanitary sewer will be measured for payment in accordance with the trench details shown on the Drawings and the volume computed in cubic yards installed. No extra compensation will be due to the Contractor for over-excavation of the trench not approved by the Engineer.

Basis of Payment. This work will be paid for at the Contract Unit Price per cubic yard for GRANULAR BACKFILL.

DUCTILE IRON WATER MAIN

Description. This work shall be in accordance with Section 561 and these Special Provisions and shall consist of furnishing all labor, materials and equipment necessary to install ductile iron water main, of the size and joint type specified to the alignment, grade and locations shown on the Drawings.

Water main shall be ductile iron, class 52, bituminous seal coated pipe and cement mortar lining per AWWA C104/ANSI 21.4, with mechanical or rubber gasket push-on or restrained joints per ANSI A21.11 (AWWA C111 and AWWA C600). All materials shall be made in the United States.

All mechanical joint fittings which deflect the flow 11-1/2 degrees or greater shall be provided with restrained joints. Unless otherwise shown on the Drawings, two pipe joints on full length pieces of pipe, on both sides of a valve or fitting, shall be restrained joints. Joint deflection shall be limited to 60% of the manufacturer's maximum allowable deflection.

Polyethylene encasement shall be wrapped and taped around all ductile iron pipe, fittings, valves in valve boxes, fire hydrants and auxiliary valves and boxes. The polyethylene material shall be Class C (blue in color) in conformance with the requirements of ANSI A21.5 and AWWA C-105. The minimum nominal thickness shall be 8 mils (0.008 inches). All material shall be manufactured in the United States. The cost of the polyethylene wrapping/tubing shall be included in cost of the water main.

CONSTRUCTION REQUIREMENTS

Ductile Iron Pipe: The Contractor shall furnish and install water main in accordance with the Drawings, the requirements stated herein, and Divisions II and IV of the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca.

Open Excavation: All trenches located in street pavement shall include full depth saw cutting of existing pavement prior to excavation of pavement and trench materials. This work is included in ductile iron water work. All excavations located in a street pavement shall be backfilled by the end of the workday and shall not be left open overnight. Trenches not located in a pavement may be left open only if surrounded by construction fence and barricades with flashing lights.

Granular Bedding and Covering: The Contractor shall furnish, install and compact granular bedding around the pipe as shown on the detail in the Drawings for entire length of the pipe in accordance with the details shown on the Drawings. The cost of the bedding shall be included in the cost of the water main.

Ductile Iron Fittings: The Contractor shall install ductile iron fittings in accordance with the DUCTILE IRON WATER MAIN FITTINGS special provision.

Polyethylene Encasement: The Contractor shall furnish and install polyethylene encasement in accordance with the Drawings, the requirements stated herein, the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca. The polyethylene wrap shall prevent contact between the pipe and the surrounding backfill and bedding material, but is not intended to be a completely air and water tight enclosure. Overlaps shall be secured by use of polyethylene tape capable of holding polyethylene wrap in place until backfilling operations are completed. The encased pipe shall be lowered into the trench using a sling that will not tear the polyethylene wrapping/tubing.

Wrap all water mains, fittings, valves, fire hydrant leaders, fire hydrants, and service lines. Wrap copper service lines to a point 3 feet from the center of the water main. Do not block fire hydrant weep hole.

Testing and Disinfection: Conduct pressure test, leakage test; and disinfection of new water main; flush main; and after acceptance for use, put water main into service (while existing main continues to function): Install service saddles, corporation stops, service lines, curb stops, and new service boxes; and connect new service box to existing service lines.

Pressure Test: All piping shall be subject to pressure tests as specified herein. After the pipe has been laid and partially backfilled, the pipe shall be subjected to a hydrostatic pressure equal to 125 psi at the lowest elevation of the pipe section. The duration of each pressure test shall be for a period of one hour with no loss of pressure. The basic provisions of AWWA C-600 and C-603 shall apply.

Leakage Test: Conduct a metered leakage test after the pressure test has been satisfactorily completed. The duration of each leakage test shall be at least 24 hours. During the test, subject water lines to the normal water pressure of the Village of Itasca's water system.

Install water meter approved by the Village of Itasca or Baxter & Woodman. Provide a double check valve assembly between the water meter and existing water main.

Maximum allowable leakage: As recorded by the water meter, with leakage to not exceed the number of gallons per hour (gph) as determined by the following formula:

gph = LD ($P^{½}$)/133,200

in which: L = Length of pipe test, in feet

D = Diameter of water main, in inches

P = Average pressure, in pounds per square inch (gage)

Should any test of pipe disclose leakage greater than the maximum allowable amount, locate and repair the defective joint or joints and then repeat the 24-hour metered leakage test until the leakage is within the specified allowance, and at no additional cost to the Contract.

Disinfection: All water main and piping shall be flushed and satisfactorily disinfected in accordance with AWWA C651 and the "Standard Specifications for Water and Sewer Main Construction in Illinois". The method of applied chlorine shall be approved by the Village of Itasca or Baxter & Woodman, Inc. Water sampling procedures; and the chain of custody and sample testing procedures; are as follows:

Flush treated water thoroughly from the water mains until the chlorine concentration in the water flowing from the main is no higher than generally prevailing in the Owner's system, or less than 1 mg/l.

After flushing, collect two water samples on successive days at least 24 hours apart in sterile bottles treated with sodium thiosulfate. Notify the Village of Itasca or Baxter & Woodman, Inc. to witness sample collection.

The Village of Itasca will deliver the samples to a State approved laboratory for bacteriological analysis.

Should the initial disinfection result in an unsatisfactory bacterial test; repeat the chlorination and sampling procedures until satisfactory results are obtained.

The Village of Itasca will provide the water for initial flushing and testing only. Compensate the Village for water used in subsequent flushing and testing.

Swabbing: Flush and swab pipe, valves, and fittings that must be placed in service immediately and cannot be disinfected by the above specified methods, with 5 percent solution of calcium hypochlorite prior to assembly. Secure the Village's or Baxter & Woodman's approval before applying this method of disinfection.

Method of Measurement. This work will be measured in lineal feet along the centerline of the pipe, and the measurement shall extend through fittings and valves.

Basis of Payment. This work will be paid for at the Contract Unit Price per lineal foot for DUCTILE IRON WATER MAIN, of the pipe sizes and joint type specified, regardless of depth, which price shall include all accessories, including polyethylene encasement, restrained joints where required, excavation, bedding and initial pipe covering, testing, disinfection and flushing.

Water main fittings shall be paid for separately as DUCTILE IRON WATER MAIN FITTINGS.

Trench backfill with granular materials above the granular pipe bedding and cover material shall be paid for separately as GRANULAR BACKFILL.

WATER SERVICE LINE

Description. The work shall be in accordance with Section 562 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and the detail on the Drawings, and shall consist of water service pipe complete in place by open cut **or** augering/moling (trenchless) methods, including saw-cutting, removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials;

shoring; bracing; trench dewatering, including erosion and sedimentation control for discharge resulting from all pumping operations; protection, replacement or repair of utilities; installation of service pipe, bedding and covering of pipe; connections to existing building service pipe, including unions, reducers, couplings and fittings; and backfilling with granular backfill.

Materials:

Service Lines: Type K soft temper seamless copper water tubing complying with ASTM B-88.

Granular backfill, as required, shall be included in this item and shall be in accordance with the Special Provision for GRANULAR BACKFILL. Granular backfill will not be paid for separately when placed in open cut trenches for water service pipe.

CONSTRUCTION REQUIREMENTS

The Contractor shall furnish and install water service lines in accordance with the Drawings, the "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition and applicable ordinances of the Village of Itasca. Install water service pipe as shown on the standard water service installation detail.

Do not splice water service pipe. Copper water service pipe shall be installed a minimum of 6'-0" deep, and shall connect between the new corporation stop and the new curb stop as shown on the Drawings.

Open cut service lines under pavement, curb and gutter, sidewalk, other paved surfaces, or outside of pavements within the Route 53 right-of-way shall be thoroughly backfilled with granular backfill in accordance with the special provision for TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER, and the granular backfill shall be included in the cost of this work.

Permanent Markers: The Contractor shall saw cut into the concrete curb a "W" to mark the location of the water service line. This marker shall measure at least 3 inches in height.

Method of Measurement. The work shall be measured in lineal feet along the centerline of the pipe, from the centerline of the water main to the termination of the service pipe at the new service box.

Basis of Payment. The work will be paid for at the Contract Unit Price per each WATER SERVICE LINE of the size and side of the street indicated.

Water service pipe may be installed by trenchless methods, at the Contractor's option, at no change to the Contract Unit Price for WATER SERVICE LINE.

FIRE HYDRANTS, AUXILIARY VALVES, BOXES AND STEMS

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install fire hydrants at locations shown on the Drawings in accordance AWWA Standard C502, the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca.

All hydrants shall be Mueller Super Centurion 250 3-way (no substitutions) with breakaway flanges.

Hydrants shall have 5¼" main valve opening, two 2½" hose nozzles and one 4½" pumper nozzle with National Standard threads. Hydrants shall open counterclockwise and shall be furnished with a mechanical joint inlet and shall restrained joints. All hydrants shall be Factory Red. Auxiliary valves shall match water valves in all respects, and shall be provided with a valve box with "WATER" marked on the box cover. All materials shall be manufactured in the United States.

CONSTRUCTION REQUIREMENTS

Install hydrants plumb with the lowest hose connection at least 18 inches, but not more than 26 inches, above the finished grade ground level. Set hydrant bases and auxiliary valve on a precast concrete block to provide firm support for the base. Brace the fire hydrant base with solid concrete blocking between the base and undisturbed trench wall to counteract the reaction thrust of water pressure at the base.

1. Provide mechanical joints with anchoring fittings, or approved restrained joints. All bolts, nuts and washers shall be stainless steel.

Place a minimum of 1 cubic yard of washed ¼" to ¾" river stone at and around the base for proper drainage.

1. Cover stone with plastic sheeting before backfilling.

Brace the fire hydrant barrels and auxiliary valve boxes during backfilling. Do not block the drain hole in fire hydrant. Place and compact granular backfill materials in 6-inch layers around the fire hydrant and auxiliary valve box. Cover new fire hydrant with black plastic bag until new system is in service.

Install fire hydrant barrel extensions, auxiliary valve boxes, and valve box extensions in accordance with manufacturer's instructions and recommendations.

Method of Measurement. The work will be measured for payment in place for each fire hydrant installed. Fire hydrant barrel extensions and auxiliary valve box extensions will be measured for payment in place per vertical foot (in ½ foot increments). Auxiliary valves and boxes will be measured for payment in place for each auxiliary valve and box.

Basis of Payment. This work will be paid for at the Contract Unit Price for each different item of work covered under this Special Provision for FIRE HYDRANTS, AUXILIARY VALVES, BOXES AND STEMS, which includes all work as described herein. FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX shall include a new fire hydrant, new auxiliary valve and valve box and 5 feet of 6-inch restrained joint leader pipe. FIRE HYDRANT shall consist of the installation of a new FIRE HYDRANT, without the installation of a new auxiliary valve and box. RELOCATE EXISTING FIRE HYDRANT shall include the removal, relocation and re-installation of an existing fire hydrant.

Fire hydrant barrel extensions and auxiliary valve box extensions shall be paid for at the Contract Unit Price per vertical foot (in ½-foot increments) for each FIRE HYDRANT BARREL EXTENSION and AUXILIARY VALVE BOX EXTENSION, which includes all work as described herein.

Auxiliary valves and boxes will be paid for at the Contract Unit Price for each AUXILIARY VALVE AND BOX.

CONNECTIONS TO EXISTING WATER MAINS (NON-PRESSURE)

Description. This work shall consist of the connection of the proposed water main to the existing water main at locations shown on the Drawings. It shall be performed in accordance with applicable portions of Section 41 of the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition.

The work shall include all necessary equipment necessary to physically make the connection. Pipe bedding and backfill shall be in accordance with the special provision for "TRENCHING, BACKFILLING, AND COMPACTING FOR WATER MAIN". Any reducers, cutting-in sleeves, or any other fitting near/or as result of the connection, shall be installed and paid for according to the DUCTILE IRON WATER MAIN FITTINGS special provision.

CONSTRUCTION REQUIREMENTS

Proposed water main shall be connected to existing water main after the new main has passed hydrostatic testing and disinfection. Connections shall be accomplished by use of mechanical joint fittings and lengths of pipe to make the most direct vertical and horizontal adjustments necessary to make the connection. This may include cut-ins to the existing main or connections to existing valves or fittings. This work will require water shut-off, which shall be coordinated with the Village's maintenance personnel for date, time and duration of shut-off. The Village Public Works shall be notified a minimum 48 hours prior to the planned water disruption.

New fittings and pipe that need to be put into immediate service shall be flushed and swabbed with 5 percent solution of calcium hypochlorite prior to assembly as approved by the Engineer and/or Village.

Method of Measurement. The work will be measured for payment in place for each non-pressure connection made to an existing water main.

Basis of Payment. This work will be paid for at the contract unit price for each CONNECTIONS TO EXISTING WATER MAINS (NON-PRESSURE), of the size indicated, which includes necessary equipment to physically make the connection, polyethylene wrapping, disinfection, and testing.

Water main fittings and valves shall be paid for separately as DUCTILE IRON WATER MAIN FITTINGS, of the type and size specified and GATE VALVE AND VALVE VAULT, of the sizes specified, respectively.

WATER VALVES

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install gate valves at the locations shown on the Drawings. Gate valves shall be ductile iron resilient wedge/seat type conforming to the latest edition of AWWA C515. All gate valves shall be furnished with mechanical or restrained joints conforming to ANSI 21.10, or flanged joints conforming to ANSI A21.11 with a restrained joint flange adapter inside valve vaults. All valves shall have stainless steel bolts at the packing gland and bonnet. Valve bodies shall be of ductile iron with the name or make of manufacturer, size and working pressure plainly cast in raised letters. Gate valves shall be Mueller A-2360 Series, or approved equal, and shall have stainless steel bolts, nuts and washers at the joints. All materials shall be manufactured in the United States.

All gate valves shall be equipped with 2-inch square operating nut that shall open to the left (counterclockwise) with the word "open" in ½-inch letters or larger and arrow (minimum 2 inches long) cast on the nut to indicate direction of opening.

CONSTRUCTION REQUIREMENTS

Gate valves shall be installed at locations shown on the Drawings and according to the manufacturer's recommendations. The Contractor shall complete work in accordance with the Drawings, the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca. All gate valves shall be inspected upon delivery in the field to insure proper working order before installation. Valves shall be installed in a vertical position, supported on a solid concrete block.

Basis of Payment. This work will be paid for at the Contract Unit Price for each of the WATER VALVES of the gate valve size specified.

CONNECTIONS TO EXISTING WATER MAINS (NON-PRESSURE)

Description. This work shall consist of the connection of a proposed water main to an existing water main, or the connection to an existing fire hydrant leader pipe, at locations shown on the Drawings. It shall be performed in accordance with applicable portions of Section 41 of the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition.

The work shall include all necessary equipment necessary to physically make the connection. Pipe bedding and backfill shall be in accordance with the special provision for "TRENCHING, BACKFILLING, AND COMPACTING FOR WATER MAIN AND SANITARY SEWER". Any reducers, cutting-in sleeves, or any other fitting near/or as result of the connection, shall be installed and paid for according to the DUCTILE IRON WATER MAIN FITTINGS Special Provision.

CONSTRUCTION REQUIREMENTS

Proposed water main shall be connected to existing water main after the new main has passed hydrostatic testing and disinfection, or after the fire hydrant leader has been swabbed for disinfection. Connections shall be accomplished by use of mechanical joint fittings and lengths of pipe to make the most direct vertical and horizontal adjustments necessary to make the connection. This may include cut-ins to the existing main or connections to existing valves or fittings. This work will require water shut-off, which shall be coordinated with the Village's maintenance personnel for date, time and duration of shut-off. The Village Public Works shall be notified a minimum 48 hours prior to the planned water disruption.

When existing valves or auxiliary valves are closed for construction, the Contractor shall brace and support the valves as required to prevent water pressure from moving or otherwise disturbing the stability of the valve and/or water distribution system. At locations where existing auxiliary valves cannot be located to move/remove a fire hydrant, a line stop (or pipe freezing) shall be used to allow connection the new or extended leader pipe.

New fittings and pipe that need to be put into immediate service shall be flushed and swabbed with 5 percent solution of calcium hypochlorite prior to assembly as approved by the Engineer and/or the Village.

Method of Measurement. The work will be measured for payment in place for each non-pressure connection made to an existing water main.

Basis of Payment. This work will be paid for at the Contract Unit Price for each CONNECTIONS TO EXISTING WATER MAINS (NON-PRESSURE), of the size indicated, which includes necessary equipment to physically make the connection, polyethylene wrapping, disinfection, and testing.

Water main fittings, valves and vaults will be paid for separately as DUCTILE IRON WATER MAIN FITTINGS, of the type and size specified and GATE VALVE and VALVE VAULT, of the sizes specified, respectively.

ABANDONMENT OF EXISTING WATER MAINS

Description. This work shall be in accordance with Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and consists of the abandonment of existing water mains, including the abandonment and partial removal of existing water mains, valve vaults, valve boxes and fire hydrants. The work shall include saw-cutting, removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; temporary line stops; removing portions of existing water mains and valve vaults, compete removal of fire hydrants, valve boxes and valve vault frames and covers; capping or plugging abandoned water main; fittings; concrete thrust blocks; and filling excavations and structures with compacted granular backfill materials.

The tops of valve vaults shall be removed to a depth of three feet below proposed ground level or pavement surface. The remaining portions of the vaults shall be filled with compacted granular backfill materials.

Plug the ends of water main pipes to be abandoned with concrete or mortar and brick plugs at least 18 inches long and filling the entire inside diameter of the pipes.

Dispose of fire hydrants, valve vault frames and covers, and valve boxes removed during water main abandonment.

This work shall include the removal of fire hydrants, auxiliary valves and valve boxes, and the plugging of existing tees on existing water mains to remain in service. The existing tee shall be plugged with a mechanical joint plug installed in the tee branch line, and existing auxiliary valves and fire hydrants shall be removed. The fire hydrants removed from existing water mains shall be relocated/reinstalled as called for on the Drawings.

Basis of Payment. This work will be paid for at the Contract Unit Lump Sum Price for ABANDONMENT OF EXISTING WATER MAINS.

Work to remove a fire hydrant and auxiliary valve, where the fire hydrant will be relocated to a new location, will be paid for at the Contract Unit Price for each FIRE HYDRANT AND AUXILIARY VALVE REMOVAL.

Ductile iron plugs/caps and concrete thrust blocking installed on ends existing water mains to remain in service will be paid for separately as DUCTILE IRON WATER MAIN FITTINGS.

INSERTION VALVES

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install insertion valves at the locations shown on the Drawings. Insertion valves shall be epoxy coated ductile iron, split body, resilient wedge/seat type conforming to the latest edition of AWWA C515, O-ring seal stuffing. Insertion valves shall have restrained type glands at each end of the valve body and shall be rated for 250 psi working pressure. Valves shall include a 2-inch square operating nut with counter-clockwise opening, non-rising stem operation.

Installation will require cutting and removing a portion of the water main pipe wall. Pipe cutting and removal of pipe material shall be completed with water main operating under continuous pressure.

Acceptable valve manufacturers are Occlude InsertValve, or approved equal.

CONSTRUCTION REQUIREMENTS

Insertion valves shall be installed at locations shown on the Drawings and according to the manufacturer's recommendations. The Contractor shall complete work in accordance with the Drawings, the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca. All insertion valves shall be inspected upon delivery in the field to insure proper working order before installation. Valves shall be installed in a vertical position, supported on a solid concrete block.

Basis of Payment. This work will be paid for at the Contract Unit Price for each of the INSERTION VALVES of the valve size specified.

PRESSURE CONNECTION

Description: The work shall be in accordance with the Special Provision for "DUCTILE IRON WATER MAIN" and shall consist of pressure connections to existing water mains complete in place, including sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; trench dewatering, including erosion and sedimentation control for discharge resulting from all pumping operations; protection, replacement, or repair of utilities; tapping valves and tapping sleeves; tapping of pipe; bracing; testing corporation stops and copper whips; bedding and covering of pipe; work required to construct valve vault over existing main; testing; disinfection; finish grading; and including backfilling with granular backfill; but not including fittings, valve boxes or valve vaults.

Tapping Sleeves:

1. Use stainless steel type with mechanical joints.
2. Provide joint accessories.
3. Measure existing water main outside diameter to determine proper tapping sleeve size.
4. Acceptable manufacturers:
   a. Stainless steel: Cascade CST extra heavy duty,
   b. Or approved equal.

Tapping Valves:

1. Use fully ported gate valves complying with specifications for GATE VALVES.

Basis of Payment: The work will be paid for at the Contract Unit Price for each PRESSURE CONNECTION of the water main pipe and tapping valve sizes. Fittings, valve boxes and valve vaults required for pressure connections shall be paid for as DUCTILE IRON WATER MAIN FITTINGS, VALVE BOXES, or VALVE VAULTS, respectively.

WATER MAIN LINE STOPS

Description: The work shall be in accordance with manufacturer's recommendations and consists of the installation of line stops in existing water mains complete, including locating existing mains; sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; protection, repair, or replacement of existing utilities; dewatering, including erosion and sedimentation control methods and devices to provide protection to the environment from all pumping operations; sheeting; shoring; tapping of pipes to install line stop plugs; installation of line stops; and temporary fencing, barricades, and other items needed to provide traffic control and protection and protection to the public.

The work includes removal of the line stop plug, capping of the tapping sleeve; and backfilling of the excavation with compacted granular backfill.

Line stops have been specified as the preferred method of stopping flow in an existing fire hydrant leader pipes if auxiliary valves are not available and in water distribution mains if main line valves are too remote and would result in large sections of the water distribution system being shut down for the Contractor's work. The Contractor may use pipe freezing in lieu of line stops on fire hydrant leader pipes (6" pipes only), at the Contractor's option and at no change in cost to the Contract.

Each line stop installed for construction shall be located so to allow use of, or location/exposure of, the line stop in the future. Each line stop location shall be determined by making and recording measurements between the line stop and three nearby permanent structures, property pins/corners, etc.

Basis of Payment: The work will be paid for at the Contract Unit Price for each WATER MAIN LINE STOP of the size indicated.

VALVE VAULTS

Description: The work shall be in accordance with Section 562 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and shall consist of the installation of valve vaults for pressure connections, gate valves, and insertion valves, complete in place; including sawcutting; removal and disposal of existing pavements; excavation in excess of that required for water main line trenching; bracing, sheeting, and shoring; protection, replacement, or repair of utilities; dewatering, including erosion and sedimentation control methods and devices to provide protection to the environment from all pumping operations; vault bedding; vault to be installed over existing water main for pressure connections; vault riser sections as required to provide proper depth; eccentric cone for pressure connection valve vaults; concentric cones for gate and insertion valves; frame and cover adjusting rings; frames and covers stamped with the words "WATER" and "VILLAGE OF ITASCA"; steps; backfilling with compacted granular backfill materials; and including frame and cover adjustment to final grade at time of final restoration.

Method of Measurement. The work will be measured for payment in place for each valve vault installed.

Basis of Payment: The work will be paid for at the Contract Unit Price for each of the VALVE VAULTS of the diameter specified.

VALVE BOX

Description: The work shall be in accordance with Section 562 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and shall consist of the installation of valve boxes on tapping valves or gate valves, complete in place; including sawcutting; removal and disposal of existing pavements; excavation; bracing, sheeting, and shoring; protection, replacement, or repair of utilities; dewatering, including erosion and sedimentation control methods and devices to provide protection to the environment from all pumping operations; box riser sections as required to provide proper depth; and including box and cover adjustment to final grade at time of final restoration.

Method of Measurement. The work will be measured for payment in place for each valve box installed.

Basis of Payment: The work will be paid for at the Contract Unit Price for each VALVE BOX of the size specified.

CONTROLLED LOW-STRENGTH MATERIAL

Description. The work shall be in accordance with Section 593 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and consists of backfilling open cut trenches with controlled low-strength material where directed by the Engineer, from the top of the pipe bedding and covering material to the elevation of the adjacent existing pavement, and extending 2 feet beyond the edges of pavement, complete in place, including installation and removal of forms; and cleanup.

This work includes installation and subsequent grinding of the controlled low-strength material to function as a driving surface until final pavement is installed.

Method of Measurement. The work will be measured in cubic yards, based on approved load tickets.

Basis of Payment. The work will be paid for at the Contract Unit Price per cubic yard for CONTROLLED LOW-STRENGTH MATERIAL.

STEEL CASING PIPE AUGERED AND JACKED

Description. The work shall be in accordance with Section 561 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and shall consist of steel casing pipe complete in place by augering and jacking or pneumatic ramming methods; including providing both jacking and receiving pits; tight sheeting to protect adjacent utilities, roadways and property, or to provide protection to the public;

protection, repair or replacement of utilities; traffic control; fencing of work site to provide protection to public; excavation; removal and disposal of waste excavated materials; bracing; dewatering, including erosion and sedimentation control methods and devices to provide protection to environment from all pumping operations; providing and jacking or ramming of casing pipe; grouting of voids between casing and casing excavation; installing carrier pipe; supporting carrier pipe within the casing with casing spacers; end seals; testing; backfilling with compacted granular backfill; cleanup; and finish grading.

Provide new steel casing pipe as required by the construction permit issued from the Agency having jurisdiction, conforming to ASTM A139 Grade A with continuous field-welded butt joints in accordance with AWWA C206, minimum yield strength of 35,000 psi, and the following minimum wall thickness:

Nominal	Minimum Wall Thickness - Inches	
Pipe Size	Under Highway	Under Railroad
18-inch	0.250	0.3125
20-inch	0.250	0.3750
24-inch	0.312	0.4375
30-inch	0.312	0.5000
36-inch	0.375	0.5625

The Contractor is not required to use augering and jacking methods if the Contractor believes the specified casing size is not large enough to allow man-entry to remove obstructions. Casing pipes may be rammed at the Contractor's option.

Removal and replacement of casing to avoid obstructions, achieve correct slope, elevation, and bearing will be done at no additional cost to the Contract. Installation of short lengths of casing and carrier pipe because of limited working room will be done at no additional cost to the Contract.

The Contractor shall pay to Metra a $1000 Right of Entry fee and $700 per day for each day a flagger(s) is(are) required at the railroad crossing.

Casing spacers shall consist of molded high density polyethylene, 304 stainless steel, or 14 gauge (minimum) hot rolled and pickled steel, with a minimum 10 mil of fusion bonded PVC coating on the steel bands, and a minimum 0.090-inch PVC liner on the steel bands. Bolts, washers, and nuts shall be 304 stainless steel. Runners shall be glass reinforced or glass filled high density reinforced plastic. The casing spacers shall be restrained in all directions with one spacer on each side of, and a maximum of 12 inches from, each joint and a minimum of one spacer between the joints, with additional spacers as recommended by casing spacer manufacturer. The acceptable products are PSI, Advance, Cascade, or an approved equal.

End seals shall be rubber end seals made specifically for the purpose of sealing around carrier pipes and the outside of the steel casing pipes.

Casing void pressure grout to fill voids outside the casing pipe shall consist of a clean dry concrete mix, composed of one part Portland cement and 10 parts of sand and gravel by volume, or other mix approved by the Engineer. Alternatively, the Contractor may use a low density cellular concrete grout with a minimum net density of 45 pounds per cubic foot, a minimum compressive strength of 160 pounds per square inch at 28 days. Acceptable products for low density grout are Mearl Geofoam Liquid Concentrate, or an approved equal.

Provide and install a 17-pound magnesium type anode at each end of the casing, with welded connections between the anode lead and the casing pipe.

Method of Measurement. The work will be measured in lineal feet for the length of the casing pipe.
Basis of Payment. The work will be paid for at the Contract Unit Price per foot for STEEL CASING PIPE AUGERED AND JACKED of the diameter specified.

The work does **not** include the water main carrier pipe, which will be paid for as DUCTILE IRON WATER MAIN RESTRAINED JOINT TYPE of the size indicated on the Drawings.

CASING PIPE, OPEN CUT

Description. This work consists of furnishing all labor, materials, and appurtenance necessary to install water main quality pipe for casing pipe in open cut trenches for ductile iron water main at locations shown on the Drawings.

The water main quality casing pipe shall be polyvinyl chloride pipe (P.V.C.) Class 160 psi DR 26 conforming to ASTM D2241, or P.V.C. DR 25 conforming to AWWA C905, or HDPE DR17 plastic pipe conforming to AWWA C906, or steel pipe of the following diameters and wall thicknesses:

Steel Pipe Diameter	Steel Pipe Wall Thickness
18-inch	0.250
20-inch	0.250
24-inch	0.312
30-inch	0.312
36-inch	0.375

The Contractor shall fill the annular space between the casing pipe and the water main carrier pipe with sand or pea gravel. The ends of the casing pipes shall be sealed with concrete masonry and mortar. Mortar shall conform to ASTM C270, Type M, with Type II Portland cement and Type S lime.

The work shall be performed in accordance with the Drawings, the “Standard Specifications for Water and Sewer Main Construction in Illinois,” latest edition and applicable ordinances of the Village of Addison. This work shall include installation of casing pipe of sufficient length to extend 10 feet on either side of all sewers and services that cross over the proposed water main.

Method of Measurement. This work will be measured for payment in lineal feet along the centerline of the casing pipe.

Basis of Payment. This work will be paid for at the Contract Unit Price per foot for CASING PIPE, OPEN CUT of the size and material specified.

The work does **not** include the water main carrier pipe, which will be paid for as DUCTILE IRON WATER MAIN RESTRAINED JOINT TYPE of the size indicated on the Drawings.

CONCRETE PIPE CRADLE

Description. The work shall be in accordance with Section 1020 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and the detail on the Drawings. The work shall consist of installing a cast-in-place concrete cradle between the bottom of an upper pipeline and the top of a lower pipeline where two pipelines cross each other with less than 12 inches of clearance.

Basis of Payment. The work will be paid for at the Contract Unit Price per each CONCRETE PIPE CRADLE.

DUCTILE IRON WATER MAIN FITTINGS

Description. This work shall consist of furnishing and installing ductile iron restrained joint type water main fittings and concrete thrust blocks complete in place at locations indicated on the Drawings; in accordance with the "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition; and applicable ordinances of the Village of Itasca.

Fittings shall be cement lined, tar coated ductile iron with mechanical or restrained joints rated for 250 psi per AWWA C110/ANSI 21.10. Fittings in vaults shall be mechanical joint or flanges with at least one retrained joint flange adapter. All fittings shall have a bell and/or spigot configuration identical to that of the pipe. All bolts, nuts and washers shall be stainless steel. All materials shall be made in the United States.

Basis of Payment: The work will be paid for at the Contract Unit Price per pound of DUCTILE IRON WATER MAIN FITTINGS of the type and size(s) required for construction.

The work to provide and install concrete thrust blocks will be paid for at the Contract Unit Price for each of the CONCRETE THRUST BLOCKS called for on the Drawings or required by the Village of Itasca at the time of construction.

FLUOROCARBON RUBBER (VITON) GASKET

Description: The work shall be in accordance with Section 561 and the Special Provision for "DUCTILE IRON WATER MAIN" and shall consist of substituting fluorocarbon or buna-nitrile material gaskets for common gaskets used in water main pipe joints, as required at the time of construction.

Basis of Payment: The work will be paid for at the Contract Unit Price for each FLUOROCARBON RUBBER (VITON) GASKET substituted for a common gasket of the pipe size indicated.

WATER MAIN H.D.D. INSTALLED

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install water main by the horizontal directional drilling (HDD) method of pipe installation, of the size and pipe material specified to the alignment, grade and locations shown on the Drawings.

CONSTRUCTION REQUIREMENTS

SUMMARY: Provide Fusible P.V.C.; P.V.C. restrained joint; or high density polyethylene (HDPE) water main pipe and install by the trenchless horizontal directional drilling method as shown on the Drawings; as specified in this section of the Special Provisions herein; in accordance with Section 561 of the "Standard Specifications"; in accordance with the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois"; and as needed for a complete installation.

Provide labor, materials, tools, equipment and chemicals necessary to perform all work and testing specified in this Section.

SUBMITTALS: Provide detailed plan of means and methods to maintain clean and safe conditions in the event drilling material escapes to surface or adjacent storm sewers, including list of material and equipment that will be on-site during drilling and pipe insertion.

GENERAL CONSTRUCTION REQUIREMENTS: Provide all excavation, pits, installation and removal of tight sheeting, backfilling of pits, and providing and compacting granular backfill materials where necessary. Use an adequate number of workmen who are thoroughly trained and experienced in the necessary crafts, and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

DIRECTIONAL DRILLING SYSTEM: Provide hydraulically or pneumatically operated, fluid-assisted, remote guided drilling system capable of installing pipe indicated on the Drawings by trenchless methods.

1. Provide compressors, pumps, apparatus, tools, and all devices certified as suitable by the system manufacturer to install the new pipe without damaging or stressing the pipe.
2. Provide recovery system that will recover bentonite slurries or other drilling fluids without releasing the slurry onto the surrounding ground or water surfaces.
3. Provide certification from pipe manufacturer that the proposed material and strength classification is appropriate for application.

PIPE:

1. Fusible P.V.C. Pipe: Provide Cell Classification 12454 polyvinyl chloride plastic pipe complying with ASTM D-1784 and conforming to AWWA C900 for ductile iron pipe sizes. Provide pipe with a standard dimension ratio of 18 (SDR 18), unless thicker pipe is required for the conditions of the pullback. Compound formulation shall be in accordance with PPI TR-2/2006. Material shall be 100% virgin resin, with no recycled contents or reworked compounds.

   Provide blue color plain end pipe, with ends square to the pipe and free of any bevel or chamfer. The joints of the plain end pipe shall be thermal butt-fused in the field using supplier's/manufacturer's written instructions. The joint strength shall be equal to or greater than the pipe strength. Provide equipment and procedures in strict accordance with manufacturer's recommendations, and record fusing information including pipe size and dimensions; machine size; fusion technician identification; job identification number; fusion number; fusion, heating and drag pressure settings; heat plate temperature; time stamp, heating and cool down time of fusion, and ambient temperature.

Use only personnel certified by pipe supplier/manufacturer as fusing technicians.

Provide restrained joint mechanical gland adapters for connection to ductile iron pipe at ends of Fusible P.V.C. piping.

Acceptable supplier/manufacturer: Fusible PVC™ by Underground Solutions, Inc., Poway, California (858) 679-9551, or equal.

2. Restrained Joint P.V.C. Pipe: Provide 12454A or 12454B polyvinyl chloride complying with ASTM D-1784 and AWWA C900 Class 235 pressure pipe with a standard dimension ratio of 18 (SDR-18). Provide blue color pipe with restrained joints consisting of restraining grooves, built-in sealing gaskets, and beveled edges, manufactured to D.I.O.D. pipe sizes.

   Joints shall include a P.V.C. restrained joint coupling with elastomeric seal and restraining grooves, restraining splines made of Nylon 101 sized to fit the coupling grooves.

   Provide restrained joint mechanical gland adapters for connection to ductile iron pipe at ends of P.V.C. piping.

   Acceptable manufacturer: CertainTeed Certa-Lok.

3. HDPE Pipe: Provide high density polyethylene extruded pipe material complying with ANSI/AWWA C906, Type III, Class C, Category 5, P34 material as per ASTM D3350 with a minimum cell classification PE345464C. The wall thickness shall be determined by the pipe manufacturer and the HDD installing contractor, but shall have a minimum SDR 11 for ductile iron (DIOD) pipe sizes.

   Provide blue or blue striped black colored pipe for water main applications, with ends square to the pipe and free of any bevel or chamfer. The joints of the plain end pipe shall be thermal butt-fused in the field using supplier's/manufacturer's written instructions. The joint strength shall be equal to or greater than the pipe strength. Provide equipment and procedures in strict accordance with manufacturer's recommendations, and record fusing information including surface temperature at heating plate, pressure of pipe to heating plate, soak time, fusion pressure, fusion cooling time, allowable bead height and width.

   Use only personnel certified by pipe manufacturer as fusing technicians.

   Allow pipe cooling and relaxation time per pipe manufacturer's recommendations, with a minimum of 4 hours, prior to sealing of annular spaces at manholes or vaults. Extend the pipe into structure a minimum of 6 inches beyond interior walls prior to cooling period, to allow for relaxation of pipe. Seal annular spaces at structure walls with flexible rubber boots/collars designed for manhole to pipe connections.

   Provide HDPE butt-fused thrust collars around circumference of HDPE pipe and provide concrete thrust block/anchors around thrust collars at all HDPE pipe termination points.

Provide restrained joint mechanical gland adapters for connection to ductile iron pipe at ends of HDPE piping.

INSTALLATION AND RECEIVING PITS: Comply with OSHA requirements and install sheeting and fencing as required to protect the public.

1. Although most horizontal directional drilling is done without the use of pits, if pits are required, comply with the following criteria.
2. Provide pits as required to install and receive pipes.
   a. Provide tight sheeting where required to provide protection to public, permitting agency and public property, and adjacent utilities.
   b. Comply with OSHA requirements for type, installation, and removal of sheeting.
   c. Provide fencing around pits to secure the area and to provide protection to the public.
3. Provide pits of length and width as necessary to install pipes and sized to fit area available for Work.
4. Provide dewatering as required to allow excavation of pits and installation of pipes.
   a. Provide protection to environment from erosion or sedimentation resulting from all pumping operations.
5. Backfilling of pits:
   a. Backfill with compacted granular backfill materials where required.
   b. Remove all construction debris, materials, excess excavated material, and sheeting from construction area upon completion of the Work.

LOCATOR WIRE: Provide 7x19SS (T304) PVC coated stainless steel Aircraft Cable sized to withstand pull required, but of minimum 3/16-inch diameter.

SURFACE CONDITIONS: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

1. Protect existing utilities indicated or made known.
2. Protect trees and shrubs by plank wrappers securely wired in place or by providing a fence around the tree or shrub of sufficient distance away and of sufficient height so trees and shrubs will not be damaged in any way as part of this Work.
   a. Do not permit any equipment to operate within 5 feet of any trees or shrubs that are to remain or in a manner as to harm overhanging branches.
3. Protection of persons and property:
   a. Barricade open depressions and holes occurring as part of this Work, and post warning lights on property adjacent to or with public access.
   b. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
   c. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by operations under this Section.
4. Use means necessary to prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the work areas.

5. Maintain access to the work areas at all times.
6. Provide protection to environment, public and private property, and public or private utilities from drilling mud that is utilized as lubricant or hole support during drilling and pipe insertion.
    a. Provide vacuum trucks and apparatus of sufficient size and quantity to reclaim all drilling mud discharged during operations.
    b. Provide trucks, end loaders, and any other equipment and manpower necessary to maintain a clean and safe work site during operation.

PIPE INSTALLATION: Install pipe by pulling the pipe into place.

1. Provide winch systems designed to protect structures, provide directional stability, and pull pipe from insertion point to exit point without causing damage to the pipe.
2. Insert plastic pipe in a continuous operation from point to point.
3. Provide silencers, mufflers, or other devices required to reduce noise from compressors and other equipment to meet limits as outlined by Owner's local ordinances.
4. Provide stainless steel PVC coated Aircraft Cable at each boring location for the total length of pipe, plus additional wire/cable to leave a 10 foot loop of cable in the adjacent valve vault and through the adjacent casing pipe.
    a. Connect locator wire to ductile iron water main pipe with a “hard” connection at the north end of the casing pipe.
    b. Hang loop of cable in valve vault on a stainless steel eye hook with expansion anchor inside vault.
5. Mark location of plastic pipe termination points on "Job Set" of plans, measured from adjacent permanent structures or iron pins.

TESTING: Comply with testing requirements outlined in the DUCTILE IRON WATER MAIN Section of these Special Provisions.

1. Repair any defects or leaks in the pipe discovered during testing.
2. Retest all repaired sections until they meet all testing and inspection requirements.

Method of Measurement. This work will be measured in lineal feet along the centerline of the pipe, and the measurement shall extend from the end of the drilling and receiving pits located adjacent to ductile iron water main pipe installed in open cut trench.

Basis of Payment. This work will be paid for at the Contract Unit Price per lineal foot for WATER MAIN – H.D.D. INSTALLED of the pipe size specified, regardless of depth, which price shall include excavation for drilling and receiving pits, bedding and initial pipe covering in the drilling and receiving pits, testing and disinfection.

All trench backfill with granular backfill materials above the granular pipe bedding and cover material shall be included in the cost of the drilling and receiving pits, which are included in the cost of the WATER MAIN – H.D.D. INSTALLED.

Water main fittings shall be paid for separately as DUCTILE IRON WATER MAIN FITTINGS.

WATER MAIN RELOCATION

Description: This work consists of relocating water mains in conflict with proposed storm sewer pipes and shall be in accordance with Section 561, the Special Provisions for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER"; as specified herein, and in accordance with the latest revision of the "Standard Specifications" and the "Standard Specifications for Water and Sewer Main Construction in Illinois", except as revised herein; and as required for a complete and proper installation.

Pipe and fittings used for the water main relocations shall be in accordance with the Special Provisions for DUCTILE IRON WATER MAIN and DUCTILE IRON WATER MAIN FITTINGS. Casing pipe shall be in accordance with the Special Provisions for CASING PIPE.

The work shall include four (4) restrained joint bend fittings for the vertical alignment adjustment, two (2) split gland restraint harnesses, and two (2) connections to existing water main pipe. The four bends items, the two harnesses installed on existing pipe joints, and the two connections are to be included in the cost of each water main relocation and will **not** be paid for separately.

Basis of Payment: The work will be paid for at the Contract Unit Price for each WATER MAIN RELOCATION of the pipe sizes. Casing pipe used to cross an existing or proposed sewer shall be paid for as a separate item as CASING PIPE of the size required for the relocated water main.

STORM SEWERS, TYPE 2, FIELD TILE REPLACEMENT

Description: This work shall be in accordance with Section 550 and the Special Provisions for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and consists of replacing drain tiles removed or damaged during pipe installation work with new PVC SDR 26 pipe of the same size complete in place, including watertight couplings at each end of the pipe replacement section; additional granular backfill required to bed and cover the drain tile pipe to a point 12 inches above the tile; and disposal of the existing tile pipe.

Trench construction for this work shall be included in the cost of other open cut trenching work.

Basis of Payment: The work will be paid for at the Contract Unit Price per each of the STORM SEWERS, TYPE 2, FIELD TILE REPLACEMENT of the pipe sizes specified.

SANITARY SEWER

Description: This work shall be in accordance with Section 563, the Special Provisions for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER", the latest revision of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the Village of Itasca specifications and consists of providing and installing sanitary sewers as shown on the Drawings, specified herein, and required for a complete and proper installation.

CONSTRUCTION REQUIREMENTS

DELIVERY, STORAGE, AND HANDLING: Protect flexible thermoplastic pipes from direct sunlight.

PIPE AND FITTINGS:
PVC plastic sewer pipe:

1. Comply with ASTM D3034 for Type PSM polyvinyl chloride (PVC) sewer pipe and fittings of minimum wall thickness SDR 26.

Ductile iron pipe:

1. Comply with ANSI A21.51, Thickness Class 50, with joints complying with ANSI A21, with cement lining complying with ANSI A21.4, standard thickness.

Couplings:

1. Provide flexible rubber couplings with adjustable stainless steel bands complying with ASTM C425 for connecting new pipe to existing sewer pipe and for repairing sewer pipe.
2. Acceptable products: Band-Seal Couplings by Mission Clay Products Corp., or approved equal.

PIPE INSTALLATION:

1. Install sanitary sewer pipe in strict accordance with the latest revision of "Standard Specifications for Water and Sewer Main Construction in Illinois" and with these Special Provisions.
2. Install pipe in accordance with pipe manufacturer's recommendations.
3. Clear interior of the pipe free from foreign material.
4. Comply with ASTM D2321 for flexible thermoplastic sewer pipe installation.

WATER MAIN CROSSINGS:

Whenever water mains and service lines are encountered in the course of sanitary sewer construction, notify Baxter & Woodman, Inc. to determine the construction necessary to comply with the provisions of Section 31.1.02A of the "Standard Specifications for Water and Sewer Main Construction in Illinois".

1. Wherever water mains cross storm sewers, sanitary sewers, or sewer service connections:
    a. Install the sewer so the water main invert is at least 18 inches above the top of the sewer.
    b. Maintain this vertical separation for that portion of the water main located within 10 feet horizontally of any sewer crossed.
    c. Center a length of water main pipe over the sewer to be crossed with joints equidistant from the sewer.
2. When it is impossible to obtain the minimum 18 inches of vertical separation, or when it is necessary for the water main to pass under a sewer or drain:
    a. Construct the sewer of pressure pipe, conforming to the specification for water main materials.
    b. Extend the sewer construction on each side of the crossing until the normal distance from the water main to the sewer or drain is at least 10 feet.
    c. As an alternate, install either the water main or sewer inside a casing or carrier pipe for a distance of 10 feet measured perpendicular to the sewer on each side of the crossing.
3. Where a water main must cross under a sewer:
    a. Maintain a vertical separation of 18 inches between the invert of the sewer and the crown of the water main.
    b. Support the sewer or drain line to prevent settling and breaking the water main.
4. Water service lines: Comply with the requirements of water main separation.

TESTING AND TELEVISING:

1. Testing and Inspecting: Sanitary sewers shall be tested for water tightness by the low pressure air test method as follows:

   a. Prior to testing for leakage, flush and clean the sewers by passing a snug-fitting inflated rubber ball through the sewer by upstream water pressure.
   b. Seal pipe openings with airtight plugs and braces.
   c. Whenever the sewer to be tested is submerged under groundwater, insert a pipe probe by boring or jetting into the backfill material adjacent to the center of the sewer to determine the groundwater hydrostatic pressure by forcing air to flow slowly through the probe pipe.
   d. Add air to the plugged sewer sections under test until internal air pressure reaches 4.0 psig greater than any groundwater hydrostatic pressure.
   e. Allow at least two minutes for air temperature to stabilize, then add air to maintain the initial test pressure.
   f. Shut off the air supply after the air temperature stabilizes and record the time in seconds using an approved stopwatch for the internal sewer pressure to drop from 3.5 psig to 2.5 psig greater than any groundwater hydrostatic pressure.
   g. Air testing techniques shall be in accordance with the latest ASTM standard practice for testing sewer lines by low-pressure air test method for the appropriate pipe material, except the minimum required time for the one pound per square inch pressure drop described in paragraph (f) shall not be less than that shown in Table 1.
   h. The required times will be adjusted by Baxter & Woodman, Inc. for main line sewers larger than 19 inches and for lateral pipes connected and tested with the main line sewer.
   i. If the air test fails to meet these requirements, locate and repair, or remove and replace the faulty sections of sewer in a manner approved by Baxter & Woodman, Inc. as necessary to meet the allowable limits upon retesting.
   j. Do not use acrylamid gel sealant to correct leakage.

Table 1

MINIMUM ALLOWABLE TIME (min:sec) FOR PRESSURE TO DROP FROM 3½ TO 2½ PSIG

Length of Sewer Pipe In Feet	Pipe Diameter (inches) 8	10	12	15	18
25	0:18	0:28	0:40	1:02	1:29
50	0:35	0:55	1:19	2:04	2:58
75	0:53	1:23	1:59	3:06	4:27
100	1:10	1:50	2:38	4:08	5:56

125	1:28	2:18	3:18	5:09	7:26
150	1:46	2:45	3:58	6:11	8:30
175	2:03	3:13	4:37	7:05	8:30
200	2:21	3:40	5:17	7:17	8:30
225	2:38	4:08	5:40	7:29	8:30
250	2:56	4:35	5:43	7:41	8:31
275	3:14	4:43	5:46	7:53	9:21
300	3:31	5:00	5:50	8:05	10:12
350	3:47	5:15	5:57	8:16	11:54
400	4:48	6:00	6:03	9:27	13:36

2. Deflection test for flexible thermoplastic pipe:
   a. Test the deflection in all PVC thermoplastic pipe.
   b. Perform the test no sooner than 30 days after backfilling has been completed.
   c. Perform the test by pulling a mandrel or rigid ball having a diameter equal to 95 percent of the inside diameter of the pipe through the pipe from manhole to manhole without using mechanical pulling devices.
   d. Allowable deflection limits: 5.0 percent of the base inside diameter of the PVC pipe.
   e. Wherever the deflection limitation is exceeded, uncover the pipe, carefully replace compacted bedding and covering material and granular backfill material, and retest for deflection.

3. Sanitary Sewer Televising:

   General Requirements:

   a. Provide preparatory cleaning of the entire sewer section before conducting the internal sewer inspection, as specified herein.
   b. Provide internal sewer inspection of the entire sewer section (manhole to manhole) by the use of a closed circuit television, as specified herein.
   c. Video Inspection DVDs and Written Logs: Within 45 days of sanitary sewer installation, and within 10 days of performing the work, submit two copies of the DVDs and written logs to Baxter & Woodman, Inc.

   Preparatory Cleaning:

   a. Perform preparatory cleaning of the sewer section to permit unobstructed passage of the television camera and clean enough for the camera to discern structural defects, misalignment, service lateral connections, and points of infiltration.
      1. Perform a light cleaning with high velocity jet or power rodding equipment to flush the entire sewer section, if necessary and as directed by Baxter & Woodman, Inc. to allow televising.
   b. Remove debris resulting from the cleaning operation from the downstream manhole of the sewer section. Passing of debris through subsequent sections is not permitted.

Internal Sewer Inspection:

a. Provide a closed circuit television (CCTV) and audio-video recording system for internal inspection of mainline sewer capable of producing a picture quality satisfactory to the Village of Itasca and to Baxter & Woodman, Inc.

b. Provide and use a digital color television camera designed and constructed for sewer inspection with the following capabilities:
   1. High resolution color-chip camera and monitor capable of producing a minimum of 650 lines of resolution.
   2. Adequate and adjustable directional lighting to allow a clear picture of the entire periphery of the pipe. Provide auxiliary lighting for sewers larger than 12-inch diameter.
   3. Operable in 100 percent humidity conditions.
   4. Use a remote or manually propelled camera that has a 360 degree radial and 270 degree pan-and-tilt viewing field.
   5. Electric footage counter accurate to less than 1 percent error over the length of the particular sewer being inspected.
   6. Skids or wheels to position the camera in the center of the pipe.

c. Provide an audio-video recording system, and perform procedures as required, to produce a high quality digital video and audio production of bright, sharp, clear pictures with accurate colors, free from distortion. The audio portion shall have proper volume and clarity and shall be free from distortion.

   Begin each digital video with the current date, project name and Owner; followed by the general location, manhole segment and direction of viewing superimposed on the video monitor.

   Professionally label all DVDs showing the Owner's name, the sewer lines recorded on the tape, the date and Contractor's name.

   Move the camera, at a speed no greater than 30 feet per minute, stopping when necessary to permit proper documentation of the sewer's condition.

   Inspect the entire length of the sewer section.

d. Documentation and Inspection Logs: Provide inspection logs with the following information:
   1. Owner's Name.
   2. Inspector's Name.
   3. Crew Chief's Name.
   4. Date.
   5. From MH No.____ located at _____.
   6. To MH No.____ located at _____.
   7. Direction of Flow.
   8. Type of Pipe.
   9. Type of Joints, if apparent.
   10. Joint Spacing.
   11. Cleanliness.
   12. Manhole Conditions.

13. Section Length.
14. Pipe Size.
15. Depth of Pipe.
16. Direction of Inspection (camera movement).
17. Surface conditions.
18. Footage and clock orientation of all pipe defects, building service connections and any abnormal conditions.

e. Use terminology generally accepted by the industry. Provide legible entries on inspection logs. Complete inspection log in the field.

f. Provide an audio track recorded by the inspection technician during the actual inspection describing all information documented in the Inspection log.

g. The high-velocity jetting machine will not be allowed to operate directly in front of the camera during the inspection.

Final Acceptance:

a. Retelevise sewers found to be deficient during initial television inspection, after repairs are completed, for as many times as required to obtain final acceptance.

b. Retelevise any sewer section where final inspection DVDs are of inadequate quality as determined by the Village of Itasca or by Baxter & Woodman, Inc.

Method of Measurement. This work will be measured in lineal feet along the centerline of the sanitary sewer pipe, and the measurement shall extend from the inside wall of the upstream manhole to the inside wall of the downstream manhole.

Basis of Payment. This work will be paid for at the Contract Unit Price per lineal foot for SANITARY SEWER, of the pipe sizes and pipe materials specified, regardless of depth, which price shall include all excavation, bedding and initial pipe covering, testing, and televising.

Trench backfill with granular materials above the granular pipe bedding and cover material shall be paid for separately as GRANULAR BACKFILL.

SANITARY MANHOLE

Description: This work shall be in accordance with Section 563, the Special Provisions for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER", the latest revision of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the Village of Itasca specifications and consists of providing and installing sanitary sewer manholes as shown on the Drawings, specified herein, and required for a complete and proper installation.

CONSTRUCTION REQUIREMENTS

MANHOLES:

1. Provide precast reinforced concrete manhole sections complying with ASTM C478, with eccentric cone sections.
2. Provide the following for manholes as indicated on the Drawings and manhole details.

a. Internal/External frame seal.
b. Manhole exterior joint protection.
c. Manhole exterior surface treatment.
d. Bolted and gasketed watertight frame and cover.

3. Provide 4,000 psi concrete using Type 1 Portland Cement complying with ASTM C150.
4. Mortar: Mix one part Portland Cement to three parts fine aggregate.
5. Joints for precast sections: Provide tongue and groove joints with either flexible watertight rubber gaskets or preformed bituminous plastic gaskets consisting of a homogeneous blend of refined hydrocarbon resins and plasticizing compound reinforced with inert mineral filler.
   a. Acceptable products:
      (1) K.T. Snyder Co., RAM-NEK.
      (2) Concrete Sealants, Type CS-102.
      (3) Or approved equal.
6. Steps: Provide steps with a minimum width of 12 inches and a minimum projection of 5 inches.
   a. Acceptable products:
      (1) Copolymer polypropylene plastic with a continuous ½-inch steel reinforcement as manufactured by M.A. Industries, Inc.; or cast iron steps, Neenah R-1981-I; or approved equal.
7. Frames and covers: Provide cast iron frames and covers with heavy duty indented top with solid self-selling lids and machined bearing surfaces, stamped with the words “SANITARY” and “VILLAGE OF ITASCA”.
   a. Acceptable products:
      (1) Neenah R-1713; East Jordan 1050 HD; or approved equal.
      (2) Bolted and gasketed watertight frame and cover: Neenah 1916-C; East Jordan 1058 WT; or approved equal.
8. Flexible pipe connectors: Provide flexible rubber gasket collar for connecting pipe to manhole.
   a. Acceptable products:
      (1) For pipe 24-inch and smaller: PSX gasket system by Press-Seal Gasket Corporation, or approved equal.
      (2) For connections between new sanitary sewer pipe and cored holes in manholes, use rubber boot with stainless steel bands similar to Kor-N-Seal by NPC, Inc., or equal.
9. Internal/External Frame Seal: Provide frame seals consisting of a flexible internal rubber sleeve, rubber ring, and external rubber sleeve and extension, and stainless steel compression bands.
   a. Acceptable products:
      (1) Adaptor, Inc. Internal/External Adaptor Seal.
      (2) Or equal.
10. Manhole exterior joint protection:
   a. Two piece wrap-around heat shrinkable sleeve system.
      (1) Minimum width: 9 inches.
      (2) Acceptable manufacturer: CANUSA WRAPID SEAL.
   b. Woven polypropylene fabric with rubberized mastic coating and steel strapping.
      (1) Minimum width 9 inches.
      (2) Acceptable manufacturer: MacWrap.

c. EDPM (Ethylene Propylene Diene Monomer) external rubber sleeve with 2-inch wide mastic strip on top and bottom edge of sleeve.
   (1) Minimum thickness: 60 mils. Minimum width: 8 inches.
   (2) Mastic: Non-hardening butyl rubber sealant; minimum thickness ¼-inch.
   (3) Acceptable products: Infi-Shield External Sealing System; or approved equal.

11. Manhole exterior surface treatment:
   a. Damp proofing material: Heavy duty coal tar pitch.
   b. Acceptable manufacturers:
      (1) Top-Coat, bituminous super service black.
      (2) Or equal.

MANHOLE INSTALLATION:

1. General:
   a. Manhole invert channels shall be shaped to be smooth and semi-circular, conforming to the inside of the adjacent sewer section.
   b. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit.
   c. Changes in size and grade of channels shall be made smoothly and evenly.
   d. Provide bypass pumping of sewage as required to install manhole or to form a new concrete bench and invert.
   e. Invert channels shall be formed directly in the concrete of the manhole base with mortar.
   f. Manhole benches shall be smooth outside the channel and shall be sloped toward the channels at not less than 1-inch per foot and not more than 2 inches per foot.
2. Steps:
   a. Each manhole shall be provided with individual wall-mounted steps as shown on the manhole detail.
   b. The requirements of the Village of Itasca shall be complied with.
   c. Steps shall not be located directly over where pipes enter the manhole.
3. Joints:
   a. Flexible watertight gaskets shall be used for each joint, including grade ring joints.
   b. Joints shall be trimmed smooth and free from surplus gasket material.
4. Frames and covers shall be set:
   a. In paved areas: With the top of the solid cover flush with the finished pavement.
   b. With flexible watertight gaskets.
   c. With grade rings not to exceed 8 inches.
5. Manhole installed over existing pipe: Provide a monolithic base type manhole and connect to existing sewers by use of short lengths of pipe and flexible watertight connectors.
   a. Provide connecting pipes that match the size of existing pipes.
   b. Provide by-pass pumping as required.

SANITARY MANHOLE VACUUM TESTING:

1. Test each sanitary manhole for leakage no sooner than 30 days after installation.
2. Plug all lift holes with a non-shrink grout.
3. Do not place grout in horizontal joints before testing.
4. Seal all inlet and outlet pipes with airtight plugs, taking care to securely brace plugs to prevent the plugs from being drawn into the manhole.

5. Place the vacuum test equipment at the inside top of the cone section and inflate the seal to 40 psi.
6. Draw a vacuum of 10 inches of mercury and shut the vacuum pump off.
7. Close valves and measure the time for the vacuum to drop to 9 inches of mercury.
8. Allowable limits: the manhole shall pass if the time for the vacuum reading to drop from 10 inches to 9 inches exceeds 60 seconds for a 48-inch diameter manhole, 75 seconds for a 60-inch diameter manhole, and 90 seconds for a 72-inch diameter manhole.
9. Repair all manholes failing the initial test with a non-shrink grout.
10. If a manhole fails the initial test, retest until a satisfactory test is obtained.
11. Provide equipment, materials and labor necessary to conduct vacuum testing.
12. Make tests in the presence of the Village of Itasca, giving the Village of Itasca at least 48 hours notice prior to testing.

Basis of Payment. This work will be paid for at the Contract Unit Lump Sum Price per each SANITARY MANHOLE for each manhole number (and specific location) shown on the Drawings; which price shall include all excavation, bedding, existing or new pipe connection work required at each individual manhole, and testing.

CONNECTION TO EXISTING SANITARY MANHOLE

Description: This work shall be in accordance with Section 563, the Special Provisions for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER", the latest revision of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the Village of Itasca specifications and consists of connecting new ductile iron sanitary sewer pipe to an existing manhole where shown on the Drawings, specified herein, and required for a complete and proper installation.

The work shall include breaking out or coring the wall of the existing manhole as required to install the new pipe; seal the manhole wall and pipe joint, to provide a structural wall and a watertight seal; and to form and shape a new concrete bench in the existing manhole.

The work will require bypass pumping to allow proper working conditions to make the connection and to form a new concrete bench and invert in the manhole. Bypass pumping at the existing manhole at Norwood Avenue may require installation of a new storm sewer pipe, or a temporary casing pipe to cross Route 53 to allow pumping from the west side of Route 53 to the east side of Route 53, or the removal of a portion of the sewer pipe upstream of the existing manhole. If a temporary casing pipe is installed, it must be removed and the resulting hole filled with low density cellular concrete grout or with controlled low strength material (flowable fill) installed through a hose from the far end of the casing, with the hose being retracted as the casing pipe is pulled out. If the existing sewer pipe is cut for the bypass, a section of the existing sewer pipe shall be cut out and replaced with 15" P.V.C. sanitary sewer pipe and two flexible, watertight couplings.

Basis of Payment. This work will be paid for at the Contract Unit Price for each CONNECTION TO EXISTING SANITARY MANHOLE at the location specified, complete in place.

SANITARY SERVICE

Description. The work shall be in accordance with the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and shall consist of removing sanitary sewer service pipes encountered during installation of the new storm sewers or water main, and the replacement of the service pipes complete in place, including providing and installing a 20-foot long piece of the same size PVC SDR 26 sewer pipe to replace the service pipe removed or the relocation and lowering of the sanitary sewer service in accordance with the Detail in the Drawings; non-shear watertight couplings at ends of the replacements; granular backfill extending from the top of the water main bedding and cover material to 12 inches above the PVC sewer service replacement pipe; backfilling with granular backfill materials; and protection of the service pipe during backfilling.

Basis of Payment. The work shall be paid for at the Contract Unit Price per each for SANITARY SERVICE REPLACEMENT or per each SANITARY SERVICE RELOCATION/LOWERING, regardless of pipe size.

Where the sanitary sewer service pipe is outside the water main trench, granular backfill materials will be paid for under GRANULAR BACKFILL.

SANITARY SEWER GROUND MODIFICATION/STABILIZATION

Description. The work shall be in accordance with these Special Provisions and the Drawings, and shall consist of modifying and stabilizing the ground and soils in the area where the sanitary sewer will be installed by the pilot tube microtunneling method. The intent of the work is to provide a stable soil with enough strength of support the pilot tube microtunneling operations and to provide a stable, permanent foundation for the sanitary sewer between the bottom of the pipe and the existing stable soils below the pipe.

Methods to modify/stabilize the soils include, but are not limited to; a vibratory system to construct stone or sand columns, or a soil mixing (wet) method, or a jet grouting/soil grouting method to provide a drillable/workable soil envelope for the pilot tube microtunneling work and to provide a permanent foundation for the sanitary sewer after installation; complete in place.

The work shall result in a continuous soil envelope around the proposed sanitary sewer from at least 12 inches above the top of the sanitary sewer pipe down to the top of the medium stiff or harder clay soils below the pipe. The ground modification/stabilization subcontractor and the pilot tube microtunneling subcontractor shall coordinate their operations and agree on the method and materials used to modify/stabilize the soil around the sanitary sewer. The soil envelope needs to be drillable, yet stable enough to hold a hole open with or without drilling fluid. The soil below the proposed sewer needs to be modified to provide a permanently firm foundation for the pipe. The method used needs to result in a soil envelope around the pipe which does not migrate into the adjacent soft/organic/peat/muck soils.

The Contractor/subcontractors may select their choice of method(s) for the project and soil conditions. The Contractor/subcontractors shall be responsible for developing methods to remove spoil materials from the ground surface to prevent filling of or impacts to the wetland areas of the project site. Restoration of the site shall include stripping and replacing the top three feet of the ground surface with existing, natural soils taken from the site wherever the surface area is disturbed by construction operations and activities.

Basis of Payment. This work will be paid for at the Contract Unit Lump Sum Price for the SANITARY SEWER GROUND MODIFICATION/STABILIZATION, complete in place.

SANITARY SEWER, P.T.M.T. INSTALLED

Description. The work shall be in accordance with these Special Provisions and the Drawings, and consists of the work necessary to install sanitary sewer by the pilot tube microtunneling (PTMT) method for a complete installation. This work can also be completed using auger guided boring methods.

CONSTRUCTION REQUIREMENTS

Submit at the preconstruction meeting the following:

1. The identity and resume of qualifications of the Contractor's safety representative, and a plan for notification of the local Fire Department for emergencies.
2. A detailed plan for the protection, removal and restoration of access routes and work areas within the wetland.
3. A signed and sealed manufacturer's certification that the pipe has been designed to withstand all jacking or pulling load conditions and hydrostatic conditions. If manufacturer's certifications cannot be provided at the preconstruction meeting, they must be provided prior to commencing work.

Use an adequate number of workmen who are thoroughly trained and experienced in the necessary crafts, and who are completely familiar with the specified requirements and methods needed for proper performance of the work

TUNNEL BORING MACHINE:

General: Provide a pilot tube micro-tunnel guided auger boring excavation system compatible with and adaptable to all ground conditions encountered.

Provide machine with the following:

- Directionally controlled pilot pipes with optical path controlled head.
- Theodolite or laser guidance system with monitor screen mounted camera and target located in steering head.
- Theodolite or laser height adjusting mounting system independent of boring machine.
- Sealed entrance and exit points for pilot tubes, reamers and pipes.
- Watertight casings and pilot rods.
- Extra dry nitrogen for clearing of moisture from pilot tubes.
- Reamer head(s) with auger sluice system or vacuum system to remove spoil.
- Reamer enlargement head with direct drive unit coupled to reamer.
- Gas detection and monitoring system, as required.
  Ventilation and dust control system capable of reducing and/or eliminating dust, vapors, fumes, and other atmosphere impurities to safe and acceptable levels.

There are numerous manufacturers of pilot tube microtunneling equipment and processes. An alternate method of pipe installation is to use a guided auger boring machine capable of installing the proposed sanitary sewer to the precise line and grade indicated on the Drawings. The following guided boring systems can either push or pull the pipe into place:

BM-L Series by Bohrtec, or
AXIS System by Vermeer,
Or equal.

PIPE:

1. Centrifugally Cast Fiberglass Reinforced Polyester pipe (for pushing):
   a. Materials:
      (1) Resin system: Polyester
      (2) Glass reinforcement: Grade E glass filaments.
      (3) Sand: 98 percent silica with maximum moisture content of 0.20 percent.
   b. Manufacture:
      (1) Designed and certified for microtunneling and jacking purposes.
      (2) Comply with ASTM D-3262.
      (3) Thickness: Comply with manufacturers recommendations.
      (4) Stiffness: Minimum 140 psi when tested in accordance with ASTM D-2412.
   c. Joints:
      (1) Fiberglass sleeve couplings.
      (2) Bell and spigot.
      (3) Elastomeric gaskets complying with ASTM D-4161.
   d. Acceptable manufacturer:
      (1) Flowtite by Amitech U.S.A.,
      (2) Or equal.
2. Vitrified Clay pipe (for pushing):
   a. Materials:
      (1) Designed and certified for microtunneling and jacking purposes.
      (2) Vitrified clay jacking pipe from one manufacturer.
      (3) End squareness shall be 0.040 inches, or less.
   b. Manufacture:
      (1) Comply with ASTM C1208 – Standard Specifications for Vitrified Clay Pipe and Joints for use in Microtunneling, Sliplining, Pipe Bursting and Tunneling.
      (2) Thickness: Comply with manufacturers recommendations.
      (3) Jacking strength shall be 3.0 times the maximum jacking forces determined by theoretical calculations by the Contractor.
   c. Joints:
      (1) AISI Type 316 stainless steel sleeve.
         i. Sleeve shall not extend past outside diameter of pipe.
      (2) EPDM rubber, polyurethane or other elastomeric material approved prior to construction.
      (3) Compression cushion ring conforming to ANSI 280.1, particleboard.
   d. Acceptable manufacturer:

(1) Denlok by Can Clay Corporation, or
(2) No Dig by Mission Clay Products,
(3) Or equal.

3. Polyvinyl Chloride pipe (for pulling):
   a. Materials:
      (1) Cell classification 12454 polyvinyl chloride plastic.
      (2) Complying with ASTM D1784.
      (3) Ends shall be square and free of bevels or chamfers.
   b. Manufacture:
      (1) Conforming to iron pipe size (not ductile iron outside diameter size), with a minimum inside diameter of 14.00 inches.
      (2) Thickness: As determined by manufacturer recommendations and by PTMT subcontractor required for pipe pullback, but with minimal SDR of 26.
      (3) Pipe shall be green color.
   c. Joints:
      (1) Thermal butt-fused in strict accordance with manufacturer's instructions and requirements regarding:
         i. Pipe size and dimensions.
         ii. Machine size.
         iii. Fusion technician identification.
         iv. Job identification number.
         v. Fusion number.
         vi. Fusion, Heating and Drag Pressure settings.
         vii. Heat plate temperature.
         viii. Time stamp.
         ix. Heating and Cool Down time of fusion.
         x. Ambient temperature.
      (2) Use only personnel certified by pipe supplier/manufacturer as joint fusing technicians
      (3) Joint strength shall be equal to or greater than the pipe strength.
   d. Acceptable manufacturer:
      (1) FPVC® by Underground Solutions, Inc.
      (2) Or equal.
4. High Density Polyethylene pipe (for pulling):
   a. Materials:
      (1) Type III, Class C, Category 5, P34 material per ASTM D3350.
      (2) Minimum cell classification PE345464C.
      (3) Complying with ASTM F714 for sanitary sewer.
      (4) Ends shall be square and free of bevels or chamfers.
   b. Manufacture:
      (1) Minimum inside diameter of 14.00 inches.
      (2) Thickness: As determined by manufacturer recommendations and by PTMT subcontractor required for pipe pullback, but with minimal SDR of 17.
      (3) Pipe shall be black color, with green striping for the sanitary sewer application.
   c. Joints:
      (1) Thermal butt-fused in strict accordance with manufacturer's instructions and requirements regarding:

i. Surface temperature at heating plate.
ii. Pressure of pipe to heating plate.
iii. Soak time.
iv. Fusion pressure.
v. Fusion cooling time.
vi. Allowable bead height and width.

(2) Use only personnel certified by pipe supplier/manufacturer as joint fusing technicians

(3) Joint strength shall be equal to or greater than the pipe strength.

GROUT:

Non-shrink grout: Pre-mixed, non-shrink, non-metallic, high density, high strength grout mixture of well graded silica aggregate and blended cements formulated in compliance with the U.S. Corps of Engineers' Specification CRD C-621.

TESTING:

Test the installed sanitary sewer pipe by low pressure air test, deflection testing and televising as outlined in the Special Provisions for SANITARY SEWER.

Basis of Payment. This work will be paid for at the Contract Unit Lump Sum Price for the SANITARY SEWER, P.T.M.T. INSTALLED of the pipe size indicated, complete in place; and regardless of access shaft locations, amount of open cut trench sanitary sewer installation, or amount of granular backfill material required to install the sanitary sewer between Sanitary Manhole 4 and Sanitary Manhole 6.

ACCESS SHAFT

Description. The work shall be in accordance with these Special Provisions and the Drawings, and consists of the work to install access shafts or excavations at each end of sanitary sewer pipe necessary to install the sanitary sewer by the pilot tube microtunneling (PTMT) method.

Shafts at the south and north ends of the PTMT installed sanitary sewer are anticipated to be trench excavations, including trench boxes or other shoring systems for the protection of personnel, equipment and PTMT and other construction operations. The shaft at manhole 5 is anticipated to be a drilled, circular shaft or an excavated, rectangular shaft and would be used for the PTMT operations and means and methods.

All shafts shall be backfilled with granular backfill material to within 6 inches of the proposed ground surface.

Basis of Payment. The work shall be paid for at the Contract Unit Price per each ACCESS SHAFT used for the installation of sanitary sewer between Sanitary Manhole 4 and Sanitary Manhole 6.

PARKWAY RESTORATION

Description: The work shall be in accordance with Division 200 and shall consist of the restoration of grassed parkways outside the limits of the Route 53 highway project, including subsoil preparation, topsoil, seeding and mulching, fertilizing, watering and maintenance, and replacement of restoration where acceptable growth is not obtained.

Basis of Payment: The work will be paid for at the Contract Unit Lump Sum Price for PARKWAY RESTORATION.

PRECONSTRUCTION VIDEO RECORDING

Description: This work consists of providing color audio/video recording of construction areas prior to the start of construction, including coverage of all areas that will be affected by the construction or installation of pipelines such as at driveways, fences, trees or plantings, or other items that may be damaged or have to be removed and replaced as a part of the construction.

Each recording shall begin with current date, project name, and Owner (Village of Itasca), followed by descriptions of the general location, street name, addresses, and data to describe the location and subject of viewing. The video recording along the project limits shall capture no more than 48 feet of project length per minute. Separate recordings shall be provided for northbound and southbound Route 53, and westbound and eastbound side streets. Panning rates and zoom-in or zoom-out rates shall be controlled to provide clarity of object during playback. The finished product shall be provided with bright, sharp, clear pictures and accurate colors free from distortion or other forms of picture imperfection. The audio shall have proper volume and clarity. All recording shall be done at times of good visibility, and when no more than 10 percent snow or fallen leaf cover is present. The areas shall not be recorded earlier than 6 months prior to the start of construction.

The recordings shall be submitted to the Village of Itasca or Baxter & Woodman, Inc. for review prior to commencement of any construction, and Contractor shall receive acceptance of recordings prior to commencement of construction. Any areas found not acceptable to the shall be re-recorded at no additional cost to the contract. The final recordings shall be transferred onto standard definition DVDs. Two (2) copies shall be provided to the Village of Itasca.

Method of Measurement. This work will be measured for payment on a lump sum basis.

Basis of Payment. This work will be paid for at the Contract Unit Lump Sum Price for PRECONSTRUCTION VIDEO RECORDING.

NON-SPECIAL WASTE DISPOSAL

Description. The work shall be according to Section 669 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN AND SANITARY SEWER" and consists of excavation of soil contaminated with petroleum products; removal of contaminated soil from the trench; temporary storage by the Contractor at an acceptable off-site location; land fill disposal permitting; hauling, trucking and transportation of the contaminated soil to the temporary storage location and to the disposal facility accepting special wastes; disposal of the contaminated soil at the disposal facility; personnel protection; compliance with all applicable Federal, State and local regulations; cleaning and decontamination of equipment, vehicles, and the site; including all disposal fees and manifesting.

The Contractor shall be responsible for any and all special waste plans and reports.

The Contractor shall be responsible for any and all BETX soil analysis. Only one analysis shall be provided.

Method of Measurement. The work for the waste disposal will be measured in the field at the site, in cubic yards, based upon the theoretical computed volume prior to removal from the trench.

The work will also be measured in tons, with weight determined at the licensed, and approved, disposal site. The weight tickets or receipts will be used as a check of the field/site volume determination. For every 1¼ tons of net weight, the Contractor will be paid for one cubic yard of removal and disposal.

Final volume of soil shall be measured as the volume determined by measurement in the field or determined by calculating the volume based on the weight of the soil disposed of at the disposal facility, whichever is greater.

Basis of Payment. The work will be paid for at the Contract Unit Price per cubic yard for NON-SPECIAL WASTE DISPOSAL. If contaminated soils are not encountered, then the entire bid quantity shall be deducted and no additional compensation will be due to the Contractor.

The work for any and all special waste plans and reports will be paid for separately at the Contract Unit Lump Sum Price for SPECIAL WASTE PLANS AND REPORT.

The work for any and all BETX soil analysis will be paid for separately at the Contract Unit Price per each BETX SOIL ANALYSIS, but for only one analysis.

CAST-IN-PLACE REINFORCED CONCRETE END SECTIONS

Description. This work shall consist of constructing Cast-in-Place Reinforced Concrete End Sections to be used at the twin 60” span x 38” rise elliptical pipes at Station 133+62.93, at the 4’x4’ Box Culvert at Station 46+81.03, and the 6’x6’ Box Culvert at Station 176+91 in accordance with Section 540 of the Standard Specifications, the details in the plans and as specified herein.

Method of Measurement. Concrete for Cast-In-Place Reinforced Concrete End Sections will be measured for payment in cubic yards as specified in Article 503.21.

Any excavation and disposal necessary to perform this work shall be considered included in this item of work and will not be measured for payment.

Reinforcement for Cast-In-Place Reinforced Concrete End Sections shall be considered included in this item of work and will not be measured for payment.

Basis of Payment. This work shall be paid for at the contract unit price per cubic yard for Cast-In-Place Reinforced Concrete End Sections which payment shall constitute full compensation for furnishing and placing all materials, labor, tools, and equipment and incidentals to complete the work as specified herein.

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES

This work shall be according to Article 669 of the Standard Specifications and the following:

Qualifications. The term environmental firm shall mean an environmental firm with at least five (5) documented leaking underground storage tank (LUST) cleanups or that is pre-qualified in hazardous waste by the Department. Documentation includes but not limited to verifying remediation and special waste operations for sites contaminated with gasoline, diesel, or waste oil in accordance with all Federal, State, or local regulatory requirements and shall be provided to the Engineer for approval. The environmental firm selected shall not be a former or current consultant or have any ties with any of the properties contained within and/or adjacent to this construction project.

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

All contaminated materials shall be managed as non-special waste. This work shall include monitoring and potential sampling, analytical testing, and management of a material contaminated by regulated substances.

Any soil classified as a non-special waste shall be excavated and disposed of as directed by this project or the Engineer. Any excavation or disposal beyond what is required by this project or the Engineer will be at no additional cost to the Department. The preliminary site investigation (PSI) report, available through the District’s Environmental Studies Unit, estimated the excavation quantity of non-special waste at the following location. The information available at the time of plan preparation determined the limits of the contamination and the quantities estimated were based on soil excavation for construction purposes only. The lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit whichever is less. Any soil samples or analysis without the approval of the Engineer will be at no additional cost to the Department.

A. The Environmental Firm shall continuously monitor for worker protection and the Contractor shall manage and dispose of all soils excavated within the following areas as classified below.

1. Station 49+30 to Station 52+00 (IL 53) 0 to 220 feet RT (CITGO Gasoline Station, Site 1109V-57, 1740 West Army Trail Road, Addison) – non-special waste. Contaminants of concern sampling parameters: BETX and PAHs.
2. Station 117+00 to Station 118+00 (IL 53) 0 to 80 feet LT (Verizon Wireless, Site 1109V-36, 1801 Lake Street, Addison) – non-special waste. Contaminants of concern sampling parameters: BETX.
3. Station 19+00 to Station 21+00 (Lake Street) 0 to 90 feet LT (Amoco Gasoline Station,, Site 1109V-30, 21W20 Lake Street, Addison) – non-special waste. Contaminants of concern sampling parameters: BETX.
4. Station 199+00 to Station 201+60 (IL 53) 0 to 250 feet LT (E-Tech Auto Repair, Site 1109V-21, 1200 West Irving Park Road, Itasca) – non-special waste. Contaminants of concern sampling parameters: BETX, PAHs, Arsenic, and Lead.

5. Station 201+60 to Station 205+00 (IL 53) 0 to 250 feet LT (Strip Mall #2, Site 1109V-14, 1207-1213 West Irving Park Road, Itasca) – non-special waste. Contaminants of concern sampling parameters: BETX, PAHs, Arsenic, and Lead.

Engineered Barrier. An engineered barrier shall be installed in storm sewer trenches between Station 49+30 to Station 52+00 (IL 53) 0 to 220 feet RT (CITGO Gasoline Station, Site 1109V-57, 1740 West Army Trail Road, Addison), Station 199+00 to Station 201+60 (IL 53) 0 to 250 feet LT (E-Tech Auto Repair, Site 1109V-21, 1200 West Irving Park Road, Itasca), and Station 201+60 to Station 205+00 (IL 53) 0 to 250 feet LT (Strip Mall #2, Site 1109V-14, 1207-1213 West Irving Park Road, Itasca) to limit the exposure and control the migration of contamination from the contaminated soil that remains within the trench excavation. It shall be placed beneath the trench backfill material.

The engineered barrier shall consist of a geosynthetic clay liner system, geomembrane liner, or equivalent material as approved by the Engineer. A geosynthetic clay liner shall be composed of a bentonite clay liner approximately 6.4 millimeters (0.25 inches) thick. The engineered barrier shall have a permeability of less than 10^{-7} cm/sec. Installation of the geosynthetic clay liner system shall be in accordance with the manufacturer's recommendations except that all laps shall face down-slope.

The geomembrane liner shall have a minimum thickness of 30 mil. The geomembrane liner shall line the entire trench and in accordance with the manufacturer's recommendations.

No equipment will be allowed on the engineered barrier until it is covered by a minimum of 305 millimeters (1 foot) of backfill. Any damage to the engineered barrier caused by the Contractor shall be repaired at no additional expense to the Department in accordance with the manufacturer's recommendations and as directed by the Engineer.

Method of Measurement. Engineered barrier will be measured for payment in place and the area computed in square meters (square yards).

Basis of Payment. The engineered barrier will be paid for at the contract unit price per square yards for ENGINEERED BARRIER.

TRAFFIC SIGNAL SPECIFICATIONS
Effective: May 22, 2002 Revised: November 1, 2009

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer. Traffic signal construction and maintenance work shall be performed by personnel holding IMSA Traffic Signal Technician Level II certification. The work to be done under this contract consists of furnishing and installing all traffic signal work as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

SECTION 720 SIGNING

MAST ARM SIGN PANELS

Add the following to Article 720.02 of the Standard Specifications:

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

DIVISION 800 ELECTRICAL

SUBMITTALS

Revise Article 801.05 of the Standard Specifications to read:

The Contractor shall provide:

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

f. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of the letter, material catalog cuts and mast arm poles and assemblies drawings.
g. Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections, and/or tests of material shall be complete with all test data, dates, and times.
h. After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'Approved', 'Approved-As-Noted', 'Disapproved', or 'Information Only'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.
i. All submitted items reviewed and marked 'APPROVED AS NOTED', or 'DISAPPROVED' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify contract compliance at no additional cost to the contract.
j. Exceptions, Deviations and Substitutions. In general, exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

INSPECTION OF ELECTRICAL SYSTEMS

Add the following to Article 801.10 of the Standard Specifications:

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

MAINTENANCE AND RESPONSIBILITY

Revise Article 801.11 of the Standard Specifications to read:

a. Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which they are located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," shall become the full responsibility of the Contractor.

Automatic Traffic Enforcement equipment is not owned by the State and the Contractor shall not be responsible for maintaining it during construction. The Contractor shall supply the engineer and the Department's Electrical Maintenance Contractor a 24-hour emergency contact name and telephone number.

b. When the project has a pay item for "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," the Contractor must notify both the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.

c. Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops do not require maintenance transfer, but require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection. Damaged Automatic Traffic Enforcement equipment, including cameras, detectors, or other peripheral equipment, shall be replaced by others, per Permit agreement, at no cost to the contract. See additional requirements in these specifications under Inductive Loop Detector.

d. The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shutdown the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

e. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Department, the Department's Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of $500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of $500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The District's Electrical Maintenance Contractor may inspect any signalizing device on the Department's highway system at any time without notification.

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

DAMAGE TO TRAFFIC SIGNAL SYSTEM

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

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

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

TRAFFIC SIGNAL INSPECTION (TURN-ON)

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

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

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

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

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

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

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

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

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

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

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the above requirements shall be subject to removal and disposal at the Contractor's expense.

LOCATING UNDERGROUND FACILITIES

Revise Section 803 to the Standard Specifications to read:

If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.
The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

RESTORATION OF WORK AREA

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

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

ELECTRIC SERVICE INSTALLATION

Revise Section 805 of the Standard Specifications to read:

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

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

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation. The Contractor must request in writing for service and/or service modification within 10 days of contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the contractor and utility company. The service agreement and sketch shall be submitted for signature to the Traffic Program’s engineer.

Materials.

a. General. The completed control panel shall be constructed in accordance with UL Std. 508A, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.

b. Enclosures.

1. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080-inch (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14-inches (350 mm) high, 9-inches (225 mm) wide and 8-inches (200 mm) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.

2. Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125-inch (3.175 mm) thick, the top 0.250-inch (6.350 mm) thick and the bottom 0.500-inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof stainless steel .075-inch (1.91 mm) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40-inches (1000 mm) high, 16-inches (400 mm) wide and 15-inches (375 mm) in depth is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.

c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of –40C to +85C. The surge protector shall be UL 1449 Listed.

d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.

e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage.

The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.

f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.

g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30 day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.

h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 feet (3.0m) in length, and 3/4 inch (20mm) in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation.

a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.

b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.

c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment.

The service installation shall be paid for at the contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The CONCRETE FOUNDATION, TYPE A, which includes the ground rod, shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 inch (20mm) grounding conduit, ground rod, and pole mount assembly. Any charges by the utility companies shall be approved by the engineer and paid for as an addition to the contract according to Article 109.05 of the Standard Specifications.

GROUNDING OF TRAFFIC SIGNAL SYSTEMS

Revise Section 806 of the Standard Specifications to read:

General.

All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC.

See IDOT District One Traffic Signal detail plan sheets for additional information.

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

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

(a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.

(b) The equipment grounding conductor shall be green color coded. The following is in addition to Article 801.04 of the Standard Specifications.

1. Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.

2. Equipment grounding conductors shall be bonded, using a Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers, conduits, and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A Listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations.

3. All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.

4. Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.

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

GROUNDING EXISTING HANDHOLE FRAME AND COVER

Description.

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

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

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

The grounding cable shall be paid for separately.

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

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

COILABLE NON-METALLIC CONDUIT

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

General.
The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:
Add the following to Article 810.03 of the Standard Specifications:

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

Add the following to Article 811.03 of the Standard Specifications:

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

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

HANDHOLES

Add the following to Section 814 of the Standard Specifications:

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

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

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

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

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

GROUNDING CABLE

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

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

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

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

Add the following to Article 817.05 of the Standard Specifications:

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

RAILROAD INTERCONNECT CABLE

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

Add to Article 873.02 of the Standard Specifications:

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

Add the following to Article 873.05 of the Standard Specifications:

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

FIBER OPTIC TRACER CABLE

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

Add the following to Article 817.03 of the Standard Specifications:

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

Add the following to Article 817.05 of the Standard Specifications:

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

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION

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

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

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

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

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

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

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

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

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

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

The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

TRAFFIC ACTUATED CONTROLLER

Add the following to Article 857.02 of the Standard Specifications:

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

MASTER CONTROLLER

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

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

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

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

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

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

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

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District One staff.

This telephone line may be coupled with a DSL line and a phone filter to isolate the dial-up line. An E911 address is required.

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

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

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

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

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

The usual time frame for the activation of the phone line is 4-6 weeks after the Business Services Section has received the Contractor supplied fax. It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor in anticipation of this time frame. On jobs which include roadway widening in which the conduit cannot be installed until this widening is completed, the Contractor will be allowed to delay the phone line installation request to the Business Services Section until a point in time that is 4-6 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the Administrative Support Manager with an expected installation date considering the 4-6 week processing time.

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

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

UNINTERRUPTIBLE POWER SUPPLY

Add the following to Article 862.01 of the Standard Specifications:

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

Add the following to Article 862.02 of the Standard Specifications:

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

Add the following to Article 862.03 of the Standard Specifications:

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

Revise Article 862.04 of the Standard Specifications to read:

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

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

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

Revise Article 862.05 of the Standard Specifications to read:

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

FIBER OPTIC CABLE

Add the following to Article 871.01 of the Standard Specifications:

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

Add the following to Article 872.02 of the Standard Specifications:

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

Add the following to Article 871.04 of the Standard Specifications:

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

Add the following to Article 871.06 of the Standard Specifications:

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

MAST ARM ASSEMBLY AND POLE

Revise Article 877.01 of the Standard Specifications to read:

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

Revise Article 877.03 of the Standard Specifications:

Mast arm assembly and pole shall be as follows.

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

(1) Loading. The mast arm assembly and pole, and combination mast arm assembly and pole shall be designed for the loading shown on the Highway Standards or elsewhere on the plans, whichever is greater. The design shall be according to AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 1994 Edition for 80 mph (130 km/hr) wind velocity. However, the arm-to-pole connection for tapered signal and luminaire arms shall be according to the "ring plate" detail as shown in Figure 11-1(f) of the 2002 Interim, to the AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 2001 4th Edition.

(2) Structural Steel Grade. The mast arm and pole shall be fabricated according to ASTM A 595, Grade A or B, ASTM A 572 Grade 55, or ASTM A 1011 Grade 55 HSLAS Class 2. The base and flange plates shall be of structural steel according to AASHTO M 270 Grade 50 (M 270M Grade 345). Luminaire arms and trussed arms 15 ft (4.5 m) or less shall be fabricated from one steel pipe or tube size according to ASTM A 53 Grade B or ASTM A 500 Grade B or C. All mast arm assemblies, poles, and bases shall be galvanized according to AASHTO M 111.

(3) Fabrication. The design and fabrication of the mast arm assembly, pole, and base shall be according to the requirements of the Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals published by AASHTO. The mast arm and pole may be of single length or sectional design. If section design is used, the overlap shall be at least 150 percent of the maximum diameter of the overlapping section and shall be assembled in the factory.

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

(4) Shop Drawing Approval. The Contractor shall submit detailed drawings showing design materials, thickness of sections, weld sizes, and anchor rods to the Engineer for approval prior to fabrication. These drawings shall be at least 11 x 17 in. (275 x 425 mm) in size and of adequate quality for microfilming.

(b) Anchor Rods. The anchor rods shall be ASTM F 1554 Grade 105, coated by the hot-dip galvanizing process according to AASHTO M 232, and shall be threaded a minimum of 7 1/2 in. (185 mm) at one end and have a bend at the other end. The first 12 in. (300 mm) at the threaded end shall be galvanized. Two nuts, one lock washer, and one flat washer shall be furnished with each anchor rod. All nuts and washers shall be galvanized.

(c) The galvanized steel or extruded aluminum shroud shall have dimensions similar to those detailed in the "District One Standard Traffic Signal Design Details." The shroud shall be installed such that it allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet.

Add the following to Article 877.04 of the Standard Specifications:

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

CONCRETE FOUNDATIONS

Add the following to Article 878.03 of the Standard Specifications:

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

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

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

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

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

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

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

SIGNAL HEAD, LED

Revise Article 880.02 of the Standard Specifications to read:

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

Add the following to Article 880.04 of the Standard Specifications:

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

SIGNAL HEAD, LED, RETROFIT

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

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

Add the following to Article 880.04 of the Standard Specifications:

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

PEDESTRIAN SIGNAL HEAD, LED

Revise Article 881.01 of the Standard Specifications to read:

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

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

Revise Article 881.02 of the Standard Specifications to read:

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

Add the following to Article 881.03 of the Standard Specifications:

(a) Pedestrian Countdown Signal Heads.

(1) Pedestrian Countdown Signal Heads shall not be installed at signalized intersections where traffic signals and railroad warning devices are interconnected.

(2) Pedestrian Countdown Signal Heads shall be 16 inch (406mm) x 18 inch (457mm), for single units with the housings glossy black polycarbonate. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on.

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

Revise Article 881.04 of the Standard Specifications to read:

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

DETECTOR LOOP

Revise Section 886 of the Standard Specifications to read:

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

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

Installation.
Loop detectors shall be installed according to the requirements of the "District One Standard Traffic Signal Design Details."

Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

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

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

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

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

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

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

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

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

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

(g) Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. Homeruns and interconnects shall be pre-wired and shall be an integral part of the loop assembly. The loop configurations and homerun lengths shall be assembled for the specific application.

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

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

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

EMERGENCY VEHICLE PRIORITY SYSTEM.
Revise Section 887 of the Standard Specifications to read:

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

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

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

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

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Revise Section 890 of the Standard Specifications to read:

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

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

Construction Requirements.

(a) Controllers.

1. Only controllers supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications with regards to internal time base coordination and preemption. All railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications as modified herein.

2. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with current software installed.

(b) Cabinets. All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 4 inch (100 mm) diameter holes to run the electric cables through. The 4 inch (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

(c) Grounding. Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 807 of the Standard Specifications and shall meet the requirements of the District 1 Traffic Signal Specifications for “Grounding of Traffic Signal Systems.”

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

(e) Interconnect.

1. Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the plans. The Contractor may request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the engineer, it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the contract.

2. The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the item Temporary Traffic Signal Installation. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.

3. Temporary wireless interconnect, compete. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This item shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:

   a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
   b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
   c. Antennas (Omni Directional or Yagi Directional)
   d. Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna
   e. Brackets, Mounting Hardware, and Accessories Required for Installation
   f. RS232 Data Cable for Connection from the radio to the local or master controller
   g. All other components required for a fully functional radio interconnect system

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

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

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

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

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

(f) Emergency Vehicle Pre-Emption. All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item Temporary Traffic Signal Installation.

(g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. All approaches shall have vehicular detection provided by vehicle detection system as shown on the plans or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system shall be approved by IDOT prior to Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. A representative of the approved control equipment vendor shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation.

(h) Uninterruptible Power Supply. When called for in the plans, the UPS cabinet shall be mounted to the temporary traffic signal cabinet and meet the requirements of UNINTERRUPTIBLE POWER SUPPLY in Divisions 800 and 1000 of these specifications.

(i) Signs. All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.

(j) Energy Charges. The electrical utility energy charges for the operation of the temporary traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.

(k) Maintenance. Maintenance shall meet the requirements of the Standard Specifications and MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION in Division 800 of these specifications. Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY TRAFFIC SIGNAL INSTALLATION pay item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the Contract or any portion thereof. In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic Operations (847) 705-4424 for an inspection of the installation(s).

(l) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District One Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification.

In addition all electric cable shall be aerially suspended, at a minimum height of 18 feet (5.5m) on temporary wood poles (Class 5 or better) of 45 feet (13.7 m) minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole as shown in the plans, or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system may be used in place of detector loops as approved by the Engineer.

(m) Temporary Portable Traffic Signal for Bridge Projects.

1. Unless otherwise directed by the Engineer, temporary portable traffic signals shall be restricted to use on roadways of less than 8000 ADT that have limited access to electric utility service, shall not be installed on projects where the estimated need exceeds ten (10) weeks, and shall not be in operation during the period of November through March. The Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract if the bridge project or Engineer requires temporary traffic signals to remain in operation into any part of period of November through March. If, in the opinion of the engineer, the reliability and safety of the temporary portable traffic signal is not similar to that of a temporary span wire traffic signal installation, the Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract.

2. The controller and LED signal displays shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification.

3. Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.

4. General.

   a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.

   b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 feet (5m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 feet (2.5m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.

   c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.

d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation.

e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.

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

g. Basis of Payment. This work will be paid for according to Article 701.20(c).

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

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Add the following to Article 895.05 of the Standard Specifications:

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

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

If equipment is not returned with these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until the acceptance of a receipt drawn by the State's Electrical Maintenance Contractor indicating the items have been returned in good condition.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

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

TRAFFIC SIGNAL PAINTING

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

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

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

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

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

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

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

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

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

ILLUMINATED STREET NAME SIGN

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

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

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

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

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

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

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM

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

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

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

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

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

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

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
   a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.
   b. Proposed signal timing plan for the new or modified intersection(s) shall be forwarded to IDOT for review prior to implementation.
   c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations.

2. The following deliverables shall be provided for LEVEL I Re-Optimization.
   a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
   b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
   a. Traffic counts shall be taken at the subject intersection after the traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.
   b. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
   c. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.
   a. Consultant shall furnish to IDOT one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:
      (1) Brief description of the project
      (2) Printed copies of the analysis output from Synchro (or other appropriate, approved optimization software file)
      (3) Printed copies of the traffic counts conducted at the subject intersection
   b. Consultant shall furnish to IDOT two (2) CDs for the optimized system. The CDs shall include the following elements:
      (1) Electronic copy of the technical memorandum in PDF format
      (2) Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system
      (3) Traffic counts conducted at the subject intersection
      (4) New or updated intersection graphic display file for the subject intersection
      (5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

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

OPTIMIZE TRAFFIC SIGNAL SYSTEM

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

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

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

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

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

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system.

2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.

3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.

4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.

5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.

6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.

7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.

(b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Consultant shall furnish to IDOT one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

Cover Page in color showing a System Map

Figures

1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion.
2. General location map in color – showing signal system location in the metropolitan area.
3. Detail system location map in color – showing cross street names and local controller addresses.
4. Controller sequence – showing controller phase sequence diagrams.

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3. Methodology
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7. Evaluation
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Tab 2. Turning Movement Counts

1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)

Tab 3. Synchro Analysis

1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings.
2. Midday: same as AM
3. PM: same as AM

Tab 4: Speed and Delay Studies

1. Summary of before and after runs results in two (2) tables showing travel time and delay time.
2. Plot of the before and after runs diagram for each direction and time period.

Tab 5: Electronic Files

1. Two (2) CDs for the optimized system. The CDs shall include the following elements:
   a. Electronic copy of the SCAT Report in PDF format
   b. Copies of the Synchro files for the optimized system
   c. Traffic counts for the optimized system
   d. New or updated intersection graphic display files for each of the system intersections and the system graphic display file including system detector locations and addresses.

Basis of Payment.

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

The remaining 25 percent will be paid when the system is working to the satisfaction of the engineer and the report and CD have been submitted.

TEMPORARY TRAFFIC SIGNAL TIMINGS

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

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

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMINGS.

(a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings. Make fine-turning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.

(b) Consultant shall provide monthly observation of traffic signal operations in the field.

(c) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.

(d) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Operations Engineer.

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

DIVISION 1000 MATERIALS

PEDESTRIAN PUSH-BUTTON.

Revise Article 1074.02 of the Standard Specifications to read:

(a) General. Push-button assemblies shall be ADA compliant, highly vandal resistant, be pressure activated with minimal movement and cannot be stuck in a closed or constant call position. A red latching LED and audible tone shall be provided for confirmation of an actuation call.
(b) Latching LED. The normal state of the LED shall be off. When the push button is pressure activated, the LED shall be lighted and remain on until the beginning of the walk phase. The latching relay shall be mounted in the signal cabinet, controlling two pedestrian phases.

(b) Housing. The push-button housing shall be solid 6061 aluminum and powder coated yellow, unless otherwise noted on the plans.
(c) Actuator. The actuator shall be stainless steel with a solid state electronic Piezo switch rated for a minimum of 20 million cycles with no moving plunger or moving electrical contacts. The operating voltage shall be 12-24 V AC/DC.
(d) Pedestrian Station. Stations shall be designed to be mounted directly to a post, mast arm pole or wood pole. The station shall be aluminum and will accept a 3-inch round push button assembly and a 9 X 12-inch R10-3e sign with arrow(s) for a count-down pedestrian signal. The pedestrian station size without count-down pedestrian signals shall accommodate a 5 X 7 ¾ -inch R10-3b or R10-3d sign with arrow(s).
(e) Location. Pedestrian push buttons and stations shall be mounted on poles and/or posts as shown on the plans and shall be fully accessible from a paved or concrete surface. See the District's Detail sheets for orientation and mounting details.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Add the following to Article 1074.03 of the Standard Specifications:

(a) (6) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.

(b) (5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
(b) (6) Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
(b) (7) Surge Protection – Plug-in type EDCO SHA-1250 or Atlantic/Pacific approved equal.
(b) (8) BIU – Containment screw required.
(b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
(b) (10) Switch Guards – All switches shall be guarded.
(b) (11) Heating – Two (2) porcelain light receptacles with cage protection controlled by both a wall switch and a thermostat or a thermostatically controlled 150 watt strip heater.
(b) (12) Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.
(b) (13) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
(b) (14) Field Wiring Labels – All field wiring shall be labeled.
(b) (15) Field Wiring Termination – Approved channel lugs required.
(b) (16) Power Panel – Provide a nonconductive shield.
(b) (17) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
(b) (18) Police Door – Provide wiring and termination for plug in manual phase advance switch.
(b) (19) Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET

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

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

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

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

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

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

UNINTERRUPTIBLE POWER SUPPLY.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.

(9) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate (Hubbell model HBL4716C or approved equal). Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.

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

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

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

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

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

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

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

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

ELECTRIC CABLE.

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

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

Service cable may be single or multiple conductor cable.

TRAFFIC SIGNAL POST.

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

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

MAST ARM ASSEMBLY AND POLE.

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

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer. All poles shall be galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

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

SIGNAL HEADS.

Add the following to Section 1078 of the Standard Specifications:

All signal and pedestrian heads shall provide 12” (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection.

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

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

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

SIGNAL HEAD, LIGHT EMITTING DIODE

Add the following to Article 1078 of the Standard Specifications

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

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

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

(a) Physical and Mechanical Requirements

1. Modules can be manufactured under this specification for the following faces:

   a. 12 inch (300 mm) circular, multi-section
   b. 12 inch (300 mm) arrow, multi-section
   c. 12 inch (300 mm) pedestrian, 2 sections

2. The maximum weight of a module shall be 4 lbs. (1.8 kg).

3. Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

4. Material used for the lens and signal module construction shall conform to ASTM specifications for the materials.

5. The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.

6. The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.

7. Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

1. The minimum initial luminous intensity values for the modules shall conform to the values in Table 1 of the VTCSH (2005) for circular signal indications, and as stated in Table 3 of these specifications for arrow and pedestrian indications at 25 °C.

2. The modules shall meet or exceed the illumination values stated in Article 1078.01(3)c of the Standard Specifications for circular signal indications, and Table 3 of these specifications for arrow and pedestrian indications, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.

3. The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Section 4.2 of the VTCSH (2005) or applicable successor ITE specifications.

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

(c) Electrical

1. Maximum power consumption for LED modules is per Table 2.

2. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.

3. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

4. When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.

5. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

6. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

1. The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

2. Retrofit modules can be manufactured under this specification for the following faces:

   a. 12 inch (300 mm) circular, multi-section
   b. 12 inch (300 mm) arrow, multi-section
   c. 12 inch (300 mm) pedestrian, 2 sections

3. Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.

4. The maximum weight of a Retrofit module shall be 4 lbs. (1.8 kg).

5. Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

6. Electrical conductors for modules, including Retrofit modules, shall be 39.4 inches (1m) in length, with quick disconnect terminals attached.

7. The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.

(e) The following specification requirements apply to the 12 inch (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.

1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.

2. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.

(f) The following specification requirement applies to the 12 inch (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.

1. The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

(g) The following specification requirements apply to the 12 inch (300 mm) Pedestrian module only. All general specifications apply unless specifically superseded in this section.

1. Each pedestrian signal LED module shall provide the ability to actuate the solid upraised hand and the solid walking person on one 12 inch (300mm) section.

2. Two (2) pedestrian sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man.

3. “Egg Crate” type sun shields are not permitted. All figures must be a minimum of 9 inches (225mm) in height and easily identified from a distance of 120-feet (36.6m).

PEDESTRIAN COUNTDOWN SIGNAL HEAD, LIGHT EMITTING DIODE.

Add the following to Article 1078.02 of the Standard Specifications:

General.

1. The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to “0” and turn off when the steady Upraised Hand (symbolizing Don’t Walk) signal turns on. Module shall not have user accessible switches or controls for modification of cycle.

2. At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.

3. The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.

4. The module shall allow for consecutive cycles without displaying the steady Upraised Hand.

5. The module shall recognize preemption events and temporarily modify the crossing cycle accordingly.

6. If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.

7. If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.

8. The next cycle, following the preemption event, shall use the correct, initially programmed values.

9. If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.

10. The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.

11. The countdown numerals shall be two (2) “7 segment” digits forming the time display utilizing two rows of LEDs.

12. The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, "Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules," or applicable successor ITE specifications, except as modified herein.

13. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

14. In the event of a power outage, light output from the LED modules shall cease instantaneously.

15. The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.

16. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

Electrical.

1. Maximum power consumption for LED modules is 29 watts.

2. The measured chromaticity shall remain unchanged over the input line voltage range listed of 80 VAC to 135 VAC.

SIGNAL HEAD, BACKPLATE

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

INDUCTIVE LOOP DETECTOR

Add the following to Article 1079.01 of the Standard Specifications:

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

ILLUMINATED SIGN, LIGHT EMITTING DIODE

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

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

The message shall be formed by rows of LEDs. The sign face shall be 24 inches (600 mm) by 24 inches (600 mm).
Add the following to Article 1084.01 of the Standard Specifications:

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

ILLUMINATED STREET NAME SIGN

The illuminate street name sign shall be as follows.

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

(b) Environmental Requirements.
The LED lamp shall be rated for use in the ambient operating temperature range of -40 to +50^{o}C (-40 to +122^{o}F) for storage in the ambient temperature range of -40 to +75^{o}C (-40 to +167^{o}F).

(c) General Construction.
1. The LED Light Engine shall be a single, self-contained device, for installation in an existing street sign housing. The power supply must be designed to fit and mounted on the inside wall at one end of the street sign housing. The LED Light Engine shall be mounted within the inner top portion of the housing and no components of the light source shall sit between the sign faces.

2. The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI, C136.31-2001 standards.

(d) Mechanical Construction.
1. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum top with a minimum thickness of .140” x 10 ¾” deep (including the drip edge). The extruded aluminum bottom is .094” thick x 5 7/8” deep. The ends of the housing shall be cast aluminum with a minimum thickness of .250”. A six-foot sign shall be 72 5/8” long and 22 5/16” tall and not weigh more than 77 pounds. An eight-foot sign shall be 96 5/8” long and 22 5/16” tall and not weigh more than 92 pounds. All corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal around the entire housing.

2. The door shall be constructed of extruded aluminum. Two corners are continuous TIG welded with the other two screwed together to make one side of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length, .040” x 1 1/8” open stainless steel hinge. The door shall be held secure onto a 1” wide by 5/32” thick neoprene gasket by three (six total for two-way sign) quarter-turn fasteners to form a watertight seal between the door and the housing.

3. The sign face shall be constructed of .125" white translucent polycarbonate. The letters shall be 8" upper case and 6" lower case. The sign face legend background shall consist of 3M/Scotchlite Series 4090T or current equivalent 3M translucent DG^3 white VIP (Visual Impact Performance) diamond grade sheeting (ATSM Type 9) and 3M/Scotchlite Series 1177 or current 3M equivalent transparent green acrylic EC (electronic cut-able) film applied to the front of the sign face. The legend shall be framed by a white polycarbonate border. A logo symbol and/or name of the community may be included with approval of the Engineer.

4. All surfaces of the sign shall be etched and primed in accordance to industry standards before receiving appropriate color coats of industrial enamel.

5. All fasteners and hardware shall be corrosion resistant stainless steel. No tools are required for routine maintenance.

6. All wiring shall be secured by insulated wire compression nuts.

7. A wire entrance junction box shall be supplied with the sign assembly. The box may be supplied mounted to the exterior or interior of the sign and provide a weather tight seal.

8. A photoelectric switch shall be mounted in the control cabinet to control lighting functions for day and night display. Each sign shall be individually fused.

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

(e) Electrical.

1. Photocell shall be rated 105-305V, turn on at 1.5 fcs. with a 3-5 second delay. A manufacturer's warranty of six (6) years shall be provided. Power consumption shall be no greater than 1 watt at 120V.

2. The LED Light Engine shall operate from a 60 +- 3 cycle AC line power over a voltage range of 80 to 135 Vac rms. Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than +- 10%.

3. Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage, and at a temperature of +25^{o}C (+77^{o}F), shall not exceed 20%.

4. The LED Light Engine shall cycled ON and OFF with a photocell as shown on the detail sheet and shall not exceed the following maximum power values:

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

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

(f) Photometric Requirements.

1. The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Environmental Requirements and Wattage Sections shall be of a minimum value of 100 cd/m^2.

2. The manufacturer shall make available independent laboratory test results to verify compliance to Voltage Range and Luminous Intensity Distribution Sections.

3. Twelve (12) 1.25 watt LED units shall be mounted on 1-inch x 22-inch metal cone printed circuit boards (MCPCB). The viewing angle shall be 120 degrees. LED shall have a color temperature of 5200k nominal, CRI of 80 with a life expectancy of 75,000 hrs.

(g) Quality Assurance.
The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification. QA process and test result documentations shall be kept on file for a minimum period of seven (7) years. The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications. Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes. LED Light Engines shall be replaced or repaired if they fail to function as intended due to workmanship or material defects within the first sixty (60) months from the date of acceptance. LED Light Engines that exhibit luminous intensities less than the minimum value specified in Photometric Section within the first thirty-six (36) months from the date of acceptance shall be replaced or repaired.

FULL-ACTUATED CONTROLLER AND CABINET (SPECIAL)
Effective: January 1, 2002 Revised: January 1, 2007

This work shall consist of furnishing and installing a(n) "ECONOLITE" brand traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of the current District One Traffic Signal Special Provisions including conflict monitor, load switches and flasher relays, with all necessary connections for proper operation..

Basis of Payment. This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET (SPECIAL) or FULL-ACTUATED CONTROLLER AND TYPE V CABINET (SPECIAL).

MASTER CONTROLLER (SPECIAL)
Effective: January 1, 2002 Revised: January 1, 2007

This work shall consist of furnishing and installing a(n) "ECONOLITE" brand master controller, meeting the requirements of the current District One Traffic Signal Special Provisions including all necessary connections for proper operation.

Basis of Payment. This work will be paid for at the contract unit price each for MASTER CONTROLLER (SPECIAL).

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT

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

At the intersections of Illinois Route 19 (Irving Park Road) and Norwood Avenue on Illinois Route 53 (Rohlwing Road), the existing Tomar brand light detectors and confirmation beacons to be relocated shall be divided for new signal phasing. All the materials needed for this work shall be included in this pay item and no additional compensation shall be allowed for the same. The quantity considered for payment shall be the same as that to be removed for relocation prior to dividing it for relocation as shown in the plans.

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

This work shall also include changing the incandescent flood lamp to LED flood lamp in accordance with the latest IDOT, District 1 specifications, and shall be incidental to the pay item, “Relocate Existing Emergency Vehicle Priority System, Detector Unit.”

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

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT

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

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

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

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

REMOVE TEMPORARY TRAFFIC SIGNAL INSTALLATION

This work shall consist of removing the existing temporary traffic signal installation at an intersection as listed and as shown on the plans, after the permanent signal is in place and in operation.

The temporary traffic signal installation shall remain in place for use during all construction stages as shown in the plans.

The traffic signal equipment that is to be removed and is to remain the property of the organization as indicated on the intersection plan sheet, shall be stored within the project limits by the Contractor for pickup by organization forces. The Contractor shall be responsible for all stored traffic signal equipment until it is picked up. The traffic signal equipment, which is to be removed and is to become the property of the Contractor shall be disposed of by him outside the right-of-way at his expense.

The Contractor shall provide five (5) copies of a list of equipment that is not to remain his or her property, including model and serial numbers where applicable. He shall also provide a copy of the contract plan or Special Provisions showing the quantities and type of equipment from the time of removal until the acceptance of a receipt drawn by the organization indicating that the items have been returned in good condition.

The backfilling of the holes created by the removal of the wood poles and reconstructing the surface to match the adjoining area shall be considered incidental to this pay item.

The existing temporary traffic signal installation shall be modified as shown in the plan and remain in place for use during proposed construction as shown in the plans and as directed by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price each for REMOVE TEMPORARY TRAFFIC SIGNAL INSTALLATION per intersection which price shall be payment in full for removing the equipment, and storing and/or disposing of it as required. The salvage value of the equipment retained by the Contractor shall be reflected in this contract unit price.

MODIFY TEMPORARY TRAFFIC SIGNAL INSTALLATION

This work shall consist of modifying the existing temporary signal installation by furnishing and installing the additional wood pole(s), video detection equipments, span wire, tether wire, aerial electric cables, and relocation of existing span wire mounted traffic signal heads as shown in the plans and making them operational for a particular traffic staging plan. This work shall also include relocation of the signal heads for different construction stages as shown in the plans and as directed by the Engineer including the maintenance of the modified Temporary Traffic Signal Installation until its removal.

The energy charges shall be paid in accordance with Article 109.05 of the Standard Specifications.

All work and material needed for modifying the temporary traffic signal installation including the cables, shall be paid for as part of MODIFY TEMPORARY TRAFFIC SIGNAL INSTALLATION. The removal of the temporary traffic signal installation shall be paid for separately as shown in quantities.

WIRELESS INTERCONNECT (COMPLETE)

The radio interconnect system shall be compatible with proposed Eagle controller closed loop systems. This item shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. For this project there are two (2) intersections which will communicate over radio interconnect within the proposed closed loop system. The radio interconnected intersections are to be located along with the existing hard wire interconnect system.

The radio interconnect system shall include the following components:

- Rack or Shelf Mounted RS-232 Frequency Hopping. Spread Spectrum (FHSS) Radio (Compatible with Econolite Full-Duplex Protocol)
- Software for Radio Configuration (Configure Frequency and Hopping Patterns)
- Antennas (Omni Directional or Yagi Directional as Required For Operation)
- Antenna Cables (LMR-400 High Gain Cable)
- Brackets, Extension Poles, Mounting Hardware, and Accessories as Required for Installation and Proper Operation
- RS232 Data Cable for Connection from the radio to the local or master controller
- All other components required for a fully functional radio interconnect system.

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in the bid price and no additional compensation will be allowed.

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

The proposed temporary controller at Fleetwood Drive and McLean Blvd. and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

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

Antenna Mounting and Radio Installation

The antenna shall be installed in the locations shown on the plans. The antenna wire length shall not exceed a maximum of 100' from the antenna to the controller cabinet and shall be kept as short as possible to avoid performance degradation. The antenna cable shall be LMR-400 low loss coaxial cable.

All antennas shall maintain a clear line of sight between intersections. A two (2) foot minimum-horizontal and vertical separation shall be provided between the mounting structure and the antennas. The antennas shall be mounted as high as possible on the structure. If required for proper operation, extension poles shall be attached to the mast arms and no additional compensation shall be allowed.

The fade margin shall be a minimum of 20 Db. Above the radio receiver sensitivity as determined by an on-site reading with the manufacturers provided software to ensure reliable performance in the future.

The maintained radio output power shall be greater than or equal to one (1) watt. Currently, the following systems are approved for use in District 1: Intuitcom or Encom The equipment shall conform to the following specifications:

1.0 GENERAL

1.1 Spread spectrum radios supplied must meet FCC part 15 rules and Industry Canada RSS-210 for unlicensed radio operation in the 902-928 MHz band. No radio modems shall require FCC or Canadian site license. Radios must meet specific requirements below.

1.2 All radio modems shall be frequency hopping spread spectrum. FHSS provides increased performance, higher data security, and excellent interference rejection. Fifteen hopping patterns per band, 105 total – user selectable. Hopping channels 50 to 112 & seven hopping bands - user selectable. Data must be encrypted.

1.3 Single radio must be capable of repeater and simultaneous Slave and Repeater functions.

A. True single radio point-to-multipoint slave/repeater capability. Repeaters can continue to function as slaves to send/receive data to their data ports.
B. No external cabling options or back-to-back radio operation is acceptable.
C. Must be capable of all operating modes: point-to-point, point-tomultipoint, and point-to-multipoint. slave/repeater (interchangeable – hardware identical), and shall be capable of forwarding data packets to end destination.

1.4 Range Performance is required to be 60+ miles with clear line of sight, ability to extend through repeaters.

1.5 All radio modems shall be capable of operating at 1200 bps; 2400 bps; 4800 bps; 9600 bps; 19,200 bps; 38,400 bps; 56,000 bps and 115,200 bps. Actual data rate used shall be user selectable. Must be capable of 115,200 bps asynchronous data continuous throughput.

1.6 Radio must be capable of full or half duplex mode. Interface directly with full-duplex and half-duplex devices (includes NEMA, 170, 470I, ICM, 2070).

1.7 Manufacturing of radio modems will be in the United States of America with 100% performance testing over operating temperatures of -40 °C - +75 °C (-40o to +167o F).

1.8 Two year limited warranty period for defects in materials or workmanship under normal use and service for a period of two (2) years from the date of delivery. Radio maker will repair or replace hardware covered under limited warranty.

1.9 No special hand-held device or special configuration software shall be required. Terminal emulator application programming interface for set-up accomplished using standard laptop or palm devices.

1.10 Radios must be designed to have good interference rejection. Assignment of frequency keys provides operation of several radio systems with minimal interference in the local geographic area.

1.11 Configurable transceiver operating parameters must be designed for maximum radio system performance and throughput over a wide variety of system conditions.

1.12 Error correction is required. The 32-bit CRC with automatic retransmission on error process guarantees that data is delivered and error-free. Bit Error Rate of 10-4 is achieved at signal strength of -110 dBm /10-6 BER at -108 dBm.

1.13 Data interface is RS-232 and user-programmable RS-232/RS-485/RS-422 interface, DCE. Connector is DB9 Female.

1.14 Output power must be programmable 100 mW up to 1 W (+30 dBm) in100 mW steps.

1.15 RF connector is to be type N female for shelf-mount or SMA female for rack-mount.

1.16 Radio transceiver keyed on data or RTS.

1.17 The radio is to include "Sleep Mode" as a standard feature for sites requiring low current drain. Sleep mode reduces power consumption to 5 mA. A unit in sleep mode must wake up, synchronize with the network, and accept data in less than 150 microseconds.

1.18 Radios are to be equipped with external jack allowing the use of a directional Yagi or omni directional antenna. It is highly desirable to obtain line of sight with the antenna to be used. The professional installer must ensure frequency emission limits are not exceeded. Output power settings, antenna gain, and cable loss combinations must be considered.

2.0 DIAGNOSTICS for RADIO SYSTEM

2.1 In addition to modem statistics available in set up mode, the radio system is to have diagnostic capability to allow user to verify communications reliability between the master and remote radios. System shall provide real-time diagnostics and set up menu access, without disrupting network communications.

2.2 Diagnostic connector is to be separate standard DB9 for shelf-mount or 3-pin mini sub-D for rack-mount.

3.0 RADIO TRANSCEIVER SPECIFICAITONS:

3.1 General

Frequency Range	902-928 MHZ
Method	Frequency hopping spread spectrum
Hopping Patterns	15 per band, 105 total, user selectable
Hopping Channels	50 to 112, user selectable
Hopping Bands	7, user selectable
Range, Line-of-Sight	60 miles with clear line of sight, ability to extend through repeaters
Occupied Bandwidth	230 KHz
Modulation	Spread Spectrum, GFSK, 115.2 Kbps or 153.6 Kbps
RF Connector	Type N female
System Gain	140 dB
Output Power	100mW to 1 Watt (+30 d Brn)

3.2 Receiver

Sensitivity	-108 dBm for 10^{-6} BER -110 dBm for 10^{-4} BER
Selectivity	20 dB at fc ± 115 KHz 60 dB at fc ± 145 KHz

3.3 Data Transmission

Error Detection	32 bit CRC, retransmit on error
DataEncryption	Substitution, dynamic key
Link Throughput**	115.2 Kpps standard speed, 38.4 Kpps low speed

**Uncompressed, measured assuming 75% frequency availability

3.4 Data Interface

Protocol	RS-232/RS-422/RS485 1200 Baud to 115.2 KBaud, DCE

Connector DB9-female

3.5 Diagnostics Interface

Connector DB9-female shelf-mount or 3-pin mini sub-D for rack-mount

3.6 Power Requirements:

Operating Voltage	6 to 30 Vdc		
Current [mA]	9200 MHz units		12 Vdc
	Transmit	250 mA	
	Receive	86 mA	
	Idle	21 nnA	
	Sleep	5 mA	

3.7 Environmental and Mechanical:

Operating Temperature	
Enclosure	-40°C - +75°C Extruded Aluminum shelf-mount unit or input file mount card
Dimensions	4.5 L x 6.6 W x 2.1 H ["] 2x22 contact edge card vvith 0.156' centers for input file card type (170, 2070, NEMA compatible)

Weight 28 oz for shelf-mount or 206 g for input card

3.8 Shelf-mount radio must be model Communicator II (part# FIP1-900C2M-R2) manufactured by Intuicom, Inc. or equal meeting all specification. Rack-mount radio must be model Communicator-T (Part# FIP1-900C2M-T) manufactured by Intuicom, Inc. or equal meeting all specifications.

Rack Mounts:

The requirements for a rack mount version are listed below:

- RS232 / RS422 or RS485 data (software selectable)
- RF Antenna connector: SMA connector
- Detector Rack Compatible-plugs into and is powered from standard loop detector rack
- Diagnostic Interface: 3-pin mini sub-D
- Dimensions: One slot width standard loop detector rack.
- Weight: 206 grams

Basis of Payment:

This work will be paid for at the contract unit price each for WIRELESS INTERCONNECT (COMPLETE) and shall be payment in full for all labor, materials, and equipment required to test and install the equipment described above to create a fully operational complete closed loop system to the satisfaction of the Engineer.

MICROWAVE VEHICLE SENSOR (SMARTSENSOR MATRIX)
MICROWAVE VEHICLE SENSOR (SMARTSENSOR ADVANCE)

Description.

The MICROWAVE VEHICLE SENSOR shall consist of SmartSensor Matrix and/or a SmartSensor Advance (Manufacturer Wavetronix) and all necessary work and equipment necessary to install and have fully operational, MICROWAVE VEHICLE SENSOR as shown on the plans. The MICROWAVE VEHICLE SENSOR detects vehicles by transmitting electromagnetic radar signals through the air. The signals bounce off vehicles in their paths and part of the signal is returned to the Unit. The returned signals are then processed to determine traffic parameters. These units are not affected by normal weather and environmental conditions such as rain, wind, snow, dust, etc. They also do not require cleaning and can maintain performance over a wide range of ambient temperatures.

General.

Only an approved equipment vendor will be allowed to install the MICROWAVE VEHICLE SENSOR. Also, an approved equipment vendor shall test the system and be present at the traffic signal turn-on inspection.

Construction Requirements.

The MICROWAVE VEHICLE SENSOR shall be installed as shown on the plans and conform to the following specifications:

1. Smartsensor Matrix

Measured Quantities:	Real time presence in 10 lanes.
Detection Zones:	Up to 8 traffic zones simultaneously
Detection Range:	6 to 100 feet (1.8 m to 30.5 m)
Elevation:	3 dB beamwidth: 65°
Horizontal field of view:	90°
Operating frequency:	24.0 to 24.25 GHz (K-band) Frequency Modulated Continuous Wave (FMCW) radar
Communications:	Two RS-485 connection
Power:	9 watts @ 9-28 VDC
Ambient operating temperature:	-40°C to 75°C
Humidity:	Up to 95% RH
Shock:	10 g 10ms half sine wave
Physical dimensions (HxWxD)	13.2 in x 10.6 in x 3.3 in (33.5 cm x 26.9 cm x 8.4 cm)
Weight:	Less than 2.27 kg or 5 lbs.

2. Smartsensor Advance

Measured Quantities:	Presence, speed, range and arrival time
Detection Zones:	Up to 8 traffic zones simultaneously
Detection Range:	100 to 500 feet (30 m to 152.4 m)
Zone Resolution:	5 feet (1.524 m)
Time Resolution:	2.5 msec
Elevation:	3 dB beamwidth: 80°
Azimuth:	3 dB beamwidth: 12°

Operating frequency:	10.5 to 10.55 GHz (X-band) Frequency Modulated Continuous Wave (FMCW) radar
Communications:	RS-232 and RS-485 connection
Power:	7.5 watts @ 9-28 VDC
Ambient operating temperature:	-40°C to 75°C
Humidity:	Up to 95% RH
Shock:	10 g 10ms half sine wave
Physical dimensions (HxWxD)	12.6 in x 9.0 in x 3.0 in (32 cm x 23 cm x 7.6 cm)
Weight:	Less than 2.27 kg or 5 lbs.

The sensor Shall be equipped with transient surge suppression (internal and external).

3. Wavetronix Click! 172 (Two-Channel Contact Closure Rack Mounted Card)

[The Click! 172 Input File Card provides 2-channel contact closure outputs between the SmartSensor and the traffic signal controller. The cards plug into any input file slot and are compatible with NEMA standard TS-1, TS-2, providing a data link from one or more cards to a single RS-485 bus.]

4. Wavetronix Click! 200 (Surge Protection Module)

The module shall be installed in the proposed traffic signal cabinet.

[The Click! 200 Surge Protection Module has a three-stage surge suppression design that protects the SmartSensor and other devices from power surges over DC power lines, RS-232 and RS-485 communication lines. The 200's surge protected power and communication buses are hot-swappable, and the modules also include unprotected connections for RS-232 and RS-485 communications.]

5. Wavetronix Click! 202 (Power Supply – 2A, 24VDC)

[The Click! 202 AC to DC Power Converter provides 24 VDC at 2-Amps.]

6. Wavetronix Click! 222 (System Surge Protector)

[The Click! 222 system surge protection device prevents electrical surges conducted along underground cables from damaging the cabinet equipment. The device features a control bridge that connects electrically isolated RS-485 buses, eliminating communication problems caused by star networks.]

7. Cables, Brackets, Hardware, Etc.

The Contractor shall also furnish and install all over required equipment, including cables, brackets, hardware, and all other items required for a complete and fully functional system.

8. Sensor Cable and Connector Specification

The cable shall be the Wavetronix WX-SS-H701/2/3, Orion Wire Combo-2207-2002-PVCGY or an equivalent cable that conforms to the following specifications:

The RS-485 conductors shall be a twisted pair. The RS-232 and RS-485 conductors shall have nominal capacitance conductor to conductor of less than 71pF/Ft at 1 Khz. The RS-232 and RS-485 conductors shall have nominal conductor DC resistance of less than 16.5 ohms/1000 ft. at 20°C. The power conductors shall be a twisted pair with nominal conductor DC resistance of less than 11.5 ohms/1000 ft. at 20°C. Each wire bundle shall be shielded with an aluminum/mylar shield with a drain wire or the entire cable shall be shielded with an aluminum/mylar shield with a drain wire. The cable end connector shall meet the MIL-C-26482 specification and shall be designed to interface with the appropriate MIL-C-26482 connector.

The connector backshell shall be an environmentally sealed shell that offers excellent immersion capability. All conductors that interface with the connector shall be encased in a single jacket, and the outer diameter of this jacket shall be within the backshell's cable O.D. range to ensure proper sealing. The backshell shall have a strain relief with enough strength to support the cable slack under extreme weather conditions. Recommended connectors are Cannon's KPT series, and recommended backshells are Glenair Series 37 cable sealing backshells.

9. Configuration Software, Computer Cables, and Operation Manuals

The Contractor shall furnish equipment configuration software, computer cables, and manuals to the Department. One copy of all applicable manuals shall be placed inside the controller cabinet.

All equipment provided under this pay item shall have a two year manufacturer's warranty (parts and labor).

Basis of Payment:
This work shall be paid for at the contract unit price each for MICROWAVE VEHICLE SENSOR of the type specified and shall be payment in full for all labor, equipment, and materials required to furnish, install, program, and test the Microwave Vehicle Sensor described above and shown in the plans, complete.

GENERAL ELECTRICAL REQUIREMENTS
Effective: January 1, 2007

Add the following to Article 801 of the Standard Specifications:

"Maintenance transfer and Preconstruction Inspection:

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

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

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

Marking of Existing Cable Systems. The party responsible for maintenance of any existing lighting and/or traffic control systems at the project site will, at the Contractor's request, mark and/or stake, once per location, all underground cable routes owned or maintained by the State. A project may involve multiple "locations" where separated electrical systems are involved (i.e. different controllers). The markings shall be taken to have a horizontal tolerance of at least 304.8 mm (one (1) foot) to either side.

The request for the cable locations and marking shall be made at the same time the request for the maintenance transfer and preconstruction inspection is made. The Contractor shall exercise extreme caution where existing buried cable runs are involved. The markings of existing systems are made strictly for assistance to the Contractor and this does not relieve the Contractor of responsibility for the repair or replacement of any cable run damaged in the course of his work, as specified elsewhere herein. Note that the contractor shall be entitled to only one request for location marking of existing systems and that multiple requests may only be honored at the contractor's expense. No locates will be made after maintenance is transferred, unless it is at the contractor's expense.

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

Delete Articles 801.11 and 801.12 of the Standard Specifications.

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

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

Revise Article 801.11(a) of the Standard Specifications to read:

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

Add the following to Section 801.11(a) of the Standard Specifications:

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

All other energy and demand payments to the utility shall be the responsibility of the Contractor until final acceptance."

Add the following to Section 801 of the Standard Specifications:

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

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

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

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

UNDERGROUND RACEWAYS
Effective: January 1, 2007

Revise Article 810.03 of the Standard Specifications to read:

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

Add the following to Article 810.03 of the Standard Specifications:

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

Add the following to Article 810.03 of the Standard Specifications:

"All raceways which extend outside of a structure or duct bank but are not terminated in a cabinet, junction box, pull box, handhole, post, pole, or pedestal shall extend a minimum or 300 mm (12") or the length shown on the plans beyond the structure or duct bank. The end of this extension shall be capped and sealed with a cap designed for the conduit to be capped. The ends of rigid metal conduit to be capped shall be threaded, the threads protected with full galvanizing, and capped with a threaded galvanized steel cap.

The ends of rigid nonmetallic conduit and coilable nonmetallic conduit shall be capped with a rigid PVC cap of not less than 3 mm (0.125") thick. The cap shall be sealed to the conduit using a room-temperature-vulcanizing (RTV) sealant compatible with the material of both the cap and the conduit. A washer or similar metal ring shall be glued to the inside center of the cap with epoxy, and the pull cord shall be tied to this ring."

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

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

LUMINAIRE
Effective: January 1, 2007

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

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

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

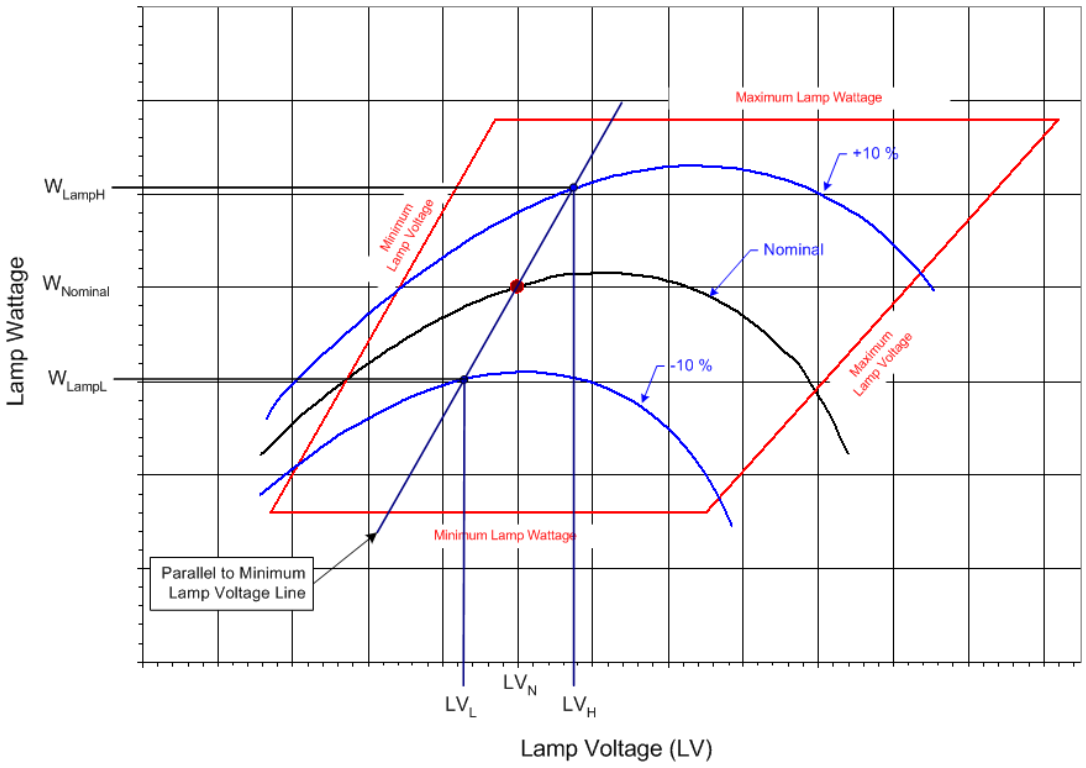
"The ballast shall be a High Pressure Sodium, high power factor, constant wattage auto-regulator, lead type (CWA) for operation on a nominal 240 volt system."

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

"The high pressure sodium, auto-regulator, lead type (CWA) ballast shall be designed to ANSI Standards and shall be designed and rated for operation on a nominal 240 volt system. The ballast shall provide positive lamp ignition at the input voltage of 216 volts. It shall operate the lamp over a range of input voltages from 216 to 264 volts without damage to the ballast. It shall provide lamp operation within lamp specifications for rated lamp life at input design voltage range. Operating characteristics shall produce output regulation not exceeding the following values:

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

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



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

where:
W_{LampH} = lamp watts at +10% line voltage when Lamp voltage = LV_H
W_{LampL} = lamp watts at - 10% line voltage when lamp voltage = LV_L
W_{lampN} = lamp watts at nominal lamp operating voltage = LV_N

Wattage	Nominal Lamp Voltage, LV_N	LV_L	LV_H
750	120v	115v	125v
400	100v	95v	105v
310	100v	95v	105v
250	100v	95v	105v
150	55v	50v	60v
70	52v	47v	57v

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

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

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

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

where:
W_{line} = line watts at nominal system voltage
W_{lamp} = lamp watts at nominal system voltage

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

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

Ballast output over lamp life. Over the life of the lamp the ballast shall produce average output wattage of the nominal lamp rating as specified in the following table. Lamp wattage readings shall be taken at 5-volt increments throughout the ballast trapezoid. Reading shall begin at the lamp voltage (L_V) specified in the table and continue at 5 volt increments until the right side of the trapezoid is reached.

The lamp wattage values shall then be averaged and shall be within the specified value of the nominal ballast rating. Submittal documents shall include a tabulation of the lamp wattage vs. lamp voltage readings. Example: *For a 400w luminaire, the averaged lamp wattage reading shall not exceed the range of ±3% which is 388 to 412 watts*"

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

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

"Independent Testing. Independent testing of luminaires shall be required whenever the quantity of luminaires of a given wattage and distribution, as indicated on the plans, is 50 or more. For each luminaire type to be so tested, one luminaire plus one luminaire for each 50 luminaires shall be tested. Example: *A plan quantity of 75 luminaires would dictate that 2 to be tested; 135 luminaires would dictate that three be tested*." If the luminaire performance table is missing from the contract documents, the luminaire(s) shall be tested and the test results shall be evaluated against the manufacturer's published data. The test luminaire(s) results shall be equal to or better than the published data. If the test results indicated performance not meeting the published data, the test luminaire will be designated as failed and corrective action as described herein shall be performed.

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

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

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

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

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

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

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

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

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

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

"The beam of maximum candlepower for luminaires specified or shown to have a 'medium' distribution shall be at 70 degrees from the horizontal ± 2.5 degrees. Submittal information shall identify the angle."

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

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

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

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

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

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE
ILL. Route 53

GIVEN CONDITIONS

ROADWAY DATA	Pavement Width	56 (ft)
	Number of Lanes	5
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	47.5 (ft)
	Mast Arm Length	15 (ft)
	Pole Set-Back From Back of Curb	ILL. Rte. 53: 13 (ft)
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	50000
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type III
	Total Light Loss Factor	0.7
LAYOUT DATA	Spacing	ILL. Rte. 53: 274 (ft)
	Configuration	Opposite
	Luminaire Overhang over edge of pavement	ILL. Rte. 53: 2 (ft)

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

PERFORMANCE REQUIREMENTS

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

ILLUMINATION	Ave. Horizontal Illumination, $\mathbf{E_{AVE}}$	13.0 Lux
	Uniformity Ratio, $\mathbf{E_{AVE}/E_{MIN}}$	3.0 (Max)
LUMINANCE	Average Luminance, $\mathbf{L_{AVE}}$	0.9 Cd/m^2
	Uniformity Ratio, $\mathbf{L_{AVE}/L_{MIN}}$	3.0 (Max)
	Uniformity Ratio, $\mathbf{L_{MAX}/L_{MIN}}$	5.0 (Max)
	Veiling Luminance Ratio, $\mathbf{L_V/L_{AVE}}$	0.3 (Max)

FOUNDATIONS
Effective: January 1, 2007

Light Pole Foundation:

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

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

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

Tower Foundation:

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

TRENCH AND BACKFILL FOR ELECTRICAL WORK
Effective: January 1, 2007

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

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

UNIT DUCT
Effective: January 1, 2007

Revise the second paragraph of Article 816.03 to read:

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

Revise Article 1066.01 to read:

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

Revise Article 1088.01(c) to read:

> "(c) Coilable Nonmetallic Conduit.

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

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

Duct dimensions shall conform to the following table:

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

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

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

WIRE AND CABLE
Effective: January 1, 2007

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

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

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

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

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

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

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

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

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

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

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

Aerial Electric Cable Properties

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

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

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

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

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

Revise Article 1066.04 to read:

"Aerial Cable Assembly. The aerial cable shall be an assembly of insulated aluminum conductors according to Section 1066.02 and 1066.03. Unless otherwise indicated, the cable assembly shall be composed of three insulated conductors and a steel reinforced bare aluminum conductor (ACSR) to be used as the ground conductor.

Unless otherwise indicated, the code word designation of this cable assembly is "Palomino". The steel reinforced aluminum conductor shall conform to ASTM B-232. The cable shall be assembled according to ANSI/ICEA S-76-474."

Revise the second paragraph of Article 1066.05 to read:

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

Revise Article 1066.08 to read:

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

MAINTENANCE OF LIGHTING SYSTEMS
Effective: January 1, 2007

Replace Article 801.11 and 801.12 of the Standard Specifications with the following:

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

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

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

Maintenance of Existing Lighting Systems

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

Extent of Maintenance.

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

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

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

Maintenance of Proposed Lighting Systems

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

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

Lighting System Maintenance Operations

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

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

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

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

- **Service Response Time** -- amount of time from the initial notification to the Contractor until a patrolman physically arrives at the location.

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

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

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

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

Operation of Lighting

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

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

LIGHTING CONTROLLER, SINGLE DOOR, CONSOLE TYPE

Description: This work shall consist of furnishing and installing a roadway lighting electrical control cabinet complete with foundation and wiring for the control of highway and Festoon lighting. All work shall be according to Section 825 of the IDOT Standard Specifications for Road and Bridge Construction Adopted January 1, 2007 except as follows:

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

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

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

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

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

Add the following paragraph to the end of Article 1068.01(e)(3) of the Standard Specifications:

Eight (8) additional branch circuit breakers shall be added to control the operation of the Festoon outlets installed in the light poles. These additional Festoon branch breakers shall be 1-pole, 30 Amperes each as shown on the lighting controller detail.

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

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

LUMINAIRE SAFETY CABLE ASSEMBLY
Effective: January 1, 2007

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

Materials. Materials shall be according to the following:

Wire Rope. Cables (wire rope) shall be manufactured from Type 304 or Type 316 stainless steel having a maximum carbon content of 0.08 % and shall be a stranded assembly. Cables shall be 3.18 mm (0.125") diameter, 7x19 Class strand core and shall have no strand joints or strand splices.

Cables shall be manufactured and listed for compliance with Federal Specification RR-W-410 and Mil-DTL-83420.

Cable terminals shall be stainless steel compatible with the cable and as recommended by the cable manufacturer. Terminations and clips shall be the same stainless steel grade as the wire rope they are connected to.

U-Bolts. U-Bolts and associated nuts, lock washers, and mounting plates shall be manufactured from Type 304 or Type 316 stainless steel.

CONSTRUCTION REQUIREMENTS

General. The safety cable assembly shall be installed as indicated in the plan details. One end of the cable assembly shall have a loop fabricated from a stainless steel compression sleeve. The other end of the cable assembly shall be connected with stainless steel wire rope clips as indicated. Slack shall be kept to a minimum to prevent the luminaire from creeping off the end of the mast arm.

Basis of Payment: This work shall be paid for at the contract price each for LUMINAIRE SAFETY CABLE ASSEMBLY, which shall be payment for the work as described herein and as indicated in the plans.

ELECTRIC UTILITY SERVICE CONNECTION (COMED)

Effective: January 1, 2002 Revised February 1, 2005

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

CONSTRUCTION REQUIREMENTS

General. It shall be the Contractor's responsibility to contact ComEd. The Contractor shall coordinate his work fully with the ComEd both as to the work required and the timing of the installation. No additional compensation will be granted under this or any other item for extra work caused by failure to meet this requirement.

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

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

For bidding purposes, this item shall be estimated as $1500

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

ELECTRIC SERVICE INSTALLATION
Effective: January 1, 2007

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

Materials. Materials shall be in accordance with the corresponding material Articles for the materials being used under this pay item.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall ascertain the work being provided by the electric utility and shall provide all additional material and work not covered by contract pay items required to complete the electric service work in complete compliance with the requirements of the utility.

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

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

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

LIGHT POLE ALUMINUM

Description. This work shall consist of furnishing and installing an aluminum light pole as shown on the plans, including all necessary hardware and accessories required for the intended temporary or permanent use of the pole.

Materials. Materials for the aluminum pole shall be in accordance with Article 1069.02.

Aluminum poles used for a permanent lighting installation must be new poles. The mounting height and mast arm shall be of the size indicated on the plans.

Installation: Installation shall be as described in Article 830.03. Unless otherwise indicated, the Contractor shall provide all hardware to install the pole and mast arm as specified herein and indicated on the plans.

Basis of Payment: LIGHT POLE ALUMINUM will be paid for at the contract unit price per each, of the mounting height, and arm (quantity and length) type specified.

MAST ARM STEEL

Description. This work shall consist of furnishing and installing a steel mast arm as shown on the plans, including all necessary hardware and accessories required for the intended use of the arm.

Materials. Materials for the steel mast arm shall be in accordance with Article 1069.03 (a). The mast arm shall be of the size indicated on the plans.

Installation: Unless otherwise indicated, the Contractor shall provide all hardware to install the mast arm as specified herein and indicated on the plans.

Basis of Payment: MAST ARM STEEL will be paid for at the contract unit price per each, for the arm length specified.

DYNAMIC PILE MONITORING

Effective: February 5, 2009 Revised: January 15, 2010

General. This work consists of accommodating the dynamic monitoring of a pile at the substructure(s) indicated on the plans, both during their initial driving process and the re-strike procedure conducted after the minimum waiting period specified herein has elapsed. All pile driving operations shall follow Section 512 of the standard specifications unless otherwise indicated in this special provision.

Dynamic monitoring will be accomplished by attaching sensors near the top of the pile which transmit data by cable or wireless connection to a Pile Driving Analyzer (PDA) unit at the site. The sensors, their attachment to the pile, the connection to PDA, and the operation of the PDA will be provided by Dr Jim Long or another PDA operator from the University of Illinois Urbana Champaign (UIUC).

Unless otherwise approved by the Engineer and agreed to by Dr. Long, the pile to be monitored at the specified substructure(s) shall be the test pile. When no test pile is provided at the specified substructure, the first production pile driven at the substructure shall be the dynamically monitored pile.

Submittals. The Contractor shall submit a completed "Pile Driving Equipment Data" Form (http://www.dot.il.gov/Forms/BBS%20136.docx) included below to the Engineer for transmittal by email to Dr. Long at (jhlong@uiuc.edu) to prepare the PDA. The Contractor shall also notify the Engineer in writing of the anticipated driving and re-strike date(s) of the pile(s) to be dynamically monitored to allow the Engineer to inform Dr. Long at (217-333-2543) of the schedule. Both the completed form and written driving and re-strike dates shall be provided to the Engineer and sent to Dr. Long a minimum of two weeks prior to driving the first dynamically monitored pile.

Any changes to the proposed driving equipment or dates shall be submitted to the Engineer to determine if they can be accommodated by Dr. Long or another PDA operator.

Construction.
Dynamic monitoring will be performed during the final 20 to 50 ft (6 to 15 m) of initial driving. Depending on the location of any contractor planned pile splices and the total estimated pile length, the PDA operator will determine if all pile segments or only selected pile segments will require monitoring. After lifting the section(s) of the pile to be monitored into the leads, the Contractor shall provide labor to access to either side of the H-pile web or the Metal Shell within the top 8 ft (2.4 m) while in the leads to attach the sensors which should take less than 10 minutes.

When the level of the sensors is within 1 ft (300 mm) of any obstruction endangering the survival of sensors and/or cables, driving shall be halted and the contractor shall remove the sensors and reattach them after passing the obstruction. When sensors are within 1 ft (300 mm) of the ground surface, driving shall be halted and the contractor shall remove the sensors and reattach them near the top of the next pile segment after lifting into place and splicing.

The driving will be terminated when the Nominal Driven Bearing exceeds the Nominal Required Bearing shown on the plans by no more than 20 percent as directed by the Engineer per PDA operator's analysis. Upon completion of initial driving process of each dynamically monitored pile, the Contractor shall provide the PDA operator access to remove the sensors. Other piles in the substructure and elsewhere on the project may be driven during the waiting period but the dynamically monitored piles shall not be cut off and remain accessible for the re-strike procedure.

If the sensors are located 10 ft (3 m) or more above the ground at the end of initial driving, the Contractor shall provided equipment and labor to remove the sensors as well as reattach them after the waiting period, just prior to the re-strike procedure.

Unless otherwise specified on the plans, the Contractor shall wait a minimum of 15 days prior to re-striking piles.

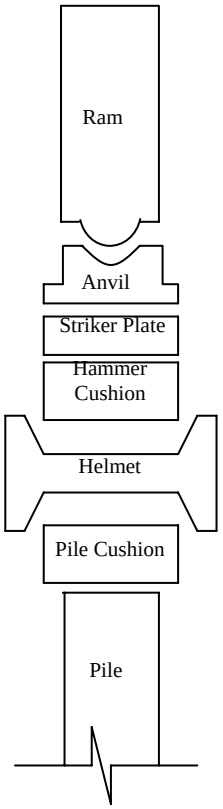
After the minimum waiting period has elapsed, the Contractor shall warm up the hammer by driving another pile a minimum of an additional 20 blows and reposition the driving equipment on the re-strike pile. Once the PDA operator has reattached the sensors and connections, the contractor shall apply at least 20 blows or drive the pile an additional 3 in (75 mm), whichever occurs first to allow the PDA to obtain the final pile setup data. The contractor shall remove and provide the sensors to the PDA operator after which the contactor may proceed with cutting the pile to length and normal construction.

Method of Measurement and Basis of Payment. This work will not be measured for payment but shall be included in the appropriate pay item(s) for Test Piles and Driving piles.

Illinois Department of Transportation

Pile Driving Equipment Data

Structure Number: ____-_____
Pile Driving Contractor: _____
Abutment /Pier Number(s): _____ Route: _____
Pile Type & Size(s): _____ Section: _____
Nominal Required: _____ County: _____
Production Pile Length(s): _____ Closest Boring(s): _____ Contract: _____
Hammer Manufacturer: _____ Model No: _____
Type (diesel, air/steam hydraulic, etc.): _____ Ram Stroke Type (fixed of Variable): _____
Maximum Operating Energy: _____ Minimum Operating Energy: _____



Maximum Recommended Stroke: _____
Minimum Measurable Stroke: _____
Ram Weight: _____

Anvil Weight _____
Modifications to Hammer *(if any)*: _____

Striker Plate
Diameter: _____
Thickness: _____
Weight: _____

Hammer Cushion Material 1
Material Type: _____
Diameter: _____
Thickness per Plate: _____
No. of Plates: _____

Hammer Cushion Material 2 (*if composite*)
Material Type: _____
Diameter: _____
Thickness per Plate: _____
No. of Plates: _____

Total Hammer Cushion Thickness: _____

Helmet (Drive Head, Pile Cap) Weight (*including bonnet insert if any*): _____

Pile Cushion (*precast concrete piles only*)
Material: _____
Thickness Per Sheet: _____
Area: _____
No. of Sheets: _____
Thickness Total: _____

Double Acting/Differential Acting Air or Steam
Hammers Net Weight: _____
Cylinder Net Weight: _____
Piston Area: _____
Attach Bounce Chamber Pressure vs. Equivalent Energy Graphs (Closed-End Diesel Hammers Only): _____
Hammer Data Completed by: _____ Contact Phone Number: _____
Date Completed: _____

ADDISON WATER SUPPLY SYSTEM SPECIAL PROVISION

SECTION 1.0 - GENERAL:
The standards and requirements found in this section are for materials and construction of a water distribution system within the Village of Addison.

Not all utilities have been shown on the plans; however no significant conflicts are believed to exist. If the contractor believes there is a significant conflict in the field, the contractor shall contact the Village Engineer for a resolution.

SECTION 1.1 - SPECIFICATIONS:
These specifications cover the installation of water mains, service connections, fire hydrants, valve vaults, and all appurtenances normally used for the construction of a water distribution system. Water mains shall be installed in accordance with the latest edition of the Standard Specifications for Water and Sewer Main Construction in Illinois, IDOT's Standard Specifications for Road and Bridge Construction, and applicable ordinances of the Village of Addison. In case of a conflict, the Village of Addison's Standard Specifications for Water Main Construction and other applicable ordinances of the Village of Addison shall take precedence and shall govern.

The following specifications supplement the Specifications listed above:

•The Manual on “Uniform Traffic Control Devices,” adopted December 2009 and the Illinois supplement in effect on the date of the invitation for bids; hereinafter referred to as the MUTCD;

•The “Standard Specifications for Traffic Control Items,” adopted April 1, 1989; hereinafter referred to as the Traffic Specifications; and

•The “Illinois Urban Manual,” latest edition; hereinafter referred to as the Urban Manual.

SECTION 1.2 - REGULATIONS AND PERMITS:
Additional regulations and requirements governing the construction of water mains in the Village of Addison are:

A. Any restrictions, policies, and instructions that may be adopted or issued from time to time by the Village of Addison.

B. All water main extensions shall be designed in accordance with the requirements of the Illinois Environmental Protection Agency. No construction of a water main shall be performed unless a permit has been issued from said agency.

C. No unauthorized person shall uncover, make any connections with or openings into, use, alter, or disturb any public water main or appurtenance thereof without first obtaining a written permit from the Village of Addison.

D. All work shall be available for inspection by the Village of Addison at all times.

E. Only Village of Addison Water Department personnel shall turn on or off valves which affect the flow of water in the Village's water system.

F. At no time shall a contractor use water from a fire hydrant which is connected to the Village's water system.

SECTION 12.0 - POLYETHYLENE LINERS:
All new and replaced water main shall be encased in polyethylene liners.
Polyethylene liners shall be Class C (black) conforming to ANSI A21.5 and AWWA C-105. The polyethylene shall have a minimum thickness of 0.0008 inch (8 mils).

SECTION 12.1 - TUBE SIZE OR SHEET WIDTH:
The tube or sheet size for each pipe diameter shall be as listed in the following table:
Nominal Pipe Diameter Minimum Polyethylene Width
Flat Tube Sheet .
3 inches 14 inches 28 inches
4 inches 16 inches 32 inches
6 inches 20 inches 40 inches
8 inches 24 inches 48 inches
10 inches 27 inches 54 inches
12 inches 30 inches 60 inches
14 inches 34 inches 68 inches
16 inches 37 inches 74 inches

SECTION 12.2 - INSTALLATION:
The polyethylene liner shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely air and water tight enclosure. Overlaps shall be secured by the use of polyethylene tape capable of holding the polyethylene liner in place until backfilling operations are completed. The encased pipe shall be lowered into the trench using a sling that will not tear the polyethylene liner.

SECTION 12.3 - PIPE WRAPPING:
This standard includes three different methods for the installation of polyethylene liners on pipe. Methods A and B are for use with polyethylene tubes and Method C is for use with polyethylene sheets.

A. METHOD A: Cut polyethylene tube to a length approximately two (2) feet longer than that of the pipe section. Slip the tube around the pipe, centering it to provide a one (1) foot overlap on each adjacent pipe section, and bunching it in accordion fashion lengthwise until it clears the pipe ends.

Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation of the polyethylene tube.

After assembling the pipe joint, overlap the polyethylene tube. Pull the bunched polyethylene from the preceding length of pipe and slip it over the end of the new length of pipe, and secure it in place. Then slip the end of the polyethylene from the new pipe section over the end of the first wrap until it overlaps the joint at the end of the preceding length of pipe. Secure the overlap in place. Take up the slack width to make a snug, but not tight, fit along the barrel of the pipe, securing the fold at quarter points.

Repair any rips, punctures, or other damage to the polyethylene with polyethylene tape or with a short length of polyethylene tube cut open, wrapped around the pipe and secured in place. Proceed with installation of the next section of pipe in the same manner.

B. METHOD B: Cut polyethylene tube to a length approximately one (1) foot shorter than that of the pipe section. Slip the tube around the pipe, centering it to provide six (6) inches of bare pipe at each end. Make polyethylene snug, but not tight; secure ends as described elsewhere.

Before making up a joint, slip a three (3) foot length of polyethylene tube over the end of the preceding pipe section, bunching it in accordion fashion lengthwise. After completing the joint, pull the three (3) foot length of polyethylene over the joint, overlapping the polyethylene previously installed on each adjacent section of pipe by at least one foot. Secure each end as described elsewhere.

Repair any rips, punctures, or other damage to the polyethylene. Proceed with installation of the next section of pipe in the same manner.

C. METHOD C: Cut polyethylene sheet to a length approximately two (2) feet longer than that of the pipe section. Center the cut length to provide a one (1) foot overlap on each adjacent pipe section, bunching it until it clears the pipe ends. Wrap the polyethylene around the pipe so that it circumventially overlaps the top quadrant of the pipe. Secure the cut edge of polyethylene sheet at intervals of approximately three (3) feet.

Lower the wrapped pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation of the polyethylene. After completing the joint, make the overlap as described above.

Repair any rips, punctures, or other damage to the polyethylene. Proceed with installation of the next section in the same manner.

SECTION 12.4 - WRAPPING OF PIPE-SHAPED APPURTENANCES:
Cover bends, reducers, offsets and other pipe-shaped appurtenances with polyethylene in the same manner as the pipe.

SECTION 12.5 - WRAPPING OF ODD-SHAPED APPURTENANCES:
Valves, tees, crosses, and other odd-shaped pieces can be wrapped by passing the sheet under the appurtenance and bringing it up around the body, making seams by bringing the edges together, folding over twice, and taping down. Handle width and overlaps at joints as described above. Tape polyethylene securely in place at valve stem and other penetrations.

SECTION 12.6 - OPENINGS IN ENCASEMENTS:
Provide openings for service taps and similar appurtenances by making an X-shaped cut in the polyethylene and temporarily folding back the film. After the appurtenance is installed, tape the slack securely to the polyethylene with tape.

SECTION 12.7 - JUNCTION BETWEEN WRAPPED AND UNWRAPPED PIPE:
Where polyethylene wrapped pipe joins an adjacent pipe that is not wrapped, extend the polyethylene wrap to cover the adjacent pipe for a distance of at least two (2) feet. Secure the end with turns of tape.

SECTION 12.8 - BACKFILL FOR POLYETHYLENE-WRAPPED PIPE:
Use the same backfill material as that specified for pipe without polyethylene wrapping, exercising care to prevent damage to the polyethylene wrapping when placing backfill. Backfill material shall be free from cinders, refuse, boulders, rocks, stones, or other material that could damage the polyethylene.

SECTION 13.0 - WATER MAIN STREAM CROSSINGS:
Water mains crossing streams should be designed to cross the stream as nearly perpendicular to the stream flow as possible. A water distribution system shall be designed to minimize the number of stream crossings.

Water mains located along streams shall be located outside of the stream bed and sufficiently removed there from to provide for future possible stream widening. A valve and valve vault shall be located on each side of the stream, located so as not to interfere with the free discharge of flood flows of the stream.

SECTION 13.1 - CONSTRUCTION REQUIREMENTS:

A. MATERIALS: Water mains crossing streams shall be constructed of ductile iron river crossing pipe (Clow River Crossing Pipe or approved equal).

B. COVER DEPTH: The top of the water main shall be a minimum of five (5) feet six (6) inches below the natural bottom of the stream bed.

C. BACKFILL: The backfill used in the trench shall be washed gravel, or other materials which will not cause siltation or damage the pipe during placement.

D. SILTATION AND EROSION: Construction methods shall be employed that will minimize siltation and erosion. The design engineer shall include in the project specifications the method to be employed in the construction of the water main in or near streams to provide adequate control of siltation and erosion.

SECTION 14.0 - AERIAL CROSSINGS:
A. STRUCTURAL SUPPORT: All joints shall be supported with the supports designed to prevent frost heave and settlement.

B. FREEZE AND EXPANSION PROTECTION: Protection against freezing shall be provided. This may be accomplished through the use of insulation. Increased expansion shall be provided for between the aerial and buried sections of the water line.

C. FLOOD CLEARANCE: For aerial stream crossings the impact of flood waters and debris shall be considered. The bottom of the pipe shall be placed no lower than two (2) feet above the elevation of the one hundred (100) year flood.

SECTION 15.0 - INSTALLATION OF PERMANENT MARKERS:
The developer or owner who installs or causes to be installed a new water main that will become the property of the Village, shall cause permanent markers to be installed in the concrete curb identifying the points where the curb crosses the service trench.

The developer or owner will require his curb contractor to embed permanent markers in the vertical or horizontal face of the curb at all crossing points before the concrete hardens.
The markers shall be the letter "W" and shall measure at least three (3) inches in height. Materials may be metal, plastic, or other material approved by the Director of Community Development.

If the service line is installed under an existing curb, it shall be the responsibility of the water main contractor to saw cut into the concrete curb a "W" to mark the location of the water service line. This marker shall measure at least three (3) inches in height.

SECTION 16.0 - TESTING OF WATER MAIN:
Prior to placing a new water main into service, it shall pass a pressure and leakage test. The contractor shall be responsible for supplying the equipment and performing the tests.

All testing of the water main shall adhere to the Village of Addison's testing procedures specified in this section (17), even in cases of conflict with other testing methods.

The Engineering Division shall be notified by the contractor at least twenty four (24) hours in advance, so that a representative can be present during the test.

The contractor shall notify the Public Works Water Department forty eight (48) hours in advance of the test. (The Water Department is solely responsible for opening and closing all water valves in Addison.)

SECTION 16.1 - PRESSURE TEST:
All piping shall be subject to pressure tests as specified herein. After the pipe has been laid and partially backfilled, the pipe shall be subjected to a hydrostatic pressure equal to one hundred fifty (150) pounds per square inch (psi) at the lowest elevation of the pipe section. The duration of each pressure test shall be for a period of two (2) hours, and the pressure shall not drop more than five (5) psi over this duration.

The test shall not begin until the inspector has visually checked the pressure and noted the time.

Each section of pipe to be tested, as determined by the Village, 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 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 elevation 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 the test repeated until a satisfactory test is witnessed by the inspector.

SECTION 16.2 - LEAKAGE TEST:
After satisfactorily completing the pressure test, a leakage test shall be conducted to determine the quantity of water lost by leakage during the pressure test. Suitable means shall be provided by the contractor for determining the quantity of water lost during the pressure test.

Allowable leakage (in gallons per hour) for the water main being tested shall not be greater than that determined by the following formula:

$$L = \frac{SD\sqrt{P}}{133{,}200}$$

Note: D = Nominal diameter of the pipe (in inches)
L = Allowable leakage (in gallons per hour)
P = Average test pressure during the test (in pounds per square inch)
S = Length of pipeline tested (in feet)

Leakage is defined as the quantity of water that has to be added to the test section to bring the test pressure back to its original starting point.

SECTION 17.0 - CHLORINATION:
Upon passing the pressure and leakage test, the contractor shall have the water main flushed and disinfected.

SECTION 17.1 - FLUSHING:
Those sections of water main to be chlorinated shall first be flushed to remove any solids or contaminated material that may have become lodged in the main. The contractor shall advise the Village of Addison's water department forty eight (48) hours in advance of any flushing. The Water Department shall supervise the flushing. A hydrant shall be installed at the end of the main to facilitate flushing of the main. A velocity of at least two and one half (2½) feet per second shall be maintained in the main during the flushing. A two and one half (2½) inch hydrant opening will, under normal water main pressure, provide this velocity in pipe sizes up to, and including twelve (12) inches.

SECTION 17.2 - DISINFECTANT:
Before being placed into service, all new water mains, repaired sections, or extensions to existing mains shall be chlorinated. The initial chlorine residual is not to be less than fifty (50) parts per million, and a chlorine residual of not less than twenty five (25) parts per million shall remain in the water after standing in the pipe for twenty four (24) hours. The contractor shall notify the Village of Addison's Water Department at least twenty four (24) hours in advance of the chlorination and sampling, so that a representative can be present.

SECTION 17.3 - FORM OF APPLIED CHLORINE:
Chlorine shall be applied by one of the following methods, subject to approval by the Director of Public Works:

A. LIQUID CHLORINE: A chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device or the dry gas may 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 solutions of the chlorine gas or the gas itself must provide means for preventing the backflow of water into the chlorine.

B. CHLORINE BEARING COMPOUNDS IN WATER: In certain instances, when the usage of chlorine gas is not practical, such as in congested or confined areas, upon approval of the Director of Public Works, a chlorine-bearing compound of known chlorine content, prepared in solution form, may be substituted for chlorine gas.

SECTION 17.4 - POINT AND RATE OF APPLICATION:
A. POINT OF APPLICATION: The preferred point of application of the chlorinating agent 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 when approved or directed by the Director of Public Works.

B. RATE OF APPLICATION: Water from the existing distribution system or other approved source of supply shall be controlled to flow very slowly into the newly laid pipe line during application of the chlorine. The rate of chlorine mixture flow shall be in such proportion to the rate of water entering the newly laid pipe that the dosage applied to the water will be at least FIFTY (50) parts per million unless otherwise directed by the Director of Public Works.

C. 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) parts per million.

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

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.

SECTION 17.5 - 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 length shows, upon test, the absence of chlorine. In the event chlorine is normally used in the source of supply, then the tests shall show a residual not in excess of that carried in the system.

After flushing, water samples collected on two (2) successive days from the treated piping system, as directed by the Director of Public Works, shall show satisfactory bacteriological results. Bacteriological analyses must be performed by a laboratory approved by the Director of the Illinois Department of Public Health and the Director of Public Works.

Should the initial treatment result in an unsatisfactory bacterial test, the chlorination procedure shall be repeated by the contractor until satisfactory results are obtained.

No water shall be used until a satisfactory report has been received by the Water Department.

SECTION 18.0 - TEST RESULTS:
The decision of the Director of Community Development shall be final in determining the test results. If the water main installation fails to meet the specified test requirements, the contractor shall determine the cause (or causes) of the defect and shall, at his own expense, repair or replace all materials and workmanship as may be necessary to comply with the test requirements before the termination of the guarantee period. No reduction in the amount of monies held in contingency shall be permitted until this is completed.

SECTION 19.0 - CERTIFICATION:
It shall be the contractor's responsibility to secure certification from the pipe manufacturer that the pipe and joint materials furnished are capable of meeting the air and leakage tests, and are manufactured in conformance with the ASTM, ANSI, or AWWA test(s) specified.

SECTION 20.0 - "AS-BUILT" DRAWINGS:
Upon completion of construction, "As-Built" or "Record" drawings (drawn in ink on mylar) shall be prepared by the owner or developer. The length, size, and type of each pipe run shall be given from valve vault to valve vault, valve vault to fire hydrant, valve vault to tee, valve vault to bend, etc. The size of each valve shall be noted, and service connections dimensioned per Section 407.5. These drawings shall be submitted to (and be approved by) the Director of Community Development prior to the acceptance of the water main system by the President and Board of Trustees.

ITASCA WATER MAIN SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of the Village of Itasca - Route 53 Water and Sewer Replacement, and in case of conflict with any part, or parts, of said Specifications, the said Special Provisions shall take precedence and shall govern.

DESCRIPTION OF WORK

The Work included in this contract consists of furnishing all labor, materials, equipment, and other incidentals necessary for the completion of hot-mix asphalt surface removal; hot-mix asphalt resurfacing; water main laterals and water service replacement, storm sewer improvements; curb and gutter improvements; PCC driveway replacement; sidewalk improvements; and other incidental and miscellaneous items of work in accordance with the Plans, Standard Specifications, and these Special Provisions.

The work being conducted by the Contractor and its agents is in Highwood's central business district. All work required under the contract will need to be performed in such a way that minimizes any interruption to businesses, their patrons and residents. Further, in the rare event that access or utilities will be denied to a business or residence in the project area, the Contractor shall provide no less than 48 hours written notification to the business or residence and Village that is necessary for completion of the project to cause such interruption in order to complete the work hereunder. Failure to provide such notification may result in the imposition of a liquidated damages amount of not less than $1000.00 per occurrence per unit.

In all instances in these provisions where liquidated damages are specified, the parties agree that such liquidated damages do not constitute a penalty, but rather are an agreed amount to be paid by the contractor, or deducted from the sums due the contractor, as the actual damages incurred by the Village will be difficult or impossible to ascertain and the parties have agreed to a specific liquidated damages amount in order to compensate the Village.

LOCATION OF PROJECT

The project is located on Route 53 in the Village of Itasca, between Nordic Road (Bloomingdale Road) and the Elgin-O'Hare Expressway (Thorndale Avenue). A location map is shown on the cover of the Plans.

INSURANCE

The Contractor's comprehensive general liability insurance required by Article 107.27 of the Standard Specifications shall include as additional insureds the Municipality, the Engineer, and Engineer's Consultants, and all of whom shall be listed by name as additional insureds, and include coverage for the respective officers and employees of all such additional insureds, and shall cover the Contractor's indemnity obligations under Article 107.26 of the Standard Specifications.

In addition to the insurance coverages required by Article 107.27 of the Standard Specifications, the Contractor shall also purchase and maintain umbrella liability coverage in an amount not less than $3,000,000. Such coverage shall include but not limited to, excess coverage for the Worker's Compensation, Comprehensive General and Automobile Liability policies.

In addition to delivering certificates of insurance in accordance with Article 107.27 of the Standard Specifications, the Contractor shall also deliver to the Municipality, with copies to each additional insured, certificates of insurance which the Contractor is required to purchase and maintain in accordance with Article 107.27 prior to the execution of the contract. The Contractor shall also deliver to the Municipality, with copies to each additional insured, copies of all endorsements to the insurance policies within 30 calendar days after the execution of the contract or prior to final payment, whichever comes first. The Municipality will withhold the third, and subsequent progress payments or final pay request due the Contractor pending the receipt of all required insurance policy endorsements.

SUBCONTRACTORS:

The Contractor shall not employ any subcontractor, supplier, or other person or organization, whether initially or as a substitute, against whom the Municipality or the Engineer may have reasonable objection.

The apparent low Bidder shall submit to the office of Engineer within ten (10) days after the receipt of bids, a list of the names of Bidder's proposed subcontractors along with a description of the work to be performed by each.

APPLICATION FOR PAYMENT

Application for payment to the Contractor shall be in accordance with the Standard Specifications and these Special Provisions. The Engineer will submit Engineer's Payment Estimate for partial payment to the Contractor for the work completed to the Municipality not more than once monthly on a date specified by the Municipality.

The Contractor shall procure from each subcontractor and supplier of material or labor a waiver of any claim which they may have under the mechanics lien laws of the state in which the Work is located, to insure the Municipality immunity from mechanics liens on subcontractors in carrying out the contract and any work orders for additions thereto, all as a condition of any payment by the Municipality. Any payments made by the Municipality without requiring compliance with this paragraph shall not be construed as a waiver by the Municipality of the right to require compliance with this paragraph as a condition to later payments.

The Contractor shall submit Partial Waivers of Lien from all subcontractors and suppliers with each partial payment estimate and Contractor's Affidavit for subcontractors and suppliers with second payment request for the previous payment estimates and then with all subsequent payment estimates.

The Contractor shall furnish with his final application for payment a complete release of all liens arising out of this contract, or receipts in full in lieu thereof and an affidavit that the releases and receipts include all labor and material for which a lien could be filed.

MAINTENANCE GUARANTEE

The Contractor shall execute and deliver to the Village of Itasca, before the final payment will be issued, a written warranty, in a form satisfactory to the Village Attorney, which guarantees that all work is in accordance with the Contract Documents and will not be defective. This warranty shall guarantee all work for a period of one year from the date of acceptance of the Work and final payment by the Village of Itasca, including equipment, motors, electrical controls, and other mechanical devices.

If within this guarantee period, any work is found to be defective, Contractor shall promptly, without cost to the Village of Itasca and in accordance with the Village's written instruction, either correct such defective work, or, if it has been rejected by the Village of Itasca, remove it from the site and replace it with non-defective work. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the Village of Itasca may have the defective work corrected or the rejected work removed and replaced, and all direct and indirect costs of such repair and/or replacement of work, including compensation for additional professional services, shall be paid or reimbursed to the Village of Itasca by Contractor.

The Contractor shall furnish a warranty bond in an amount equal to twenty-five percent (25%) of the Contract Price, but not less than $10,000, by a surety satisfactory to the Village Attorney to guarantee Contractor's warranty to repair or replace defective work. The warranty bond shall be in addition to Contractor's contract Performance-Payment Bond, and shall be delivered to the Village of Itasca prior to final payment to Contractor for the Work.

LIMITATIONS ON ENGINEER'S AUTHORITY AND RESPONSIBILITIES

The authority and duties of Resident Engineer in Article 105.10 of the Standard Specifications are hereby deleted. The authority of Engineer is amended as follows.

The Engineer will be the Municipality's representative during the construction period. The Engineer will furnish a Resident Project Representative (RPR) to assist the Engineer in providing job-site observation of the Contractor's Work. The RPR will provide base lines, benchmarks and reference points, assist the Contractor with interpretation of the Plans and Specifications, observe in general if the Contractor's Work is in conformity with the Contract Documents, and monitor the Contractor's progress as related to the date of completion. The Engineer will not supervise, direct, control or have authority over or be responsible for the Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with Laws and Regulations applicable to the furnishing or performance of the Work. The Engineer will not be responsible for the Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

The Engineer will not be responsible for the acts or omissions of the Contractor or any subcontractor, any supplier, or of any other person or organization performing or furnishing any of the Work.

These limitations on authority and responsibility set forth herein shall also apply to the Engineer's Consultants, Resident Project Representative and assistants.

TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN

SUMMARY: Trench, backfill, and compact shown on the Drawings, as specified herein and as needed for installation of water main in accordance with the “Standard Specifications for Water and Sewer Main Construction in Illinois”.

QUALITY ASSURANCE: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

Comply with requirements of governmental agencies having jurisdiction.

GRANULAR PIPE BEDDING AND COVERING MATERIALS: Provide well graded, washed, mixture of gravel or crushed stone aggregate free of clay, loam, dirt, calcareous or other foreign matter conforming to the IDOT "Standard Specifications" gradation No. CA 11 or the Standard Specifications for Water and Sewer Construction in Illinois, with the following gradation:

Sieve Size	Percent Passing
1-inch	100%
3/4-inch	84 -100%
1/2-inch	30 - 60%
No. 4	0 -12%
No. 16	0 - 6%

3. For flexible thermoplastic pipes, including sanitary and storm sewer pipes: Comply with ASTM D2321, Class I or II as modified below.
   a. Exclude sharp angular granular materials.
   b. Limit maximum particle size to 1/2-inch.
   c. Do not use Class II materials in wet conditions.
4. For rigid pipes comply with ASTM C12, Bedding Class B.

EXCAVATED BACKFILL MATERIALS IN NON-PAVED AREAS: Provide soil materials free from organic matter, rubble, or frozen material, containing no rocks or lumps over 6 inches, and with not more than 15 percent of the rocks or lumps larger than 2-3/8 inches.

GRANULAR BACKFILL MATERIALS: Provide IDOT gradation FA 6 or CA 6 material complying with applicable provisions in Article 208.02 of the IDOT Standard Specifications and these special provisions.

GEOTECHNICAL FABRIC: Provide geotechnical fabric for separation of granular material and native soil in areas where trench is over excavated to remove unsuitable materials.

2. Acceptable manufacturers:
   a. Mirafi: 160N.
   b. Synthetic Industries: 601.
   c. Amaco: 4551.
   d. Or approved equal.

WATER MAIN REPAIR: Repair water main or water services damaged during construction using products of type and manufacturers as approved by the Owner.

Pipe couplings for joining sections of cut water main where a section of new pipe is used to replace a broken pipe.

1. Acceptable manufacturers:
   a. Dresser Style 38.
   b. Smith-Blair CC-441.
   c. Or equal.
2. Repair clamps for broken or cracked pipe and sealing of existing corporation stop opening.
   a. Use full-circle single band all stainless steel clamps.
   b. Acceptable manufacturers:
      (1) Dresser Style 360.
      (2) Smith-Blair 200 Series.
      (3) Or equal.
   c. Replace damaged service corporation stops by installation of full-circle single band all stainless steel clamps, with service outlet, matching manufacturer's and styles used for repair of a cracked pipe.

GENERAL CONSTRUCTION REQUIREMENTS:

1. Protection of existing facilities:
   a. Unless shown to be removed, protect existing structures, conduits, active utility lines and all other facilities shown on the Drawings or otherwise made known to the Contractor. If damaged, repair, replace, or restore to a condition equal to or better than the original condition at no additional cost to the Owner.
   b. Notify all persons, firms, corporations, or agencies owning or using any existing structures, conduits, or utilities which may be affected by the Work prior to the start of construction.
   c. Make arrangements to locate, maintain, protect, and/or relocate facilities in order to complete the Work.
   d. Make such exploration as is necessary to determine the exact location of underground utilities.
   e. Exercise care during the progress of work in the area to prevent damage to the utilities.
   f. Whenever it becomes necessary to relocate underground gas mains, telephone conduit, or electrical lines or support or relocate utility poles, the utility company involved will make such relocation or provide pole support. Notify the utility company promptly.
   g. Whenever it becomes necessary to relocate water or other pipes or conduits in direct conflict with the proposed pipe (exclusive of culverts) which are not shown on the Drawings, obtain the direction from the Engineer for the relocation. Compensation will be allowed only for such quantities as determined by the Engineer.
   h. Do not obstruct accessibility of fire hydrants.

TRENCHING:

1. Do not advance trench excavation more than 50 feet ahead of completed pipe installation except as approved by the Engineer.

2. Provide and maintain sheeting, shoring, and bracing necessary for protection of the Work, adjacent property, and for the safety of personnel.
   a. Remove temporary sheeting and bracing after backfilling to an elevation which will prohibit caving of exposed sidebanks.
   b. Fill voids left by the withdrawal of sheeting with compacted sand.
   c. The Engineer may direct that supports in trenches be cut off at any specific elevation to protect adjacent facilities or property. Compensation for support left in place will be negotiated.
   d. No extra payment will be made for the supports left in place without the direction of the Engineer.
   e. Do not leave supports within 4 feet of the ground or pavement surface in place without the permission of the Engineer.
3. Provide pumping, bailing, wellpointing, and construct ditches and dikes required to dewater and drain ground water, sewage, or stormwater to keep the excavation and site dry for the completion of the Work.
4. Excavation:
   a. Excavate by open cut unless otherwise indicated on the Drawings.
   b. Excavate trenches to the depths and grades necessary for the pipelines with allowances for bedding material.
   c. Over excavate organic, soft, spongy, or otherwise unsuitable soils found at or below the bottom of the trench to meet firm subsoil or as determined by the Engineer.
   d. Comply with the following maximum trench widths at the top of pipelines:

Nominal Pipe Sizes (inches)	Maximum Trench Widths (inches)
12 or smaller	30
14 - 18	36
20 - 24	42
27 - 30	48
33 and larger	1-1/3 times pipe OD

   e. Where the trench width exceeds the maximum limitations, provide higher strength pipe, or embed or cradle the pipe in concrete to achieve the necessary load factor as determined by the Engineer at no additional cost to the Owner.

EXCAVATION FOR APPURTENANCES:

1. Excavate for valve vaults, and similar structures to the depths as shown on the Drawings and to a distance sufficient to leave at least 12 inches clear between outer surfaces and the embankment or shoring that may be used to hold and protect the banks.
2. Over depth excavation beyond depths indicated on the Drawings that has not been directed will be considered unauthorized. Fill with sand, gravel, or lean concrete as determined by the Engineer, and at no additional cost to the Owner.

BEDDING AND COVERING OF PIPE: Bedding is defined as the shaped and tamped material which supports the pipes. Covering is defined as the compacted material which protects and covers the pipes. Provide continuous bedding and covering for underground pipelines, except where concrete encasement, concrete cradles, boring or jacking are indicated.

Pipe bedding:

1. Provide compacted granular pipe bedding and covering material with a minimum thickness of 4 inches under pipe barrels and 2 inches under bells.
2. Wherever the trench is over excavated, refill the trench bottom to the required pipeline grade with granular pipe bedding and covering material, or granular material conforming to the IDOT "Standard Specifications" gradation No. CA 11.
    a. Removal and replacement of material, or unsuitable material, to a depth of one-foot below pipe barrel outside diameter is considered incidental to installation of the pipe.
3. Wherever the trench is over excavated to remove unsuitable material, install geotechnical fabric between native soil and granular material:
    a. Install fabric to cover bottom and sides of trench to heights as follows:
        (3) Sanitary sewer, force main, and water main; to envelop entire bedding and covering material and overlap 1-foot at the top.
        (4) Where undercut is of a depth that requires more than one piece of fabric to provide envelope, provide sewn seams between sections of fabric.
4. Wherever two or more pipes or conduits are placed in the same trench or excavated area, backfill the trench with granular pipe bedding and covering material to support the uppermost pipe or conduit.
5. Provide sand bedding with a minimum thickness of 3 inches under electrical and wiring conduits and cables.

Pipe covering:

1. Following placement of pipe and inspection of joints, provide compacted granular pipe bedding and covering material for the full width of the trench to 12 inches above the top of the pipe for all pipe sizes and types.
2. Place granular pipe bedding and covering material in uniform loose layers not exceeding 8 inches thick.
    a. Compact each layer firmly by ramming or tamping with tools approved by the Engineer in such a manner as not to disturb or injure the pipe to yield a minimum density of 95 percent of maximum dry density as determined according to ASTM D1557 or AASHTO-T180.
3. Where trench is widened by installation of structures or jacking pits, extend bedding and covering materials to total width of excavations.

TRENCH BACKFILLING AND COMPACTING: Backfill trench from the top of pipe cover to topsoil, paving subgrade, or foundation level.

For trench in lawns, parkways, and other improved areas not subject to vehicular traffic:

1. Backfill with excavated materials in uniform loose layer not exceeding 12 inches thick.
2. Compact each layer of trench backfill materials to yield a minimum of 85 percent of maximum dry density as determined according to ASTM D1557 or AASHTO-T180.

For trenches within 2 feet of any existing or proposed pavement, curb and gutter, sidewalk, or other paved areas:

1. Backfilling with granular backfill materials:
    d. Place in uniform loose layer not exceeding 8 inches thick and compact with vibrating roller or equivalent.
    e. Water jetting may not be used in lieu of vibratory compaction.
    f. The top 12 inches shall be CA 6 crushed stone or crushed gravel.

2. Compacting requirements:
   d. Compact each layer of trench backfill materials to yield a minimum density of 95 percent of maximum dry density as determined according to ASTM D1557 or AASHTO T-180.
   e. Determine the density of compacted backfill at intervals of not more than 500 feet at locations selected by the Engineer.
   f. Provide the services of an independent testing laboratory for the density tests.
3. Maintain temporary pavement or Class D Patch level with adjoining pavement surfaces until the road is resurfaced.

BACKFILL AND BEDDING FOR APPURTENANCES:

1. Provide 6 inches of granular bedding material unless otherwise shown on the Drawings.
2. Do not backfill until new concrete has properly cured, and any required tests have been accepted.
3. Backfill in lawns and landscaped areas with excavated materials.
4. Backfill in pavement around manholes, catch basins, inlets, valve vaults, and other structures as determined by the Engineer with granular backfill materials.

FINISH GRADING:

1. Provide finish grading and filling to achieve the lines and grades.
2. Slope grades to drain away from structures.
3. Except where mounding over trenches is specified, grade smooth areas of the Work including previously grassed areas that have been disturbed, and adjacent transition areas.
4. Fill and compact depressions from settlement and round tops of embankments and breaks in grade.
5. Protect newly graded areas from traffic and erosion. Repair settlement or washing away that may occur prior to surface restoration and re-establish grades to the required elevations at no additional cost to the Owner.
6. Remove unsuitable and surplus excavated materials not used for backfilling from the project site.
7. Do not deposit on public or private property without written permission from property owner or authorized representative of appropriate public agency.

TEMPORARY PAVEMENT:

1. Provide a premixed hot-mix asphalt wearing surface for use during the period between backfilling the trench and constructing the permanent pavement patches at locations open to thru traffic and intersections or as determined by the Engineer.
2. Remove the temporary pavement at the time of Class D patching or permanent pavement construction.

WATER MAIN REPAIR:

1. Whenever existing water mains and water service pipes are damaged during construction, stop the pipe installation work and immediately repair the damaged portion of the existing piping.

2. Contact the Engineer and Owner immediately to report the location and extent of the damage.
3. Repair the water main with methods complying with the "Standards for Water and Sewer Main Construction In Illinois", and any additional requirements required by the Owner.
4. Utilize only materials of repair as specified in these Special Provisions or as dictated by the Owner.
5. Where water services have been stripped or pulled from the water main, replace the corporation stop as instructed by the Engineer and Owner, and replace the water service pipe to a point as determined by the Owner.
6. Comply with disinfection requirements as dictated by the Owner.
7. Do not cover the repair until work is inspected and approved by Owner.

POROUS GRANULAR EMBANKMENT, SUBGRADE

This work consists of furnishing, placing, and compacting porous granular material to the lines and grades shown on the Drawings or as directed by the Engineer in accordance with applicable portions of Section 207 of the Standard Specifications. The material shall be used as a bridging layer over soft, loose soil and for placing under water and shall conform with Article 1004.05 of the Standard Specifications except the gradation shall be as follows:

1. Crushed Stone, Crushed Blast Furnace Slag, and Crushed Concrete

Sieve Size	Percent Passing
*6 in.	97 ± 3
*4 in.	90 ± 10
2 in.	45 ± 25
No. 200	5 ± 5

2. Gravel** and Crushed Gravel

Sieve Size	Percent Passing
*6 in.	97 ± 3
*4 in.	90 ± 10
2 in.	55 ± 25
No. 4	30 ± 20
No. 200	5 ± 5

* For undercut greater than 18 inches the percent passing the 6-inch sieve may be 90 ± 10 and the 4-inch sieve requirements eliminated.

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

The porous granular material shall be placed in one lift when the total thickness to be placed is 2 feet or less or as directed by the Engineer. Each lift of the porous granular material shall be rolled with a vibratory roller meeting the requirements of Article 1101.01(g) of the Standard Specifications to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

A 3-inch nominal thickness top lift of capping aggregate having a gradation of CA 6 will be required when Aggregate Subgrade is not specified in the contract and Porous Granular Embankment, Subgrade will be used under the pavement and shoulders.

Capping aggregate will not be required when embankment meeting the requirements of Section 207 of the Standard Specifications or granular subbase is placed on top of the porous granular material.

Construction equipment not necessary for the completion of the replacement material will not be allowed on the undercut areas until completion of the recommended thickness of the porous granular embankment subgrade.

Full depth subgrade undercut should occur at limits determined by the Engineer. A transition slope to the full depth of undercut shall be made outside of the undercut limits at a taper of 1-foot longitudinal per 1-inch depth below the proposed subgrade or bottom of the proposed aggregate subgrade when included in the contract.

Method of Measurement. This work will be measured for payment in accordance with Article 207.04 of the Standard Specifications. When specified on the contract, the theoretical elevation of the bottom of the aggregate subgrade shall be used to determine the upper limit of Porous Granular Embankment, Subgrade. The volume will be computed by the method of average end areas.

Basis of Payment. This work shall be paid for at the contract unit price per cubic yard (cubic meter) for POROUS GRANULAR EMBANKMENT, SUBGRADE.

The Porous Granular Embankment, Subgrade shall be used as field conditions warrant at the time of construction. No adjustment in unit price will be allowed for an increase or decrease in quantities from the estimated quantities shown on the Drawings.

TRENCH BACKFILL (WATER MAIN)

208.01 Description. Trench backfill shall be placed in all trenches crossing driveways, sidewalks, curb and gutter and all proposed and existing roadways, from the top of bedding and covering material to the top of the existing surface. Installation of the trench backfill shall be in accordance with Section 208 of the “Standard Specifications for Road and Bridge Construction,” latest edition and the Special Provision for “TRENCHING BACKFILLING AND COMPACTING FOR WATER MAIN” and the detail shown on the Drawings.

Trench backfill shall consist of FA 6 or CA 6 compacted in place to 95% of maximum density at optimum moisture as determined by the Modified Standard Proctor Test. The top 12” of the trench up to the bottom of the existing pavement shall be CA 6 crushed stone or crushed gravel, compacted with the same requirements. Granular backfill shall be mechanically compacted in 8-inch lifts from top of the bedding and covering material. No jetting will be allowed.

CA 6 shall be used to fill from the bottom of the existing pavement to the top of the existing pavement until the Class D Patches are installed. CA 6 shall be included in the measurement for payment for TRENCH BACKFILL (WATER MAIN). Removal of CA 6 shall be included in the cost of CLASS D PATCHES, of the type and thickness specified. TEMPORARY PAVEMENT shall be installed at locations open to thru traffic and intersections. Removal of temporary pavement shall be included in the cost of CLASS D PATCHES, of the type and thickness specified.

208.03 Method of Measurement. Trench backfill for water main will be measured for payment in accordance with the trench detail shown on the Drawings and the volume computed in lineal feet installed. No extra compensation will be due to the Contractor for over-excavation of the trench not approved by the Engineer.

208.04 Basis of Payment. This work will be paid for at the contract unit price per lineal foot for TRENCH BACKFILL (WATER MAIN).

DUCTILE IRON WATER MAIN

ADDISON REQUIREMENTS

Description. This work shall consist of installing a new water main (of the specified diameter and material) in trenches. The water main shall be of ductile iron and shall conform to ANSI A21.51 (AWWA C-151), thickness Class 52 per ANSI A21.50 (AWWA C-150). Unless otherwise approved by personnel from the Village's Public Works Department, only water main pipes from United States Pipe & Foundry Company, Clow Corporation, and Griffin Pipe will be acceptable. The water main pipe shall be bituminous seal coated and cement lined per ANSI A 21.4 (AWWA C-104). The water main shall have mechanical or rubber gasket push-on joints per ANSI A21.11 (AWWA C-111 and AWWA C-600). The water main fittings shall be ductile iron with mechanical or push type joints conforming to ANSI A21.10 (AWWA C-110). The fittings shall be lined and coated to match the requirements for the water main.

SECTION 2.2 - MINIMUM SIZE:
Minimum size of any public water main shall be eight (8) inches in diameter, except where the main serves a cul-de-sac (450 feet or less in length) and is a minor branch main, then the size can be reduced to six (6) inches upon the approval of the Director of Community Development.

SECTION 3.0 - PROTECTION OF THE WATER DISTRIBUTION SYSTEM:
Water mains and water service lines shall be protected from sanitary sewer, combined sewer, sanitary sewer service connections, and storm sewers in accordance with the applicable regulations of the Illinois Environmental Protection Agency and as follows:

A. HORIZONTAL SEPARATION:

1. Whenever possible, a water main should be laid at least ten (10) feet horizontally from any existing or proposed drain or sewer line.

2. Should local conditions prevail which would prevent a lateral separation of ten (10) feet, a water main may be laid closer than ten (10) feet to a storm or sanitary sewer, provided that the water main invert is at least eighteen (18) inches above the crown of the sewer, and the water main is laid either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer.

3. If it is impossible to obtain proper horizontal separation as stipulated in paragraph 1 or 2 above, the sewer should be constructed of slip-on or mechanical joint ductile iron pipe, and be pressure tested to assure water tightness before backfilling.

B. VERTICAL SEPARATION:

1. Whenever water mains must cross house sewers, storm drains or sanitary sewers, the water main should be laid at such an elevation that the bottom of the water main is eighteen (18) inches above the top of the drain or sewer.

This vertical separation should be maintained for the portion of the water main located within ten (10) feet horizontally of any sewer or drain crossed, such ten (10) feet to be measured as the normal distance from the water main to the drain or sewer.

2. Where such conditions exist that the minimum vertical separation as set forth in Paragraph 1 above cannot be maintained, or where it is necessary for the water main to pass under a sewer or drain, the sewer or drain shall be laid with ductile iron pipe, and the pipe should extend on each side of the crossing until the normal distance from the water main to the sewer or drain lines is at least ten (10) feet. In making such crossing it is preferable to center a length of ductile iron pipe over the water main to be crossed, so that the joints will be equal distance from the water main and as remote there from as possible. Where a water main must cross under a sewer, a vertical separation of eighteen (18) inches between the bottom of the sewer and the top of the water main shall be maintained, along with means to support the sewer lines to prevent their settling and damaging the water main.

C. WATER SERVICE LINES: The horizontal and vertical separation between water service lines and all sanitary sewers, storm sewers or any drain should be the same as for water mains; except that, when minimum horizontal and vertical separation cannot be maintained, copper or ductile iron shall be used for water service lines.
Whenever a water main and sanitary sewer or storm sewer cross, pipe elevations shall be shown on the plan sheet.

SECTION 3.1 - SEPARATION OF SERVICES:

A water service should be located at least ten (10) feet horizontally from a any sanitary sewer service, and should be separated by undisturbed or compacted earth.

A water service may be located closer than ten (10) feet to a sanitary sewer service when:

A. The bottom of the water service pipe is a minimum of eighteen (18) inches above the top of the sanitary sewer service at its highest point; and

B. The water service is placed on a solid shelf, excavated to one side of the sanitary sewer service.

When it is impossible to meet any of the conditions listed above, the sanitary sewer service shall be constructed of ductile iron pipe or polyvinyl chloride pressure rated pipe with push-on joints, equivalent to watermain quality pipe.

When a water service crosses under a sanitary sewer, sanitary service, storm sewer or drain, the water service shall be encased in watermain quality pipe.

SECTION 3.2 - WATER MAIN RELOCATION:
When an existing water main, and a proposed sewer cross, a minimum vertical separation of eighteen (18) inches shall be maintained between them. Water mains shall be relocated to comply with the minimum separation.

It is preferred that a water main be relocated over a sewer line. Water mains shall only be raised a maximum of eighteen (18) inches when using mechanical joint offset fittings. The top of the water main shall remain five (5) feet, six (6) inches or greater below finished grade.

When a water main cannot be relocated over a sewer, it shall be relocated under the sewer, and the sewer constructed of pressure rated pipe such as; Class 52 DIP, SDR 26PR pipe, or RCP with “O”-ring joints (ONLY when the sewer and water main crossing is perpendicular) . Pressure rated pipe shall extend from manhole to manhole over the water main. In place of using pressure rated pipe, the sewer may be encased in a bituminous coated steel casing pipe.
The casing pipe shall extend a minimum of ten (10) feet on either side of the water main.
Meg-a-lug retainer glands and thrust blocks shall be used at all fittings and joints when relocating a water main.

SECTION 4.0 - QUALITY OF MATERIALS:
It is the intent of this specification that only first-class materials shall be used throughout the project, and that they shall be incorporated in such a manner as to produce a completed job that is workmanlike and acceptable in every detail. Therefore, all water main, water main parts, fittings and valves shall be manufactured in the USA.

SECTION 4.1 - DEFECTIVE MATERIALS:
All materials not conforming to the requirements of these specifications shall be considered as defective and shall be removed from the project. If in place, they shall be removed by the contractor at his expense and replaced with acceptable materials. No defective material shall be used. The contractor shall carefully inspect all materials and reject any material with detectable defects before installation. The Village reserves the right to make such an inspection and to order the rejection of any materials which have detectable defects. The Village will observe the work as it progresses and may reject any material or workmanship which is determined to be defective or carelessly performed. However, primary responsibility for the quality of the work and performance of the system remains with the contractor.

SECTION 4.2 - HANDLING OF PIPE:
Water main pipe shall be handled in the manner that will prevent damage to the pipe. Methods of construction which may damage the pipe shall be corrected when called to the attention of the contractor.

SECTION 5.0 - TRENCH EXCAVATION:
All trenches shall be excavated to a minimum depth of four (4) inches below the bottom of the pipe barrel, and unless otherwise specified, shall have a flat bottom conforming to the grade to which the pipe is to be laid.

SECTION 5.1 - STOCKPILING EXCAVATED MATERIAL:
Excavated material shall not be placed on pavement or sidewalks, except on the authorization of the Director of Community Development, and then only when adequate provisions have been made for the temporary passage of pedestrians and vehicles. Gutters shall be kept open or other satisfactory provisions shall be made for street drainage.

Excavated material shall not be stockpiled in any manner that will damage the work or obstruct natural water courses.

SECTION 5.2 - TRENCH WIDTH:
The ground shall be excavated in open trenches of sufficient width and depth to provide ample room within the limits of the excavation for the proper construction of the water main, water service, and all appurtenances shown on the plans. The maximum trench width at and below the top of the pipe shall not exceed a width of (eighteen (18) inches + outside diameter of the pipe + eighteen (18) inches).

If these trench widths are exceeded without the written permission of the Director of Community Development, the contractor shall, at his own expense, install a stronger class of pipe than originally specified to the satisfaction of the Director of Community Development.

SECTION 5.3 - USE OF TRENCH SUPPORTS (TRENCH BOX):
Trench supports shall be used as required by the rules and regulations of OSHA. Any trench five (5) feet or more in depth shall require trench supports.

When using a movable trench support, care shall be exercised so as not to disturb the pipe.

Trench supports shall ride on a shelf above the top of the pipe, with the pipe installed in a narrow, vertical-wall sub-ditch (step-trench). Trench supports below the top of the pipe shall not be used except when approved by the Director of Community Development.

SECTION 5.4 - TRENCHES WITH SLOPING SIDES:
The contractor may, at his option, where working conditions and the right-of-way permit (as determined by the Director of Community Development), excavate the pipe line trench with sloping sides, but with the following limitations:

A. In general, only trench supported and vertical trenches will be permitted in the traveled streets, alleys, or narrow easements.

B. Where trenches with sloping sides are permitted, the slopes shall not extend below the top of the pipe, and trench excavation below this point shall be made with vertical sides and the width shall not exceed those specified for the various sizes of pipe.

SECTION 5.5 - OPEN EXCAVATION:
The excavation of the trench shall not advance more than fifty (50) feet ahead of the completed work and in no way shall more trench be opened than can be completely backfilled by the end of the work day. If during the progress of work, it becomes necessary to keep the trench open overnight, this shall be done only with the approval of the Director of Community Development. Care shall be taken to fence off the open excavation in a manner satisfactory to the Director of Community Development to prevent anyone from entering the excavation. Where a utility crosses an existing street, see Section 1205 - Open Cutting A Municipal Street, or Section 1209 - Casing Pipe.

Streets, sidewalks, parkways, and other public property, disturbed in the course of this work, shall be restored in a manner satisfactory to the Director of Community Development.

SECTION 5.6 - DEWATERING TRENCH:
The contractor shall at his own expense do all pumping, well pointing, or other work necessary to keep the trench clear of ground water, sewage, or stormwater while the water main is being placed, and until the joint has been made.

All trench water pumped or drained from the trench shall be disposed of in a manner approved of by the Director of Community Development without damage to adjacent property or to other work under construction. No sanitary sewer shall be used for disposal of trench water, unless specifically approved of by the Director of Community Development, and then only if the trench water does not ultimately arrive at an existing pumping or sewage treatment facility. No water containing settle able solids or raw sewage shall be discharged into the storm sewer system.

SECTION 5.7 - OVER-EXCAVATION:
In cases where the excavation has been made deeper than necessary or where a firm foundation is not encountered at the grade established in the plans, the contractor shall replace the material removed with crushed stone fill.

Crushed stone refill shall be used up to six (6) inches below the bottom of the pipe and overlain with pipe bedding material. (See Section 405.8)

Crushed stone refill shall be compacted to ninety five (95%) percent of modified proctor density. Crushed stone refill shall meet IDOT specifications for CA-1 (crushed limestone).

SECTION 5.8 - PIPE BEDDING:
Granular pipe bedding material shall be required on all water lines installed in the Village of Addison. Granular pipe bedding shall be a minimum of four (4) inches deep in earth excavation and a minimum of six (6) inches deep in rock excavation. The pipe bedding shall be placed so that the entire length of pipe will have full bearing. No blocking of any kind shall be used to adjust the pipe to grade. When pipes having a bell are used, cross trenches of sufficient depth and not more than two (2) inches wider than the bell shall be excavated to provide uniform bearing.

Granular pipe bedding material shall meet IDOT specifications for FA-6 (sand).

SECTION 6.0 - LAYING OF PIPE:
Water main pipe shall be laid only after the trench has been dewatered and the bedding material has been properly prepared.

SECTION 6.1 - LAYING OF PIPE ON CURVES:
Pipe required to be laid on curved alignment shall be joined in straight alignment and then deflected, joint by joint. Trenches shall be made wider on curves for this purpose. Special care shall be taken in blocking the pipe just previously laid, by shovel-slicing haunching material around the pipe to prevent misalignment. Maximum deflections at pipe joints and laying radius for various pipe lengths can be found in AWWA C600. In no case shall the degree of deflection exceed two thirds (⅔) of the manufacturer's recommendations for the respective pipe size.

SECTION 6.2 - JOINTING DUCTILE IRON PIPE:
Joints for ductile iron pipe shall consist of mechanical joints or push-on rubber gaskets, unless otherwise approved by the Director of Community Development.
Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations. Any pipe or joint that has been installed with dirt or foreign material in it shall be removed, cleaned, and re-laid. At times when pipe laying is not in progress, the open end of the pipe shall be closed with a water tight plug or by other means approved by the Director of Community Development to ensure absolute cleanliness inside the pipe.

All pipe laid shall be held in position to maintain alignment and a tight joint, until sufficient haunching material has been placed to hold the pipe. (See Section 406.5)

A. JOINING MECHANICAL JOINT PIPE: The outside of the spigot and inside of the bell of mechanical joint pipe shall be thoroughly cleaned to remove all foreign matter from the joint. The ductile iron gland (Meg-A-Lug, by EBAA Iron Sales, Inc.) shall then be slipped onto the spigot end of the pipe with the lip extension of the gland toward the socket or bell end. The rubber gasket shall be placed on the spigot end with the thick edge toward the gland.

The pipe shall be pushed forward to completely seat the spigot end in the bell. The gasket shall then be pressed into place within the bell, being careful to have the gasket evenly located around the entire joint. The ductile iron gland shall then be moved along the pipe into position and bolted.
Nuts, evenly spaced, shall be tightened alternately to AWWA C600 Standards in order to produce an equal pressure on all parts of the gland.

B. JOINTING RUBBER GASKET PUSH-ON JOINT PIPE (AWWA C111): The inside of the bell shall be thoroughly cleaned to remove all foreign matter from the joint. The circular rubber gasket shall be inserted in the gasket seat provided.
A thin film of gasket lubricant shall be applied to the inside surface of the gasket. Gasket lubricant shall be a solution of vegetable soap or other solution supplied by the pipe manufacturer and approved by the Director of Community Development.
The spigot end of the pipe shall be cleaned and entered into the rubber gasket in the bell, using care to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end into the seat of the bell. Pipe which is not furnished with a depth mark shall be marked before assembly to assure that the spigot end is inserted to the full depth of the joint.
Field-cut pipe lengths shall be beveled to avoid damage to the gasket and facilitate making the joint.

C. FIELD LOCKING GASKETS shall be installed at all locations where indicated on the drawings or directed by the Village Engineer. The field locking gaskets shall contain stainless steel locking segments that have been vulcanized into the field locking gaskets. The stainless steel locking segments shall grip the pipe to prevent joint separation. The field locking gaskets shall be listed by Underwriters Laboratories for 250-psi operating pressure and they shall be installed according to the manufacturer's instructions. They shall be equal to the "Field Lok Gasket" instant joint restraints manufactured by United States Pipe & Foundry Company of Westmont, Illinois. Field Lock Gaskets shall be installed one joint before and after any fitting or valve.

D. VITON GASKETS shall be installed at all locations where indicated on the drawings or directed by the Village Engineer. Viton Gaskets shall be installed on all joints from two (2) pipe lengths before to two (2) pipe lengths after any gas station. These gaskets shall be paid for as "FLOUROCARBON RUBBER (VITON) GASKETS". Refer to the specification for these gaskets for further information.

SECTION 6.3 - DEPTH OF PIPE:
All pipe shall be laid to a minimum depth of five (5) feet six (6) inches as measured from the proposed ground surface to the top of the pipe barrel. Where conflicts arise with other underground utilities, greater depths may be allowed with the approval of the Director of Community Development.

SECTION 6.4 - THRUST RESTRAINTS:
Thrust restraints, to prevent movement of the water line when under pressure, shall be provided. Several methods of restraining the water main are to be used.
Thrust blocking and retained joints shall be used at all bends, tees, reducers, caps, valves and fire hydrants. Where conditions prevent the use of concrete thrust blocks, such as in soft ground, tie rods and retained joints shall be used.

A. THRUST BLOCKING: Blocking shall consist of solid prefabricated Portland Cement concrete blocks, a minimum of twelve (12) inches thick, placed between solid ground and the fitting.

Wood wedges may be used between the fitting and the concrete block. Blocking shall be placed in such a manner that the pipe and fitting joints will be accessible for repairs. Poured in place concrete will not be permitted without prior approval of the inspector.

B. RETAINED JOINTS: Ductile iron (Meg-A-Lug) retainer glands, by EBAA Iron Sales, Inc.

C. TIE RODS: Stainless steel rods with stainless steel nuts.
Dead end water mains shall be retained by using “Locking Gaskets” on the last sixty (60) feet of the watermain, and a “Retained Cap” with thrust blocking, at the end of the water main.

SECTION 6.5 - HAUNCHING OF PIPE:
Granular material shall be placed and compacted by shovel-slicing under the pipe haunch to provide adequate side support to the water main pipe while avoiding both vertical and horizontal movement. The same material used for bedding shall be used for haunching.
Shovel-slicing of the granular haunching material shall take place when the material is no higher than the quarter point of the pipe. The remainder of the haunching material can then be placed to the spring line of the pipe and mechanically compacted.

Granular haunching material shall meet IDOT specifications for FA-6 (sand).

SECTION 6.6 - INITIAL BACKFILL:
Granular material shall be placed and compacted in all water main and water service trenches to an elevation of one (1) foot over the top of the pipe. Initial backfilling shall not start until the water main, water service, or any appurtenances have been inspected and approved. Where initial backfilling has taken place prior to being inspected and approved, the contractor shall uncover the work for inspection. The cost for this work shall be borne by the contractor. Initial backfill material shall meet IDOT specifications for FA-6 (sand) and shall be compacted with vibratory equipment to ninety five (95%) percent of Modified Proctor Density.

A. Basis of Payment – This work shall be included in the contract unit price per lineal foot for Ductile Iron Water Main.

SECTION 6.7 - TRENCH BACKFILL:
Unless otherwise directed, all trenches and excavations shall be backfilled as soon as the initial backfilling has been completed.

A. GRANULAR TRENCH BACKFILL: All trenches caused by the construction of water mains, water services or appurtenances which fall beneath or within two (2) feet of the outer edge of existing or proposed pavement, curb and gutter, sidewalks, paved or unpaved driveways, shall be backfilled with granular trench backfill to the elevation of the finished subgrade.

Granular trench backfill shall be placed from two (2) feet outside of the existing or proposed pavement, curb and gutter, sidewalks, paved or unpaved driveways, at a forty five (45) degree angle to the top of the initial trench backfill.

Granular trench backfill shall be free of frozen lumps and foreign material that may have become mixed with it during handling.

Granular trench backfill shall meet IDOT specifications for CA-6 (crushed limestone) or FA-6 (sand).

B. EXCAVATED TRENCH BACKFILL: Where granular trench backfill is not required, selected materials originally excavated from the trench may be used. The backfill material shall not contain tree limbs, stumps, boulders, frozen clumps of dirt, or rubble of any kind.
Where there is a deficiency of suitable backfill material due to a rejection of part or all of the excavated material as unsatisfactory for backfill purposes as directed by the Director of Community Development, the contractor shall furnish sufficient satisfactory material to complete the backfilling.

All rejected or surplus excavated material which is not used for backfilling shall be removed from the site.

Any settlement of the backfill shall be remedied by the owner / developer for a period of one (1) year after final acceptance of the subdivision upon receipt of a written notice from the Director of Community Development.

SECTION 6.8 - BACKFILL COMPACTION:
Initial backfill material shall be carefully deposited in uniform layers not exceeding eight (8) inches thick (loose measure) to a height of twelve (12) inches above the pipe. The material in each layer shall be firmly compacted by mechanical methods approved by the Director of Community Development in such a manner as to not disturb or damage the pipe. All trenches shall have the remaining backfill (above the initial backfill) compacted by mechanical methods.

A. MECHANICAL METHOD: Backfill material shall be deposited in uniform layers not exceeding twelve (12) inches thick (loose measure), and each layer shall be compacted by mechanical methods approved by the Director of Community Development. Granular trench backfill shall be compacted to ninety five (95%) percent of Modified Proctor density.

It shall be the contractor's responsibility to provide to the Village of Addison with compaction reports on all granular trench backfilled areas.

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, and shall include all materials, labor, and equipment, required for a complete installation, except FLOUROCARBON RUBBER (VITON) GASKETS. Field locking (restrained joint) gaskets shall be included in the price per foot for any water main that is placed in casing pipes.

ITASCA REQUIREMENTS

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install ductile iron water main, of the size and joint type specified to the alignment, grade and locations shown on the Drawings.

Water main shall be ductile iron, class 52, bituminous seal coated pipe and cement mortar lining per AWWA C104/ANSI 21.4 (Griffin, Clow, US Pipe or approved equal), with mechanical or rubber gasket push-on restrained joints per ANSI A21.11 (AWWA C111 and AWWA C600). All materials shall be made in the United States.

All mechanical joint fittings which deflect the flow 11-1/2 degrees or greater shall be provided with restrained joints. Unless otherwise shown on the Drawings, each pipe joint on both sides of a valve or fitting shall be restrained joint.

Polyethylene encasement shall be wrapped and taped around all ductile iron pipe and fittings. The polyethylene material shall be Class C (blue in color) in conformance with the requirements of ANSI A21.5 and AWWA C-105. The minimum nominal thickness shall be 8 mils (0.008 inches). All material shall be manufactured in the United States.

CONSTRUCTION REQUIREMENTS

Ductile Iron Pipe: The Contractor shall furnish and install water main in accordance with the Drawings, the requirements stated herein, and Divisions II and IV of the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca.

Open Excavation: **All trenches located in street pavement shall include full depth saw cutting of existing pavement prior to excavation of pavement and trench materials. This work is included in the ductile iron water main Pay Item.** All excavations located in a street pavement shall be backfilled by the end of the workday and shall not be left open overnight. Trenches not located in a pavement may be left open only if surrounded by construction fence and barricades with flashing lights.

Granular Bedding: The Contractor shall furnish, install and compact granular bedding around the pipe as shown on the detail in the Drawings for entire length of the pipe in accordance with the detail shown on the Drawings. The cost of the bedding shall be included in the water main.

Ductile Iron Fittings: The Contractor shall install ductile iron fittings in accordance with the DUCTILE IRON WATER MAIN FITTINGS special provision.

Polyethylene Encasement: The Contractor shall furnish and install polyethylene encasement in accordance with the Drawings, the requirements stated herein, the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca. The polyethylene liner shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely air and water tight enclosure. Overlaps shall be secured by use of polyethylene tape capable of holding polyethylene liner in place until backfilling operations are completed. The encased pipe shall be lowered into the trench using a sling that will not tear the polyethylene liner.

Wrap all water mains, fittings, valves, fire hydrant leaders, fire hydrants, and service lines. Wrap copper service lines to a point 3 feet from the center of the water main. Fittings, valves, valve boxes and fire hydrants shall be wrapped with two layers of polyethylene wrap or tube. Do not block fire hydrant weep hole.

Testing and Disinfection: Conduct pressure test, leakage test; and disinfection of new water main; flush main; and after acceptance for use, put water main into service (while existing main continues to function): Install service saddles, corporation stops, service lines, curb stops, and new service boxes; and connect new service box to existing service lines.

Pressure Tests: All piping shall be subject to pressure tests as specified herein. After the pipe has been laid and partially backfilled, the pipe shall be subjected to a hydrostatic pressure equal to 150 psi at the lowest elevation of the pipe section. The duration of each pressure test shall be for a period of two hours, and the pressure shall not drop more than 5 psi over this duration. The basic provisions of AWWA C-600 and C-603 shall apply.

Disinfection: All water main and piping shall be flushed and satisfactorily disinfected in accordance with the "Standard Specifications for Water and Sewer Main Construction in Illinois". The method of applied chlorine shall be approved by the Engineer and/or Village. Water sampling procedures; and the chain of custody and sample testing procedures; shall be approved by the Village and Engineer.

Method of Measurement. This work will be measured in lineal feet along the centerline of the pipe, and the measurement shall extend through fittings and valves.

Basis of Payment. This work will be paid for at the contract unit price per lineal foot for DUCTILE IRON WATER MAIN RESTRAINED JOINT TYPE, of the pipe sizes specified, regardless of depth, which price shall include all accessories required, including polyethylene encasement, restrained joints, excavation, bedding and initial pipe covering, testing and disinfection.

Water main fittings shall be paid for separately as DUCTILE IRON WATER MAIN FITTINGS.

Trench backfill with granular materials above the granular pipe bedding and cover material shall be paid for separately as TRENCH BACKFILL (WATER MAIN).

WATER SERVICE LINE

Description. The work of this Pay Item shall be in accordance with Section 562 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN" and the detail on the Drawings, and shall consist of water service pipe complete in place by open cut or augering/moling (trenchless) methods, including saw-cutting, removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; shoring; bracing; trench dewatering, including erosion and sedimentation control for discharge resulting from all pumping operations; protection, replacement or repair of utilities; installation of service pipe, bedding and covering of pipe; connections to existing building service pipe, including unions, reducers, couplings and fittings; backfilling with excavated material or granular backfill, and complete surface restoration.

Granular backfill, as required, shall be included in this item and shall be in accordance with the Special Provision for TRENCH BACKFILL (WATER MAIN). Granular backfill will not be paid for separately when placed in open cut trenches for water service pipe.

Permanent Markers: The Contractor shall saw cut into the concrete curb a "W" to mark the location of the water service line. This marker shall measure at least 3 inches in height.

Method of Measurement. The work shall be measured in lineal feet along the centerline of the pipe, from the centerline of the water main to the termination of the service pipe at the new service box.

Basis of Payment. The work shall be paid for at the Contract Unit Price per lineal foot for WATER SERVICE LINE of the size indicated. Water service pipe may be installed by trenchless methods, at the Contractor's option, at no extra charge to the Contract Unit Price per lineal foot for WATER SERVICE LINE.

FIRE HYDRANTS TO BE RELOCATED

Description. This work shall consist of moving existing fire hydrants, with auxiliary valves when applicable, which interfere with the construction of the proposed improvement. The proposed location of fire hydrants and valves shall be as approved by the owner of the hydrant and the Engineer.

In some locations the fire hydrant will have to be "flipped" to the other side of the main with respect to the present location in order to satisfy the minimum setback distances provided on the "Fire Hydrant Detail" in the plans. In such instances, the existing Tee off of the main shall be capped and a new Tee cut-in to the main for purposes of connecting the relocated hydrant lead.

This work shall otherwise conform to Section 564 of the Standard Specifications and the "Fire Hydrant Detail" in the plans.

Basis of Payment. This work will be paid for at the contract unit price per each for FIRE HYDRANTS TO BE RELOCATED; which price shall include shut-down of existing water main where applicable, excavation, sheeting and shoring, removal of existing hydrant, auxiliary valve and valve box, water main pipe and fittings, installation of all necessary items and materials, placement of compacted backfill, pressure testing, disposal of surplus excavated materials and removed water main, and disinfection and flushing of the shut-down section of the existing water main system. Trench Backfill shall be included in the cost of this item.

FIRE HYDRANT

ADDISON REQUIREMENTS

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install fire hydrants with auxiliary valves and boxes at locations shown on the Plans in accordance AWWA Standard C502, the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Addison.

All hydrants shall be Eddy F-2640 with a breakaway flange (no equals). Hydrants shall be 6" with 5 ¼" main valve opening, two 2 ½" hose nozzles and one 4 ½" pumper nozzle with National Standard threading. Hydrant shall have safety stem couplings and safety flange. Hydrants shall open counterclockwise and shall be furnished with a mechanical joint inlet. Hydrants shall have field locking gaskets and Meg-A-Lugs. All hydrants shall be painted yellow (Dura King-457-57 School Bus Yellow Truck-Tractor Implement Enamel). Hydrants shall include an auxiliary valve with box along with a connection to the water main. All materials shall be manufactured in the United States.

All nozzles shall be fitted with cast iron threaded caps securely connected to the fire hydrant with 1/8-inch thick chain. An operating nut on the end of the cap shall be of the same design and proportions as the fire hydrant stem nut. Caps shall be threaded to fit the corresponding nozzles and fitted with suitable gaskets for positive water tightness under pressure tests. After testing, all nozzles and caps shall have their threads greased.

A 6-inch auxiliary valve shall be provided for each hydrant. The auxiliary valve shall be connected directly to the water main with a locking hydrant tee in non-paved areas only. In paved areas, the fire hydrant shall be connected by using ductile iron water main with Field-Lok gaskets and Meg-A-Lug connections. The auxiliary valve shall be a resilient wedge gate valve.

The ends of the gate valve shall consist of fanged or mechanical joints. The valve shall be designed for a minimum pressure of 175 psi. Auxiliary valves shall be provided with a cast iron valve box. Auxiliary valves shall be manufactured by Mueller, Clow, Waterous or approved equal. All fittings shall be installed with field lock gaskets or Meg-A-Lugs.

Cast iron valve boxes with the word “WATER” imprinted in the lid shall be used. All valve boxes shall be an adjustable Bimham & Taylor, Central States Foundry, Tyler, or approved equal. All work shall be completed in accordance with the drawings and the requirements stated herein.

SECTION 11.1 - HYDRANT CONSTRUCTION REQUIREMENTS:
The hydrant and auxiliary valve and box shall be installed in accordance with AWWA C600. The Contractor shall inspect all fire hydrants in the field upon delivery to the job site to insure proper operation before installation. The hydrant shall be set on a concrete block, 12” x 12” x 8” in size, to ensure a firm bearing for the hydrant base. Additional concrete blocks a minimum of 12 inches thick shall be placed in the bask of the hydrant. The concrete blocks shall extend from the hydrant to undisturbed soil. Wood wedges may be used to ensure a solid fit. Care shall be taken to ensure that weep holes are not covered by the concrete blocks. Cast-in-place concrete blocking will not be allowed. A minimum of one (1) cubic yard of washed gravel shall be placed at and around the base of the hydrant to insure proper drainage of the hydrant after use. A layer of filter fabric shall be installed over the gravel drain field before backfilling begins. Fire hydrants shall be set in a vertical position, and staked in place to insure the hydrant stays in a permanent vertical position. All hydrants shall be adjusted to finish grade with the closest edge of the hydrant no closer than 3 feet from the back of curb and no more than 4 feet. Hydrants shall be located a minimum of 6 feet away from the edge of any existing or proposed driveway. Centerline of the pumper nozzle shall be 18-24 inches above finish grade. The break flange is to be no higher than 3 inches above finish grade. The base of the hydrant, valve, and pipe shall be wrapped with polyethylene in accordance with the DUCTILE IRON WATER MAIN special provision.

A screw type case iron valve box shall be set in position during the backfilling so that it will be in vertical alignment to the gate valve operating stem. The lower part of the unit shall be installed on concrete blocks in such a manner as to not rest directly on the body of the gate valve, or on the water main. The upper part of the valve box shall be placed and adjusted to finish grade. CA-6 crushed and compacted stone shall be utilized to backfill all around the operating nut on all valves and valve boxes to prevent mud from penetrating the valve box.

Method of Measurement. The work will be measured for payment in place for each fire hydrant with auxiliary valve and valve box installed.

Basis of Payment. This work will be paid for at the contract unit price for each FIRE HYDRANT, which includes all as described herein, including excavation, backfill, all pipe between the auxiliary valve and hydrant, and up to four (4) lineal feet of water main pipe beyond the auxiliary valve.

Water main pipe between the mainline and the auxiliary valve, beyond the 4 feet included in the hydrant installation, shall be paid for separately as DUCTILE IRON WATER MAIN, or the type and size specified in accordance with the DUCTILE IRON WATER MAIN special provision.

The water main tee placed in order to install the hydrant lateral to the mainline shall be paid for separately in accordance with the DUCTILE IRON WATER MAIN FITTINGS special provision.

ITASCA REQUIREMENTS

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install fire hydrants at locations shown on the Drawings in accordance AWWA Standard C502, the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca.

All hydrants shall be American Flow Control (Waterous) Pacer – Model WB67-250, Mueller Super Centurion 250 3-way, or Clow Medallion with breakaway flanges (no equals). Hydrants shall be 6" with 5¼" main valve opening, two 2½" hose nozzles and one 4½" pumper nozzle with National Standard threading. Hydrants shall open counterclockwise and shall be furnished with a mechanical joint inlet. Hydrants shall restrained joints. All hydrants shall be Factory Red. All materials shall be manufactured in the United States.

CONSTRUCTION REQUIREMENTS

Install hydrants plumb with the lowest hose connection at least 18 inches, but not more than 26 inches, above the finished grade ground level. Set hydrant bases and auxiliary valve on a precast concrete block to provide firm support for the base. Brace the bases with solid concrete blocking between the base and undisturbed trench wall to counteract the reaction thrust of water pressure at the base.

2. Provide mechanical joint anchoring fittings, or approved restrained joints.

Place a minimum of ½ cubic yard of washed coarse stone at and around the base for proper drainage.

2. Cover stone with plastic sheeting before backfilling.

Brace the hydrant barrels and auxiliary valve boxes during backfilling. Do not block the drain hole in hydrant. Place and compact backfill materials in 6-inch layers around the hydrant and auxiliary valve. Cover new hydrant with black plastic bag until new system is in service.

Method of Measurement. The work will be measured for payment in place for each fire hydrant installed.

Basis of Payment. This work will be paid for at the contract unit price for each FIRE HYDRANT, which includes all work as described herein.

CONNECTIONS TO EXISTING WATER MAINS (NON-PRESSURE)

ADDISON REQUIREMENTS

Description. The existing water main shall be uncovered and exposed to allow for confirmation of the existing pipe size in advance of making the connection.

Sufficient length of main shall be exposed to allow for the connection. The main shall be supported to properly carry its own weight plus the weight of the connection. The owner / developer shall be liable for any costs incurred in repairing any water main break that may occur within ten (10) feet of the connection for a period of one (1) year after installation.

All connections to the Village of Addison's water system shall be made in the presence of an authorized Village inspector.

A. PRESSURE CONNECTIONS: Connections to the existing water system shall be accomplished whenever possible without interruption of service. A pressure tap, using a stainless steel tapping sleeve (See Section 410.1), a tapping valve (See Section 409.1) and pressure connection vault (See Section 410.2) shall be provided at the point of connection to the existing system. The size and location of all pressure taps shall be shown on the plans. There shall be a minimum of two (2) foot between a pressure tap and any pipe joint, and a minimum of five (5) feet from any other tap.

B. CUT IN CONNECTIONS: When a new water main of equal or smaller size is to be connected to the existing water system, a ductile iron cut in tee, of equal size, shall be installed. When this requires a shutdown of the Village's water system, the contractor shall agree upon a date and time for the shut down with the Village of Addison's water department. A minimum of forty eight (48) hours shall be required, which will allow ample time for the water department to notify all customers affected. If the work on the connection goes beyond regular working hours, the cost of the overtime shall be reimbursed to the Village by the owner / developer.

SECTION 10.1 - STAINLESS STEEL TAPPING SLEEVE:
A stainless steel tapping sleeve with a full circle gridded, tappered overlapping gasket (Rockwell 662, 663, or approved equal) shall be used whenever a tap is larger than one (1) inch in size. All nuts and bolts used with the tapping sleeve shall also be of stainless steel.

SECTION 10.2 - PRESSURE CONNECTION VAULT:
A pressure connection vault shall be used on all pressure connections four (4) inches and larger. A pressure connection vault shall be similar to a valve vault except that the minimum size shall be six (6) feet.

Method of Measurement. The work will be measured for payment in place for each connection made to an existing water main.

Basis of Payment. This work will be paid for at the contract unit price for each CONNECTIONS TO EXISTING WATER MAINS, of the size indicated, which includes necessary equipment to physically make the connection, polyethylene wrapping, disinfection, and testing.

Water main fittings, concrete thrust blocks, valves, and valve vaults shall be paid for separately as DUCTILE IRON WATER MAIN FITTINGS, of the type and size specified, CONCRETE THRUST BLOCKS, WATER VALVES, of the specified sizes, and VALVE VAULT, of the sizes specified, respectively.

ITASCA REQUIREMENTS

Description. This work shall consist of the connection of the proposed water main to the existing water main at locations shown on the Drawings. It shall be performed in accordance with applicable portions of Section 41 of the “Standard Specifications for Water and Sewer Main Construction in Illinois,” latest edition.

The work shall include all necessary equipment necessary to physically make the connection. Pipe bedding and backfill shall be in accordance with the special provision for “TRENCHING, BACKFILLING, AND COMPACTING FOR WATER MAIN”.

Any reducers, cutting-in sleeves, or any other fitting near/or as result of the connection, shall be installed and paid for according to the DUCTILE IRON WATER MAIN FITTINGS special provision.

CONSTRUCTION REQUIREMENTS

Proposed water main shall be connected to existing water main after the new main has passed hydrostatic testing and disinfection. Connections shall be accomplished by use of mechanical joint fittings and lengths of pipe to make the most direct vertical and horizontal adjustments necessary to make the connection. This may include cut-ins to the existing main or connections to existing valves or fittings. This work will require water shut-off, which shall be coordinated with the Village's maintenance personnel for date, time and duration of shut-off. The Village Public Works shall be notified a minimum 48 hours prior to the planned water disruption.

New fittings and pipe that need to be put into immediate service shall be flushed and swabbed with 5 percent solution of calcium hypochlorite prior to assembly as approved by the Engineer and/or Village.

Method of Measurement. The work will be measured for payment in place for each non-pressure connection made to an existing water main.

Basis of Payment. This work will be paid for at the contract unit price for each CONNECTIONS TO EXISTING WATER MAINS (NON-PRESSURE), of the size indicated, which includes necessary equipment to physically make the connection, polyethylene wrapping, disinfection, and testing.

Water main fittings and valves shall be paid for separately as DUCTILE IRON WATER MAIN FITTINGS, of the type and size specified and GATE VALVE AND VALVE VAULT, of the sizes specified, respectively.

DUCTILE IRON WATER MAIN FITTINGS

Description. This work shall consist of furnishing and installing ductile iron restrained joint type water main fittings and concrete thrust blocks complete in place at locations indicated on the Drawings; in accordance with the "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition; and applicable ordinances of the Village of Itasca.

Fittings shall be cement lined, tar coated ductile iron with mechanical or push-on restrained joints rated for 250 psi per AWWA C110/ANSI 21.10 (Clow, US Pipe, EBAA Iron, or equal). Fittings in vaults shall be mechanical joint or flanges with at least one retrained joint flange adapter. All fittings shall have a bell and/or spigot configuration identical to that of the pipe. All materials shall be made in the United States.

Basis of Payment: The work shall be paid for at the Contract Unit Price per pound of the DUCTILE IRON WATER MAIN FITTINGS of the type and size(s) required for construction.

The work to provide and install concrete thrust blocks shall be paid for at the Contract Unit Price for each of the CONCRETE THRUST BLOCKS at water main fitting locations indicated on the Drawings.

WATER SERVICE CONNECTION

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install water services including service saddles, service taps, corporation stops, curb stops and service boxes at locations shown on the Drawings or as determined in the field. All material shall be manufactured in the United States.

Materials. Service Lines: Type K soft temper seamless copper water tubing complying with ASTM B-88.

1. Service saddles:
   a. Stainless steel saddle with rubber o-rings/gaskets and AWWA taper threads.
   b. Acceptable manufacturers:
      (1) Cascade Styles CSC1, CSC2, CS22,
      (2) Ford Style FS303,
      (3) Or approved equal.
2. Corporation stops: Ford Ballcorp with AWWA taper threads, only.
   a. FB 600 Ballcorp, 1" minimum size.
   b. FB1000 Ballcorp, 1" minimum size.
3. Curb stops: Ford Ball Valve Curb Stops, Minneapolis pattern, only.
   a. B22-333M, 1" minimum size.
   b. B44-333M, 1" minimum size.
4. Service boxes: Ford Type PS-Lid Plug Style with 1" upper section and stationary (extension) rod, only.

CONSTRUCTION REQUIREMENTS

The Contractor shall furnish and install curb stops in accordance with the Drawings, the "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition and applicable ordinances of the Village of Itasca.

Make service connections at locations shown on the Drawings or determined by the Village or Engineer at the time of construction. Install service saddles, water service pipe, corporation stop and curb stop service box as on the standard water service installation detail.

Set curb stop on a precast concrete block. Curb stops shall be set on a precast concrete block/pad designed and cast specifically to support curb stop and service pipe. Village can provide a sample block/pad and provide manufacturer(s) at the Contractor's request.

Do not splice water service pipe.

Curb boxes shall be installed near the locations of existing curb stops and service boxes. The Contractor shall record the location of the new curb boxes from the nearest newly installed fire hydrant. Curb boxes shall be held in a truly vertical position and staked into place to ensure permanent vertical alignment of the curb box.

Copper water service pipe shall be installed a minimum of 6'-0" deep, and shall connect between the new corporation stop and the new curb stop as shown on the Drawings.

Open cut service pipe under pavement, curb and gutter or sidewalk shall be thoroughly backfilled in accordance with the special provision for TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN and shall be included in the cost of this work.

Method of Measurement. The work will be measured for payment in place for each water service connection.

Basis of Payment. This work will be paid for at the contract unit price for each WATER SERVICE CONNECTION of the size indicated complete in place, which includes all service saddles, corporation stops, curb stops, curb boxes, excavation and backfill.

ABANDONMENT OF EXISTING WATER MAINS

Description. This work of this Pay Item shall be in accordance with Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN" and consists of the abandonment of existing water mains, including the abandonment and partial removal of existing water mains, valve vaults, valve boxes and fire hydrants. The work shall include saw-cutting, removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; temporary line stops; removing portions of existing water mains, valve vaults, valve boxes and compete removal of fire hydrants, capping or plugging abandoned water main; fittings; concrete thrust blocks; filling excavations and structures with compacted granular materials where required; and surface restoration.

Provide ductile iron plugs, caps or other fittings and concrete thrust blocking, on ends of portions of existing mains that are to remain in service.

Basis of Payment. This work will be paid for at the Contract Unit Lump Sum Price for ABANDONMENT OF EXISTING WATER MAINS.

GATE VALVE

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install gate valves at the locations shown on the Drawings. Gate valves shall be resilient wedge type conforming to the latest edition of AWWA C-515. All gate valves shall be furnished with mechanical or push-on restrained joints conforming to ANSI 21.10 or flanged joints conforming to ANSI A21.11. All valves shall have stainless steel bolts at the packing gland and bonnet. Valve bodies shall be of ductile iron with the name or make of manufacturer, size and working pressure plainly cast in raised letters. Gate valves shall be American Flow Control (Waterous) Series 2500 or Mueller A-2360 Series, and shall be manufactured in the United States. All gate valves shall be equipped with 2-inch square operating nut that shall open to the left (counterclockwise) with the word "open" in ½-inch letters or larger and arrow (minimum 2 inches long) cast on the nut to indicate direction of opening.

CONSTRUCTION REQUIREMENTS

Gate valves shall be installed at locations shown on the Drawings and according to the manufacturer's recommendations. The Contractor shall complete work in accordance with the Drawings, the "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition and applicable ordinances of the Village of Itasca. All gate valves shall be inspected upon delivery in the field to insure proper working order before installation. Valves shall be installed in a vertical position, supported on a solid concrete block.

Method of Measurement. The work will be measured for payment in place for each gate valve installed.

Basis of Payment. This work will be paid for at the Contract Unit Price for each GATE VALVE, of the gate valve size specified.

PRESSURE CONNECTION

ADDISON REQUIREMENT

Description: The work of this Pay Item shall be in accordance with the Special Provision for "WATER DISTRIBUTION SYSTEM" and shall consist of pressure connections to existing water mains complete in place, including sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; trench dewatering, including erosion and siltation control for discharge resulting from all pumping operations; protection, replacement, or repair of utilities; tapping valves and tapping sleeves; tapping of pipe; bracing; testing corps and copper; bedding and covering of pipe; work required to construct valve vault over existing main; testing; disinfection; finish grading; and including backfilling with granular backfill; including fittings or valve vaults.

Tapping Sleeves:

1. Use stainless steel type with mechanical joints.
2. Provide joint accessories.
3. Measure existing water main outside diameter to determine proper tapping sleeve size.
4. Acceptable manufacturers:
   c. Stainless steel: Cascade CST extra heavy duty,
   d. Or approved equal.

Tapping Valves

1. Use fully ported gate valves complying with specifications for GATE VALVE.

Basis of Payment: The work will be paid for at the Contract Unit Price for each PRESSURE CONNECTION of the run and branch sizes specified.

ITASCA REQUIREMENTS

Description: All requirements shall be the same as the Addison requirements except that fittings and valve vaults shall not be included.

LINE STOPS

Description: The work of this Pay Item shall be in accordance with manufacturer's recommendations and consists of the installation of line stops in existing water mains complete, including locating existing mains; sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; protection, repair, or replacement of existing utilities; dewatering, including erosion and siltation control methods and devices to provide protection to the environment from all pumping operations; sheeting; shoring; tapping of pipes to install line stop plugs; installation of line stops; and temporary fencing, barricades, and other items needed to provide traffic control and protection and protection to the public.

The work of this Pay Item includes removal of the line stop plug for temporary line stops or leaving the plug permanently in place, capping of the tapping sleeve; and backfilling of the excavation with compacted excavated or granular backfill.

Basis of Payment: The work will be paid for at the Contract Unit Price for each of the LINE STOPS of the size indicated.

VALVE VAULTS

ADDISON REQUIREMENTS

Description. This work consists of providing and installing valve vaults complete with frame and lid in accordance with the Valve Vault Detail in the Plans where indicated on the Plans or specified by the Engineer.

Valve vaults shall be used on all valves four (4) inches in diameter and larger, except for fire hydrant auxiliary valves.

Minimum inside diameter for a valve vault shall be five (5) feet for four (4) inch to twelve (12) inch valves, and six (6) feet for fourteen (14) inch to sixteen (16) inch valves. Valve vaults shall be constructed of reinforced precast concrete units. Split concrete bottoms will not be allowed. Precast units shall conform to ASTM C-478. Larger diameter valve vaults may be required by the Director of Community Development. All valve vaults shall be water-tight to prevent the infiltration of storm or ground water into the structure. Valve vaults shall not put undue pressure on the water main. The contractor shall be liable for any costs due to repairing a water main break that may occur within ten (10) feet of the valve vault for a period of one (1) year after installation.

SECTION 8.1 - VALVE AND VALVE VAULT LOCATIONS:
A valve vault shall be located so that in the event of a single break, not more than five hundred (500) feet of main will be out of service and require the closing of not more than three (3) valves. Whenever possible, a valve and valve vault shall not be located in a street, driveway, or other paved areas. Additional valves and valve vaults may be required by the Director of Community Development.

SECTION 8.2 - VALVE VAULT BEDDING:
Granular bedding material shall be required on all valve vaults installed in the Village of Addison. Granular bedding shall be a minimum of three (3) inches in thickness and shall extend to the limits of the excavation. Valve vault bedding shall be firmly tamped, made smooth and level to assure uniform contact and support for the base.

Granular valve vault bedding material shall meet IDOT specifications for CA-6 (crushed limestone), or FA-6 (sand).

SECTION 8.3 - PRECAST VALVE VAULT COMPONENTS:
Cones and sections shall be of sound construction and free from gravel pockets, fractures, large or deep cracks, and surface roughness. Walls shall have a minimum thickness of five (5) inches and slab bottoms a minimum thickness of six (6) inches. Joints shall be of the tongue and groove type. Valve vault cones shall be concentric in design.

Bituminous material shall be used to securely seal the joints between precast sections. Surfaces may be set in full bituminous mastic beds or two (2) rows of resilient, flexible, non-hardening, pre-formed, bituminous mastic material (Ramnek or approved equal). Pre-cast mortar plugs shall not be used to plug lifting holes in valve vaults. Lifting holes and joints shall be thoroughly wetted, and then filled with a non-shrink or hydraulic grout.

Openings through which pipes enter the valve vault shall be blocked shut using solid concrete blocks, bricks, and non-shrink or hydraulic grout. All grouted areas shall be smoothed, both inside and out, and then covered with a bituminous water proofing compound on the outside only.

SECTION 8.4 - VALVE VAULT FRAMES AND LIDS:
Each valve vault shall be furnished with a Type-1 frame and a Type "B" lid design. The lid shall be self-sealing and have concealed pick-holes to prevent the inflow of surface water into the valve vault. The word "Water" shall be imprinted in the lid. Valve vault frames and lids shall meet the following Village of Addison requirements:

A. Standard frame and lid for use in paved areas, curb and gutter, or driveways shall be of cast iron, heavy duty construction, and equivalent to Neenah R-1031.

B. Standard frame and lid for use in parkways and other non-paved areas shall be of cast iron, medium duty construction, and equivalent to Neenah R-1060 or Neenah R-1700.

C. For those locations that will be subjected to prolonged standing water (locations shall be subject to the approval of the Director of Community Development) the Director of Community Development shall require the use of a water tight frame and lid. They shall be of heavy duty construction, and equivalent to Neenah R-1755-B, or Neenah R-1916-E.

SECTION 8.5 - VALVE VAULT STEPS:
Steps shall not be installed in valve vaults.

SECTION 8.6 - EXCAVATION AND BACKFILL OF VALVE VAULTS:
Any excavation for a valve vault shall be made a minimum of one (1) foot greater than the diameter of the structure in order to permit proper patching and compaction of the backfill material. Excavations shall be undercut to provide for three (3) inches of granular bedding. (See Section 408.2)

Backfilling shall not begin until the exterior of the valve vault has been inspected and approved. The space between the sides of the excavation and the outer surface of the valve vault shall be completely backfilled with granular trench backfill if the edge of excavation is within two (2) feet of the outer edge of existing or proposed pavement, curb and gutter, sidewalks, paved or unpaved drives.

If the excavation falls beyond these limits, then excavated trench backfill material may be used, provided that it meets with the approval of the Director of Community Development. (See Section 406.7 of the Addison Community Development Ordinances).

SECTION 8.7 - VALVE VAULT FRAME ADJUSTMENT:
All new and existing valve vaults on the site or in the area disturbed by the construction shall be adjusted to finished grade prior to final inspection of the work. Adjustments shall be made using precast, reinforced concrete adjusting rings. No more than two (2) adjusting rings shall be installed on a given valve vault; however, no more than one (1) of these rings shall be two (2) inches in size. Adjusting rings shall be placed with the thickest ring on the bottom. In no case shall more than twelve (12) inches of adjusting rings be permitted. If the total thickness of all adjustments exceeds twelve (12) inches, then adjustments shall be made by interchanging and or adding / removing complete barrel sections to achieve the desired elevations.

Bituminous material shall be used at all joints to securely seal the concrete adjusting rings and frame to the valve vault. Surfaces may be set in full bituminous mastic beds or two (2) rows of resilient, flexible, non-hardening, pre-formed, bituminous mastic material (Ramnek, or approved equal). This mastic shall be applied in such a manner that no surface or ground water can enter the valve vault through the joints.

SECTION 8.8 - INSPECTION OF VALVE VAULTS:
All valve vaults shall be thoroughly cleaned of dirt and debris and all visible leakage eliminated before final inspection and acceptance.

Basis of Payment. This work will be paid for at the contract unit price per each for VALVE VAULTS, of the type and diameter specified, with the type of frame and lid specified.

ITASCA REQUIREMENTS

Description: The work of this Pay Item shall be in accordance with Section 562 and the Special Provision for “WATER DISTRIBUTION SYSTEM” and shall consist of the installation of valve vaults during open cut water main installation or pressure connections complete in place, including sawcutting; removal and disposal of existing pavements; excavation in excess of that required for standard pipeline trench construction or for tapping sleeve installation; bracing, sheeting, and shoring; protection, replacement, or repair of utilities; dewatering, including erosion and sedimentation control methods and devices to provide protection to the environment from all pumping operations; vault bedding; monolithic type vault base with watertight flexible pipe connectors where pipes enter vault walls for water main valves or vault to be installed over existing water main for pressure connections; vault riser sections as required to provide proper depth; concentric cone for water main valve vaults or eccentric cone for pressure connection valve vaults; frame and cover adjusting rings; frame and cover; steps; backfilling with compacted excavated materials in parkways, and compacted granular materials under pavements; and including frame and cover adjustment to final grade at time of street or parkway restoration.

Provide eccentric cones only on vaults utilized for tapping of existing mains, or when indicated on the Drawings.

Basis of Payment: The work will be paid for at the Contract Unit Price for each VALVE VAULTS, of the type and diameter specified, with the type of frame and lid specified.

WATER VALVES

Description. Valves shall be manufactured in the USA, and shall be of the gate valve type, suitable for use in an underground water distribution system. All gate valves shall be of the resilient wedge type, conforming to the latest edition of AWWA C-509. The name, or make of the manufacturer, size, and working pressure shall be plainly cast in raised letters on the valve body. Valve bodies shall be of ductile iron. All bolts used in the assembly of a valve shall be stainless steel. Valves from the following manufacturers are acceptable: Clow, Waterous, or Mueller. All gate valves shall be furnished with mechanical or flanged joints conforming to ANSI A21.11 (AWWA C-111).

All gate valves shall be equipped with a two (2) inches square operating nut that shall turn to the left (counter clockwise) to open the valve. The word "Open" in one half (½) inch or larger letters shall be cast on the nut to clearly indicate the direction of opening.

Operating nuts shall have a flanged base with an arrow, (minimum two (2) inches long) cast on the base, showing in which direction to turn the nut to open the valve. All gate valves shall be designed to withstand a cold water working pressure of one hundred and fifty (150) psi, and a hydrostatic test pressure of three hundred (300) psi.

SECTION 9.1 - TAPPING VALVES:
All pressure connections shall be made with a tapping valve. Tapping valves shall be furnished with flanged inlet and outlet connections. The outlet end shall conform in dimensions to the AWWA standards for hub or mechanical joint connections, except that the outside of the hub shall have a flange for attaching the tapping machine. The seat opening of the valve shall be larger than normal size to permit for full diameter cuts.

SECTION 9.2 - INSTALLATION OF GATE VALVES:
All gate valves shall be inspected upon delivery in the field to insure proper working order before installation. Valves shall be installed in a vertical position, supported on a solid concrete block. Three quarter (¾) inch thick asphalt impregnated fiberboard expansion joint material shall be placed between the concrete block and the valve.

SECTION 9.3 - CAST IRON VALVE BOXES FOR GATE VALVES:
Cast iron valve boxes with the word "Water" imprinted in the lid shall be used to enclose gate valves smaller than 4 inches in size and fire hydrant auxiliary valves. A screw type cast iron valve box shall be set in position during the backfilling so that it will be in vertical alignment to the gate valve operating stem. The lower part of the unit shall be installed on concrete blocks in such a manner as to not rest directly on the body of the gate valve, or on the water main. The upper part of the valve box shall then be placed and adjusted to finished grade. Valve boxes shall be staked in place to insure permanent alignment with the valve stem. Backfill around the valve box shall be placed and compacted to the satisfaction of the Director of Community Development.

Valve boxes shall be installed flush with the finished grade. This may require adjusting prior to final acceptance.

Basis of Payment. This work will be paid for at the contract unit price per each for WATER VALVE, of the diameter specified.

Valve boxes and valve vaults will paid for under those items.

HORIZONTAL DIRECTIONALLY DRILLED DUCTILE IRON WATER MAIN

Description. This work shall consist of furnishing all labor, materials and equipment necessary to install ductile iron water main by the horizontal directional drilling method of pipe installation, of the size and joint type specified to the alignment, grade and locations shown on the Plans.

CONSTRUCTION REQUIREMENTS

SUMMARY: Provide ductile iron water main pipe and install by trenchless horizontal directional drilling method as shown on the Drawings; as specified in DUCTILE IRON WATER MAIN in these Special Provisions, as specified in this section of the Special Provisions herein, In accordance with Section 561 of the Standard Specifications", In accordance with the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and as needed for a complete Installation.

Provide labor, materials, tools, equipment and chemicals necessary to perform all work and testing specified in this Section.

SUBMITTALS: Provide detailed plan of means and methods to maintain clean and safe conditions in the event drilling material escapes to surface or adjacent storm sewers, Including list of material and equipment that will be on-site during drilling and pipe insertion.

GENERAL CONSTRUCTION REQUIREMENTS: Provide all excavation, pits, Installation and removal of tight sheeting, backfilling of pits, compaction of excavated materials, and providing and compacting granular backfill materials where necessary. Use an adequate number of workmen who are thoroughly trained and experienced in the necessary crafts, and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

DIRECTIONAL DRILLING SYSTEM: Provide hydraulically or pneumatically operated, fluid-assisted, remote guided drilling system capable of installing pipe indicated on the Drawings by trenchless methods.

1. Provide compressors, pumps, apparatus, tools, and all devices certified as suitable by the system manufacturer to install the new pipe without damaging or stressing the pipe.
2. Provide recovery system that will recover bentonite slurries or other drilling fluids without releasing the slurry onto the surrounding ground or water surfaces.
3. Provide certification from pipe manufacturer that the proposed material and strength classification is appropriate for application.

DUCTILE IRON PIPE: Provide ductile iron pipe complying with ANSI A21.51, thickness Class 52, with joints complying with ANSI A21.11.

1. Use cement lining complying with ANSI/AWWA C104/A21.4, standard thickness.
2. Provide restrained joint pipe system that utilizes one of the following methods
    a. Lock rings welded into place around pipe barrel.
    b. Bolted rings installed around pipe barrels that fit inside pipe bells.
    c. Acceptable products:
        (1) American Flex-Ring or Lok-Ring.
        (2) Clow Tyton Joint – Super-Lock.
        (3) U.S. Pipe TR-Flex Gripper.
        (4) Griffin Bolt Lok or Snap Lock.

POLYETHYLENE SHEET: Comply with ANSI/AWWA C105/A21.5-99.

1. Thickness: Linear low-density polyethylene film (minimum 8 mlls) or High-density cross laminated polyethylene film (minimum 4 mlls)
2. Markings: the following information will be clearly marked on the sheet at minimum increments of 2 feet along it's length.
    a. Manufacturer's name or trademark.
    b. Year of manufacture.
    c. Minimum thickness and material type (LLDPE or HDCLPE).
    d. Applicable range of nominal pipe diameter size(s).
    e. Warning – Corrosion Protection – Repair Any Damage.
3. Comply with requirements of ANSI/AWWA C105/A21.599.
    a. Place polyethylene sheet around the entire circumference of the pipe, tie or tape sheet securely to prevent displacement during backfilling.
    b. use spiral wrapping extending the entire length of the pipe or circumferential wrapping at 2 foot intervals.

c. Provide double wrap at first two pipe sections at pull head end of pipe consisting of one layer of 8 mll LLDPE and a second layer of HDCLPE with a minimum thickness of 4 mlls for the outer wrap.
d. Comply with recommendations of DIPRA's article for "Horizontal Directional Drilling with Ductile Iron Pipe" in installation and wrapping of polyethylene sheet.

INSTALLATION AND RECEIVING PIT: Comply with OSHA requirements and install sheeting and fencing as required to protect the public.

1. Although most horizontal directional drilling is done without the use of pits, if pits are required, comply with the following criteria.
2. Provide pits as required to install and receive pipes.
   a. Provide tight sheeting where required to provide protection to public, permitting agency and public property, and adjacent utilities.
   b. Comply with OSHA requirements for type, installation, and removal of sheeting.
   c. Provide fencing around pits to secure the area and to provide protection to the public.
3. Provide pits of length and width as necessary to install pipes and sized to fit area available for Work.
4. Provide dewatering as required to allow excavation of pits and installation of pipes.
   a. Provide protection to environment from erosion or siltation resulting from all pumping operations.
5. Backfilling of pits:
   a. Backfill with compacted granular backfill materials where required.
   b. Remove all construction debris, materials, excess excavated material, and sheeting from construction area upon completion of the Work.

LOCATOR WIRE: Provide 7x19SS (T304) PVC coated stainless steel Aircraft Cable sized to withstand pull required, but of minimum 3/16-Inch diameter.

SURFACE CONDITIONS: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

1. Protect existing utilities indicated or made known.
2. Protect trees and shrubs by plank wrappers securely wired in place or by providing a fence around the tree or shrub of sufficient distance away and of sufficient height so trees and shrubs will not be damaged in any way as part of this work.
   a. Do not permit any equipment to operate within 5 feet or any trees or shrubs that are to remain or in a manner as to harm overhanging branches.
3. Protection of persons and property:
   a. Barricade open depressions and holes occurring as part of this Work, and post warning lights on property adjacent to or with public access.
   b. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
   c. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by operations under this Section.

4. Use means necessary to prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the work areas.
5. Maintain access to the work areas at all times.
6. Provide protection to environment, public and private property, and public or private utilities from drilling mud that utilized as lubricant or hole support during drilling and pipe insertion.
    a. Provide vacuum trucks and apparatus of sufficient size and quantity to reclaim all drilling mud discharged during operations.
    b. Provide turcks, end loaders, and any other equipment and manpower necessary to maintain a clean and safe work site during operation.

PIPE INSTALLATION: Install ductile iron pipe by pulling the pipe into place.

1. Provide winch systems designed to protect structures, provide directional stability and pull pipe from insertion point to exit point without causing damage to the pipe.
2. Insert pipe in a continuous operation from point to point.
3. Provide silences, mufflers, or other devices required to reduce noise from compressors and other equipment to meet limits as outlined by Owner's local ordinances.
4. Use only the restrained type joints allowed above.
5. Provide stainless steel PVC coated Aircraft Cable at each boring location for the total length of pipe.
    a. Connect locator wire to ductile iron water main pipe with a "hard" connection at each end of horizontal directionally drilled pipe.
    b. Do not provide or install conductivity wedges, used for ductile iron water main pipe installed in open cut trenches, in horizontal directionally drilled ductile iron water main pipe.
6. Mark location of boring pipe termination points on "job Set" of plans, measured from adjacent permanent structures or iron pins.

TESTING: Comply with testing requirements outlined in other Sections of these specifications.

1. Repair any defects or leaks in the pipe discovered during testing.
2. Retest all repaired sections until they meet all testing and inspection requirements.

METHOD OF MEASUREMENT: This work will be measured in lineal feet along the centerline of the pipe, and the measurement shall extend from the end of the drilling and receiving pits located adjacent to ductile iron water main pipe installed in open cut trench.

BASIS OF PAYMENT: This work will be paid for at the contract unit price per lineal foot for HORIZONTAL DIRECTIONALLY DRILLED DUCTILE IRON WATER MAIN, of the pipe sizes, joint type and material specified, regardless of depth, which price shall include polyethylene encasement, excavation for drilling and receiving pits, bedding and initial pipe covering in the drilling and receiving pits, testing and disinfection.

Water main fittings shall be paid for separately as DUCTILE IRON WATER MAIN FITTINGS.

All trench backfill with granular backfill materials above the granular pipe bedding and cover material shall be included in the cost of the drilling and receiving pits, which are included in the cost of the HORIZONTAL DIRECTIONALLY DRILLED DUCTICLE IRON WATER MAIN.

STEEL CASING PIPE AUGERED AND JACKED

Description. The work of this Pay item shall be in accordance with Section 561 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN" and shall consist of steel casing pipe complete in place by augering and jacking or pneumatic ramming methods; including providing both jacking and receiving pits; tight sheeting to protect adjacent utilities, roadways and property, or to provide protection to the public; protection, repair or replacement of utilities; traffic control; fencing of work site to provide protection to public excavation; removal and disposal of waste excavated materials; bracing; dewatering, including erosion and sedimentation control methods and devices to provide protection to environment from all pumping operations; providing and jacking or ramming of casing pipe; grouting of voids between casing and casing excavation; installing carrier pipe; supporting carrier pipe within the casing; filling of annular space between carrier and casing pipe; end seals; testing; backfilling with and compaction of excavated materials, or granular backfill if indicated on the Drawings; cleanup; and finish grading.

Removal and replacement of casing to avoid obstructions, achieve correct slope, elevation, and bearing will be done at no additional cost to the Contract.

Installation of short lengths of casing and carrier pipe because of limited working room will be done at no additional cost to the Contract.

Method of Measurement. The work will be measured in lineal feet for the length of the casing pipe.

Base of Payment. The work will be paid for at the Contract Unit Price per foots for STEEL CASING PIPE AUGERED AND JACKED of the diameter specified.

FLUOROCARBON RUBBER (VITON) GASKETS

Description. The work of Pay item shall be in accordance with Section 561 and the Special Provision for "TRENCHING, BACKFILLING AND COMPACTING FOR WATER MAIN" and shall consist of substituting fluorocarbon or buna-nitrile material gaskets for common gaskets used in water main pipe joints, as required at the time of construction.

Method of Measurement. The work will be measured by each gasket provided and installed based on gaskets for 8-inch water main pipe. If gaskets of a different diameter are provided and installed, the gaskets will be paid for a proportional basis. For example, a gasket for a 10-inch pipe will be measured as 1.25 of an 8-inch gasket.

Basis of Payment. The work shall be paid for at the Contract Unit Price for each FLUOROCARBON RUBBER (VITON) GASKET substituted for a common gasket.

ADJUSTING WATER MAIN
ADJUSTING WATER SERVICE LINES

Description. Remove a section of existing water main/service that conflicts with the proposed storm sewer and install a new ductile iron water main/copper water service line adjusted as necessary to enable installation of proposed storm sewer and to satisfy the vertical separation requirements of Section 41-2.01 of the "Standard Specifications for Water and Sewer Main Construction in Illinois".

This work includes furnishing and installing water main/service pipe, fittings, joint restraint devices, connection couplings, corporation stops, curb stops, b-boxes, and backfill material as indicated on the "Water Main Relocation" detail included in the plans and as necessary to connect the realigned water main/service line to the existing water main/service line.

Where indicated on the Plans or specified by the Engineer, a casing pipe, casing spacers, and casing end seals will be included as indicated on the "Water Main Relocation" detail provided in the plans. All work shall otherwise conform to sections 561 and 563 of the Standard Specifications, and the "Water Main Relocation" Addison standard detail in the plans.

Basis of Payment. This work shall be paid for at the contract unit price per foot for ADJUSTING WATER MAIN of the pipe diameter specified or ADJUSTING WATER SERVICE LINES; which price shall include shut-down of existing water main/service, excavation, sheeting and shoring, removal of existing water main/service pipe, installation of all necessary items and materials, placement of compacted backfill, pressure testing, offsite disposal of surplus excavated materials and removed water main/service pipe, and disinfection and flushing of the shut-down section of the existing water main system. Trench Backfill shall be included in the cost of this item.

FIRE HYDRANTS TO BE REMOVED

Description. The work under this item consists of locating, cutting/disconnecting, removing and disposing of all fire hydrants, including fittings, and auxiliary valves where shown in the plans and as directed by the Engineer. Exposed portions to remain shall be properly capped or replaced with new water main sections per the DUCTILE IRON WATER MAIN specifications.

Prior to removing any fire hydrants, the Contractor is responsible for ensuring that the water main is not in service and/or a shut down has been coordinated with the Village of Addison.

All work shall otherwise conform to the applicable articles of Sections 551 and 565 of the Standard Specifications.

Method of Measurement. Fire hydrant removal will be measured per fire hydrant to be removed. This shall include stops, fittings, and auxiliary valves.

Basis of Payment. This work shall be paid for at the contract unit price per EACH for FIRE HYDRANTS TO BE REMOVED, which price shall include all labor, material and equipment necessary to locate, cut/disconnect, and remove the fire hydrant, fittings, auxiliary valves, cap portions to remain, and backfill the trench.

Where required by Article 208.01 of the Standard Specifications, trench backfill will be paid for according to Article 208.04.

DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED

Description. This work shall consist of adjusting domestic water service boxes (b-boxes) to final grade.

This work shall otherwise conform to Section 565 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per each for DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED.

VALVE VAULTS TO BE REMOVED

Description. This work consists of removing water valve vaults where shown in the plans and as directed by the Engineer. This work shall conform to Section 602 of the Standard Specifications.

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

VALVE BOXES TO BE REMOVED

Description. This work consists of removing water valve boxes where shown in the plans and as directed by the Engineer. This work shall conform to Section 602 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per each for VALVE BOXES TO BE REMOVED.

DRAINAGE SYSTEM
Effective: June 10, 1994 Revised: January 1, 2007

Description. This work shall consist of furnishing and installing a bridge drainage system as shown on the plans, including all piping, fittings, support brackets, inserts, bolts, and splash blocks when specified.

Material. The pipe and fittings shall be reinforced fiberglass according to ASTM D 2996 RTRP with a 30,000 psi (207 MPa) minimum short-time rupture strength hoop tensile stress. The reinforced fiberglass shall also have an apparent stiffness factor at 5 percent deflection exceeding 200 cu in.-lbf/sq. in. (22.6 cu mm-kPa) and a minimum wall thickness of 0.10 in. (2.54 mm). All pipe supports and associated hardware shall be hot dip galvanized according to AASHTO M 232 (M 232M). The fiberglass pipe and fittings furnished shall be pigmented throughout, or have a resin-rich pigmented exterior coat, specifically designed for overcoating fiberglass, as recommended by the manufacturer. The color shall be as specified by the Engineer. The resin in either case shall have an ultraviolet absorber designed to prevent ultraviolet degradation. The supplier shall certify the material supplied meets or exceeds these requirements.

Design. The drainage system shall be designed as an open system with allowances for the differential expansion and contraction expected between the superstructure and the substructure to which the drainage system is attached.

Installation. All connections of pipes and fittings shown on the plans to facilitate future removal for maintenance cleanout or flushing shall be made with a threaded, gasketed coupler or a bolted gasketed flange system. Adhesive bonded joints will be permitted for runs of pipe between such connections. The end run connection shall feature a minimum nominal 6 in. (150 mm) female threaded fiberglass outlet. Straight runs may utilize a 45 degree reducing saddle bonded to the pipe. The female outlet shall be filled with a male threaded PVC plug.

Runs of pipe shall be supported at spacings not exceeding those recommended by the manufacturer of the pipe. Supports that have point contact or narrow supporting areas shall be avoided. Standard slings, clamps, clevis hangers and shoe supports designed for use with steel pipe may be used. A minimum strap width for hangers shall be 1 1/2 in. (40 mm) for all pipe under 12 in. (300 mm) in diameter and 2 in. (50 mm) for diameters 12 in. (300 mm) or greater. Straps shall have 120 degrees of contact with the pipe. Pipes supported on less than 120 degrees of contact shall have a split fiberglass pipe protective sleeve bonded in place with adhesive.

All reinforced fiberglass pipe, fittings, and expansion joints shall be handled and installed according to guidelines and procedures recommended by the manufacturer or supplier of the material.

Basis of Payment. This work will be paid for at the contract lump sum price for DRAINAGE SYSTEM.

CLEANING AND PAINTING NEW METAL STRUCTURES

Effective Date: September 13, 1994 Revised Date: October 4, 2010

Description. The material and construction requirements that apply to cleaning and painting new structural steel shall be according to the applicable portion of Sections 506 of the Standard Specifications except as modified herein. The three coat paint system shall be the system as specified on the plans and as defined herein. Unless stated otherwise, requirements imposed on the "Contactor" in this specification apply to both the shop painting contractor and the field painting contractor.

Materials. All materials to be used on an individual structure shall be produced by the same manufacturer. The Bureau of Materials and Physical Research has established a list of all products that have met preliminary requirements. Each batch of material must be tested and approved by that bureau before use. The specified colors shall be produced in the coating manufacturer's facility. Tinting of the coating after it leaves the manufacturer's facility is not allowed.

The paint materials shall meet the requirements of the following articles of the Standard Specification:

Item	Article
(a) Inorganic Zinc-Rich Primer	1008.02
(b) Waterborne Acrylic	1008.04
(c) Aluminum Epoxy Mastic	1008.03
(d) Organic Zinc-Rich Primer (Note 1)	
(e) Epoxy Intermediate (Note 1)	
(f) Aliphatic Urethane (Note 1)	

Note 1: These material requirements shall be according to the Special Provision for the Organic Zinc-Rich Paint System.

Submittals. At least 30 days prior to beginning shop or field painting respectively, the Contractor shall submit for the Engineer's review and acceptance, the following applicable plans, certifications and information for completing the field work. Painting work shall not proceed until the submittals are accepted by the Engineer.

Qualifications, certifications and QC plans for shop and field cleaning and painting shall be available for review by the QA Inspector.

a) Contractor Shop Qualifications. Except for miscellaneous steel items such as bearings, side retainers, expansion joint devices, and other items allowed by the Engineer, or unless stated otherwise in the contract, the shop painting Contractors shall be certified to perform the work as follows: the shop painting Contractor shall possess AISC Sophisticated Paint Endorsement or SSPC-QP3 certification. Evidence of current qualifications shall be provided.

b) Contractor Field Qualifications. Unless indicated otherwise on the contract plans, the field painting contractor shall possess current SSPC QP1 certification. Evidence of current qualifications shall be provided. The Contractor shall maintain certified status throughout the duration of the painting work under the contract. The Department reserves the right to accept Contractors documented to be currently enrolled in the SSPC-QP7, Painting Contractor Introductory Program, in lieu of the QP certifications noted above.

c) QC Personnel Qualifications. Personnel managing the shop and field Quality Control program(s) for this work shall possess a minimum classification of Society of Protective Coatings (SSPC) BCI certified, National Association of Corrosion Engineers (NACE) Coating Inspector Level 2-Certified, or shall provide evidence of successful inspection of 3 projects of similar or greater complexity and scope that have been completed in the last 2 years. Copies of the certification and/or experience shall be provided, including names, addresses and telephone numbers of contact persons employed by the bridge owner.

   The personnel performing the QC tests for this work shall be trained in coatings inspection and the use of the testing instruments. Documentation of training shall be provided. The QC personnel shall not perform hands on surface preparation or paint activities unless otherwise approved by the Engineer. Painters shall perform wet film thickness measurements, with QC personnel conducting random spot checks of the wet film. The Contractor shall not replace the QC personnel assigned to the project without advance notice to the Engineer, and acceptance of the replacement(s), by the Engineer.

d) Quality Control (QC) Program. The shop and field QC Programs shall identify the following; the instrumentation that will be used, a schedule of required measurements and observations, procedures for correcting unacceptable work, and procedures for improving surface preparation and painting quality as a result of quality control findings. The shop program shall include a copy of the quality control form(s) that will be completed daily. The field program shall incorporate the IDOT Quality Control Daily Report form, as supplied by the Engineer.

e) Field Cleaning and Painting Inspection Access Plan. The inspection access plan for use by Contractor QC personnel for ongoing inspections and by the Engineer during Quality Assurance (QA) observations.

f) Surface Preparation/Painting Plan. The surface preparation/painting plan shall include the methods of surface preparation and type of equipment to be utilized for solvent cleaning, abrasive blast cleaning, washing, and power tool cleaning. The plan shall include the manufacturer's names of the materials that will be used, including Product Data Sheets and Material Safety Data Sheets (MSDS).

A letter or written instructions from the coating manufacturer shall be included, indicating the required drying time for each coat at the minimum, normal, and maximum application temperatures before the coating can be exposed to temperatures or moisture conditions that are outside of the published application parameters. Application shall be performed in accordance with the coating manufacturer's instructions.

Quality Control (QC) Inspections. The Contractor shall perform first line, in process QC inspections of each phase of the work. The submitted and accepted QC Program(s) shall be used to insure that the work accomplished complies with these specifications. The shop painting Contractor shall use their forms as supplied in their submittal. These shop reports shall be made available for review when requested by the Engineer. The field painting Contractor shall use the IDOT Quality Control Daily Report form supplied by the Engineer to record the results of quality control tests. These field reports shall be turned into the Engineer before work resumes the following day. The Engineer or designated representative will sign the report. The signature is an acknowledgment that the report has been received, but should not be construed as an agreement that any of the information documented therein is accurate.

The Contractor shall supply all necessary equipment to perform the QC inspections. Equipment shall include the following at a minimum:

- Psychrometer or comparable equipment for the measurement of dew point and relative humidity, together with all necessary weather bureau tables or psychrometric charts.
- Surface temperature thermometer.
- Bresle Cell Kits or CHLOR*TEST kits for chloride determinations, or equivalent.(only required when erected steel is exposed through the winter prior to field painting.)
- Wet Film Thickness Gage.
- Blotter paper for compressed air cleanliness checks.
- Type 2 Magnetic Dry Film Thickness Gage per SSPC - PA2.
- Calibration standards for dry film thickness gage.
- Light meter for measuring light intensity during cleaning, painting, and inspection activities.
- All applicable ASTM and SSPC Standards used for the work.
- Commercially available putty knife of a minimum thickness of 40 mils (1 mm) and a width between 1 and 3 in. (25 and 75 mm). Note that the putty knife is only required in touch-up areas where the coating is being feathered and must be tested with a dull putty knife.

The instruments shall be calibrated by the Contractor's personnel according to the equipment manufacturer's recommendations and the Contractor's QC Program. All inspection equipment shall be made available to the Engineer for QA observations on an as needed basis.

Quality Assurance (QA) Observations. The Engineer may conduct QA observations of any or all phases of the shop or field work. The Engineer's observations in no way relieve the Contractor of the responsibility to provide all necessary daily QC inspections of his/her own and to comply with all requirements of this Specification.

Inspection Access and Lighting. The Contractor shall facilitate the Engineer's observations as required, including allowing ample time to view the work. The field Contractor shall furnish, erect and move scaffolding or other mechanical equipment to permit close observation of all surfaces to be cleaned and painted. This equipment shall be provided during all phases of the work. Examples of acceptable access structures include:

- Mechanical lifting equipment, such as, scissor trucks, hydraulic booms, etc.

- Platforms suspended from the structure comprised of trusses or other stiff supporting members and including rails and kick boards.
- Simple catenary supports are permitted only if independent life lines for attaching a fall arrest system according to Occupational Safety and Health Administration (OSHA) regulations are provided.

When the surface to be inspected is more than 6 ft. (1.8 m) above the ground or water surface, and fall prevention is not provided (e.g. guardrails) the Contractor shall provide the Engineer with a safety harness and a lifeline according to OSHA regulations. The lifeline and attachment shall not direct the fall into oncoming traffic. The Contractor shall provide a method of attaching the lifeline to the structure independent of the inspection facility or any support of the platform. When the inspection facility is more than 2 1/2 ft. (800 mm) above the ground, the Contractor shall provide an approved means of access onto the platform.

The Contractor shall provide artificial lighting both inside and outside containment where natural light is inadequate, as determined by the Engineer, to allow proper cleaning, inspection, and painting. Illumination for inspection shall be at least 30 foot candles (325 LUX). Illumination for cleaning and painting, including the working platforms, access, and entryways shall be at least 20 foot candles (215 LUX). General work area illumination outside the containment shall be employed at the discretion of the Engineer and shall be at least 5 foot candles. The exterior lighting system shall be designed and operated so as to avoid glare that interferes with traffic, workers, and inspection personnel.

Construction Requirements for Field Painting. The Contractor shall be responsible for any damage caused to persons, vehicles, or property, except as indemnified by the Response Action Contractor Indemnification Act. Whenever the intended purposes of the protective devices are not being accomplished, as determined by the Engineer, work shall be immediately suspended until corrections are made. Painted surfaces damaged by any Contractor's operation shall be removed and repainted, as directed by the Engineer, at the Contractor's expense.

The Contractor shall comply with the provisions of the Illinois Environmental Protection Act. Paint drips, spills, and overspray are not permitted to escape into the air or onto any other surfaces or surrounding property not intended to be painted. Containment shall be used to control paint drips, spills, and overspray, and shall be dropped and all equipment secured when sustained wind speeds of 40 mph (64 kph) or greater occur, unless the containment design necessitates action at lower wind speeds. When the containment needs to be attached to the structure, it shall be attached by clamping or similar means. Welding or drilling into the structure shall be prohibited unless otherwise approved by the Engineer in writing. The Contractor shall evaluate project-specific conditions to determine the specific type and extent of containment needed to control the paint emissions and shall submit a plan for containing or controlling paint debris (droplets, spills, overspray, etc.) to the Engineer for acceptance prior to starting the work. Acceptance by the Engineer shall not relieve the Contractor of their ultimate responsibility for controlling paint debris from escaping the work zone.

Hold Point Notification for Field Painting. Specific inspection items throughout this specification are designated as Hold Points. Unless other arrangements are made at the project site, the Contractor shall provide the Engineer with a minimum 4-hour notification before a Hold Point inspection will be reached. If the 4-hour notification is provided and the Work is ready for inspection at that time, the Engineer will conduct the necessary observations. If the Work is not ready at the appointed time, unless other arrangements are made, an additional 4-hour notification is required.

Permission to proceed beyond a Hold Point without a QA inspection will be granted solely at the discretion of the Engineer, and only on a case by case basis. The Engineer has the right to reject any work that was performed without adequate provision for QA observations

Field Surface Preparation (HOLD POINT). The following processes shall be used to prepare the shop-coated steel surfaces for field painting.

1. Low Pressure Water Cleaning and Solvent Cleaning. The Contractor shall notify the Engineer 24 hours in advance of beginning surface preparation operations.

   Washing shall involve the use of potable water at a minimum of 1000 psi (7 MPa) and less than 5000 psi (34 MPa) according to "Low Pressure Water Cleaning" of SSPCSP12. Paint spray equipment shall not be used to perform the water cleaning. The cleaning shall be performed in such a manner as to remove dust, dirt, chalk, insect and animal nests, bird droppings, and other foreign matter prior to solvent cleaning.

   If detergents or other additives are added to the water, the detergents/additives shall be included in the submittals and not used until accepted by the Engineer. When detergents or additives are used, the surface shall be rinsed with potable water before the detergent water dries.

   After washing has been accepted by the Engineer, all traces of asphaltic cement, oil, grease, diesel fuel deposits, and other soluble contaminants which remain on the steel surfaces to be painted shall be removed according to SSPC – SP1 Solvent Cleaning, supplemented with scraping (e.g., to remove large deposits of asphaltic cement) as required. The solvent(s) used for cleaning shall be compatible with the primer. The Contractor shall identify the proposed solvent(s) in the submittals. If the primer is softened, wrinkled, or shows other signs of attack from the solvents, the Contractor shall immediately discontinue their use. The name and composition of replacement solvents, together with MSDS, shall be submitted for Engineer acceptance prior to use. If solvent cleaning/scraping is not successful in removing the foreign matter, the Contractor shall use other methods identified in SP1, such as steam cleaning as necessary.

2. Water Cleaning Between Coats. When foreign matter has accumulated on a newly applied coat, washing shall be performed prior to the application of subsequent coats.

3. Power Tool Cleaning of Shop-Coated Steel. Damaged and rusted areas shall be spot cleaned according Power Tool Cleaning SSPC-SP3 (Modified). The edges of the coating surrounding the spot repairs shall be feathered. A power tool cleaned surface shall be free of all loose rust, loose and peeling paint, and loose rust that is bleeding through and/or penetrating the coating. All locations of visible corrosion and rust bleed, and lifting or loose paint shall be prepared using the power tools.

   Upon completion of the cleaning, rust, rust bleed, and surrounding paint are permitted to remain if they cannot be lifted using a dull putty knife.

Field Soluble Salt Remediation (HOLD POINT). If the erected steel is exposed to winter weather prior to field painting, the Contractor shall implement surface preparation procedures and processes that will remove chloride from the surfaces prior to field painting. Surfaces that may be contaminated with chloride include, but are not limited to, expansion joints and all areas that are subject to roadway splash or run-off such as fascia beams and stringers.

Methods of chloride removal may include, but are not limited to, steam cleaning or pressure washing with or without the addition of a chemical soluble salt remover as approved by the coating manufacturer, and scrubbing before or after initial paint removal. The water does not need to be collected. The Contractor shall provide the proposed procedures for chloride remediation in the Surface Preparation/Painting Plan.

Upon completion of the chloride remediation steps, the Contractor shall use cell methods of field chloride extraction and test procedures (e.g., silver dichromate) accepted by the Engineer, to test representative surfaces for the presence of remaining chlorides. Remaining chloride levels shall be no greater than 7µg/sq cm as read directly from the surface without any multiplier applied to the results. The testing must be performed, and the results must be acceptable.

Surface and Weather Conditions (HOLD POINT). Surfaces to be painted after cleaning shall remain free of moisture and other contaminants. The Contractor shall control his/her operations to insure that dust, dirt, or moisture does not come in contact with surfaces cleaned or painted that day.

Prepared surfaces, shall meet the requirements of the respective degrees of cleaning immediately prior to painting, and shall be painted before rusting appears on the surface. If rust appears or bare steel remains unpainted for more than 12 hours, the affected area shall be prepared again at the expense of the Contractor.

The surface temperature shall be at least 5°F (3°C) above the dew point during final surface preparation operations. The paint manufacturers' published literature shall be followed for specific temperature, dew point, and humidity restrictions during the application of each coat, and for the minimum and maximum time between coats.

The Contractor shall monitor temperature, dew point, and humidity every 4 hours during surface preparation and coating application in the specific areas where the work is being performed. The frequency of monitoring shall increase if weather conditions are changing. The Engineer has the right to reject any work that was performed under unfavorable weather conditions. Rejected work shall be removed, and repainted at the Contractor's expense.

Seasonal Restrictions on Field Cleaning and Painting. Field cleaning and painting work shall be accomplished between April 15 and October 31 unless authorized otherwise by the Engineer in writing.

Inorganic Zinc-rich/ Waterborne Acrylic Paint system. This system shall be for shop and field application of the coating system. Shop application of the intermediate and top coats will not be allowed.

In the shop, all structural steel designated to be painted shall be given one coat of inorganic zinc rich primer. In the field, before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed as specified above. All damaged shop primed areas shall be spot cleaned per SSPC-SP3 Modified, All damaged areas and all installed fasteners shall be fully primed with aluminum epoxy mastic. The structural steel shall then receive one full intermediate coat and one full topcoat of waterborne acrylic paint.

Coating Dry Film Thickness (dft), measured according to SSPC-PA2:

Zinc Primer: 3 mils (75 microns) min., 6 mils (150 microns) max.
Epoxy Mastic(spot coat): 5 mils (125 microns) min., 7 mils (180 microns) max.
Intermediate Coat: 2 mils (50 microns) min., 4 mils (100 microns) max.
Topcoat: 2 mils (50 microns) min., 4 mils (100 microns) max.

The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 7 and 14 mils (180 and 355 microns).

a) The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.

d) Damage to the completed paint system shall be spot cleaned using SSPC-SP3 (Modified). The cleaned areas shall be spot painted with a penetrating sealer as recommended by the manufacturer, which shall overlap onto the existing topcoat. Then the aluminum epoxy mastic shall be spot applied not to go beyond the area painted with the sealer. The acrylic intermediate and topcoat shall be spot applied to the mastic with at least a 6 inch (150 mm) overlap onto the existing topcoat.

Organic Zinc-Rich/ Epoxy/ Urethane Paint System. This system shall be for full shop application of the coating system, or when specified on the plans, for the application of two coats in the shop with the finish coat applied in the field. All contact surfaces shall be masked off prior to shop-application of the intermediate and top coats.

In addition to the requirements of Section 3.2.9 of the AASHTO/AWS D1.5/D1.5:2002 Bridge Welding Code (breaking thermal cut corners of stress carrying members), rolled and thermal cut corners to be painted with organic zinc primer shall be broken if they are sharper than a 1/16 in. (1.5 mm) radius. Corners shall be broken by a single pass of a grinder or other suitable device at a 45 degree angle to each adjoining surface prior to final blast cleaning, so the resulting corner approximates a 1/16 in. (1.5 mm) or larger radius after blasting. Surface anomalies (burrs, fins, deformations) shall also be treated to meet this criteria before priming.

In the shop, all structural steel designated to be painted shall be given one coat of organic zinc rich primer, one coat of epoxy intermediate, and unless stated otherwise in the plans, one coat of urethane finish. Before the application of the field coats, the shop coats and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed as specified above to remove dirt, oil, lubricants, oxidation products, and foreign substances. All damaged shop coated areas shall then be spot cleaned per SSPC-SP3 (Modified). The surrounding coating at each repair location shall be feathered for a minimum distance of 1 1/2 in. (40 mm) to achieve a smooth transition between the prepared areas and the existing coating. The existing coating in the feathered area shall be roughened to insure proper adhesion of the repair coats.

All damaged areas and all newly installed fasteners shall be fully primed with epoxy mastic. One intermediate coat of epoxy shall be applied over the epoxy mastic and on exposed shop primer. One topcoat of aliphatic urethane shall be applied to all areas where the intermediate coat is visible, whether the intermediate coat was applied in the shop or in the field. The field applied coats shall only overlap onto the existing finish coat where sanding has been performed.

When the plans require the urethane coat to be applied in the field, the maximum recoat time for the intermediate coat shall be observed.

If the recoat time for the intermediate coat is exceeded, the Contractor shall remove the shop-applied system, or submit for approval by the Engineer, written recommendations from the coating manufacturer for the procedures necessary to extend that recoat window or otherwise prepare the intermediate coat to receive the finish.

(a) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:
Organic Zinc-Rich Primer: 3 mils (75 microns) min., 5 mils (125 microns) max.
Aluminum Epoxy Mastic (spot coat): 5 mils (125 microns) min., 7 mils (180 microns) max.
Epoxy Intermediate Coat: 3 mils (75 microns) min., 6 mils (150 microns) max.
Aliphatic Urethane Top Coat: 2.5 mils (65 microns) min., 4 mils (100 microns) max.

(b) The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 8.5 and 15 mils (215 and 375 microns).

(c) All faying surfaces of field connections shall be masked off after priming and shall not receive the intermediate or top coats in the shop. The intermediate and top coats for field connections shall be applied, in the field, after erection of the structural steel is completed.

Special Instructions.

Painting Date/System Code. At the completion of the work, the Contractor shall stencil in contrasting color paint the date of painting the bridge, the painting Contractors name, and the paint type code from the Structure Information and Procedure Manual for the system used. The letters shall be capitals, not less than 2 in. (50 mm) and not more than 3 in. (75 mm) in height. When all coats are applied in the shop the shop Contractor shall do the stenciling. When 1 or more coats are applied in the field, the field contractor shall do the stenciling.

The stencil shall contain the following wording "PAINTED BY (insert the name of the painting Contractor)" and shall show the month and year in which the painting was completed, followed by “CODE S” for the Inorganic Zinc/ Acrylic System, “CODE X” for the Organic Zinc/ Epoxy/ Urethane System (field applied finish coats), “CODE AB” for the Organic Zinc/ Epoxy/ Urethane System (shop applied), all stenciled on successive lines. This information shall be stenciled on the cover plate of a truss end post near the top of the railing, or on the outside face of an outside stringer near both ends of the bridge facing traffic, or at some equally visible surface designated by the Engineer.

Method of Measurement. Shop cleaning and painting new structures will not be measured for payment. Field cleaning and painting will not be measured for payment except when performed under a contract that contains a separate pay item for this work.

Basis of Payment. This work will be paid for according to Article 506.07.

TEMPORARY SHEET PILING
Effective: September 2, 1994 Revised: January 1, 2007

Description. This work shall consist of furnishing, driving, adjusting for stage construction when required and subsequent removal of the sheet piling according to the dimensions and details shown on the plans and according to the applicable portions of Section 512 of the Standard Specifications.

This work shall also include furnishing, installing and subsequent removal of all miscellaneous steel shapes, plates and connecting hardware when required to attach the sheeting to an existing substructure unit and/or to facilitate stage construction.

General. The Contractor may propose other means of supporting the sides of the excavation provided they are done so at no extra cost to the department. If the Contractor elects to vary from the design requirements shown on the plans, the revised design calculations and details shall be submitted to the Engineer for approval. The calculations shall be prepared and sealed by an Illinois Licensed Structural Engineer. This approval will not relieve the Contractor of responsibility for the safety of the excavation. Approval shall be contingent upon acceptance by all involved utilities and/or railroads.

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 on the plans or in the approved Contractor's alternate design. The sheeting shall have a minimum yield strength of 38.5 ksi (265 MPa) unless otherwise specified. 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.

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 no additional cost to the Department. The Contractor shall be responsible for determining the appropriate equipment necessary to drive the sheeting to the tip elevation(s) specified on the plans or according to 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 plans without the prior permission of the Engineer. The sheet piling shall remain in place until the Engineer determines it is no longer required.

The sheet piling 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 12 in. (300 mm) below the finished grade 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. An obstruction shall be defined as any object (such as but not limited to, boulders, logs, old foundations etc.) where it's presence was not obvious or specifically noted on the plans prior to bidding, that cannot be driven through or around with normal driving procedures, but requires additional excavation or other procedures to remove or miss the obstruction.

Method of Measurement. The temporary sheet piling will be measured for payment in place in square feet (square meter). Any temporary sheet piling cut off, left in place, or driven to dimensions other than those shown on the contract plans without the written permission of the Engineer, shall not be measured for payment but shall be done at the contractor's expense.

If the Contractor is unable to drive the sheeting to the specified tip elevation(s) and can demonstrate that any further effort to drive it would only result in damaging the sheeting, then the Contractor shall be paid based on the plan quantity of temporary sheeting involved. However, no additional payment will be made for any walers, bracing, or other supplement to the temporary sheet piling, which may be required as a result of the re-evaluation in order to insure the original design intent was met.

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

Payment for any excavation performed in conjunction with this work will not be included in this item but shall be paid for as specified elsewhere in this contract.

Obstruction mitigation shall be paid for according to Article 109.04 of the Standard Specifications.

GEOTEXTILE RETAINING WALLS
Effective: September 19, 2003 Revised: October 9, 2009

Description. This work shall consist of furnishing the materials and the constructing of the geotextile retaining wall to the lines, grades and dimensions shown on the plans and as directed by the Engineer. The geotextile wall shall consist of successive layers of geotextile fabric anchored by placing select fill retained at the face by extending the fabric over a removable form brace and re-embedding the remaining fabric back into the select fill. The materials and construction methods shall comply with this Special Provision and the requirements specified by the geotextile supplier selected by the Contractor.

Submittals. The Contractor shall submit calculations demonstrating that the geotextile fabric they propose to use will provide an allowable tensile strength above the minimum value (T_{min}) specified in the contract plans. No work or ordering of materials for the geotextile wall shall be done until the submittal has been approved by the Engineer.

Materials. The Geotextile wall shall conform to the supplier's standards and the following:

(a) The geotextile shall satisfy the requirements of article 1080.05 and shall have both a minimum Ultraviolet (UV) Stability (percent strength retained according to ASTM D 4355) of 70 percent as well as a minimum permeability of 0.08 ft./min. (0.04 cm/sec) according to ASTM D 4491. In addition to satisfying these properties, the allowable strength of the fabric shall meet or exceed the (T_{min}) strength specified on the plans. The geotextile allowable strength shall be determined according to the procedure covered in the Design Criteria Section of this specification.

The Contractor shall submit to the Engineer a manufacturer’s certification which shall include the manufacturer’s name, address, the geotextile product name, polymer type, and the products physical properties. The physical properties submitted shall include weight, grab strength, grab elongation, equivalent opening size, UV stability, permeability, and the allowable strength. The Contractor may be requested by the Engineer to submit a sample of the geotextile for testing by the department.

During shipment and storage, the geotextile shall be kept dry and wrapped in UV resistant material capable of protecting it from damage from sunlight and other elements.

(b) The select fill, defined as the material placed in the geotextile reinforced volume, shall be according to Sections 1003 and 1004 of the Standard Specifications and the following:

(1) Select Fill Gradation. Either a coarse aggregate or a fine aggregate may be used. For coarse aggregate, gradations CA 12 thru CA 16 may be used. For fine aggregate, gradations FA 1, FA 2, or FA 20 may be used.

Other aggregate gradations may be used provided the maximum aggregate size is 3/4 in. (15 mm), the maximum material passing the #40 (425 μm) sieve is 60 percent, and the maximum material passing the #200 (75 μm) sieve is 15 percent.

(2) Select Fill Quality. The coarse or fine aggregate shall be Class B quality or better, except that a maximum of 15 percent of the material may be finer than the #200 (75 μm) sieve.

(3) Select Fill Internal Friction Angle. The effective internal friction angle for the coarse or fine aggregate shall be a minimum 34 degrees according to AASHTO T 236 on samples compacted to 95 percent density according to Illinois Modified AASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236. If the vendor's design uses a friction angle higher than 34 degrees, as indicated on the approved shop drawings, this higher value shall be taken as the minimum required.

(4) Test Frequency. Prior to start of construction, the Contractor shall provide an internal friction angle test result to show the select fill material meets the specification requirement. This test result shall be no more than 12 months old. In addition, a sample of select fill material will be obtained for testing and approval by the Department. Thereafter, the minimum frequency of sampling and testing at the jobsite will be one per 20,000 cubic yards (15,500 cubic meters) of select fill material.

(c) The embankment material behind the select fill shall be according to Section 202 and/or Section 204.

Design Criteria. The Contractor is responsible for selecting a geotextile fabric which will provide an allowable tensile strength larger than the minimum value (T_{min}) specified on the plans. The Contractor shall consider the project specific strength reduction due to long-term creep, chemical and biological degradation, as well as installation damage in their calculations to determine the allowable tensile strength of the geotextile selected for use. The determination of the allowable tensile strength of the fabric shall follow the AASHTO Design Specifications for Mechanically Stabilized Earth Wall Design, Allowable Stresses using geosynthetic reinforcement. The design life for this wall shall be 3 years unless otherwise indicated on the plans.

Construction. Prior to wall construction, the foundation soils supporting the wall shall be graded to a level uniform condition and compacted such that it is free from ruts and protruding objects such as rocks or sticks for a width equal to the length of the geotextile reinforcement. Any foundation soils found to be unsuitable shall be removed and replaced, as directed by the Engineer, and shall be paid for separately according to Section 202.

Wall construction shall begin at the lowest level of the wall and each layer shall be placed horizontally as shown in the construction sequence on the plans. The geotextile shall be stretched out in the direction perpendicular to the wall face to ensure that no slack or wrinkles exist in the geotextile prior to select fill placement.

The select fill shall be placed or pushed onto the geotextile in a manner that does not distort or distress the fabric. The select fill shall not be dropped onto the fabric from a distance of more than 4.75 ft. (1.5 m) and end dumping select fill from trucks directly onto the fabric shall not be permitted. A minimum of 4 in. (100 mm) of select fill material must be present between the geotextile and any equipment tires or tracks and sudden turning of equipment on the select fill shall be not be permitted to prevent construction damage or distortion to the fabric. Any damage to the fabric shall be repaired by the Contractor as required by the Engineer at no additional cost to the Department.

As select fill material is placed against the form brace, the form brace shall be maintained in position to produce proper fabric face alignment after the form brace is removed. The removable form brace detail shown in the plans is provided as a guide, the Contractor shall be responsible for the actual form brace used to support the fabric face.

Select fill shall be compacted in 6 in. (150 mm) maximum lifts and the minimum required compaction shall be 95 percent of maximum density as determined by AASHTO T 99. Sheepsfoot rollers or other rollers with protrusions shall not be used. Compaction in a strip 3 ft. (1 m) wide adjacent to the backside of the panels shall be achieved using a minimum of 3 passes of a light weight mechanical tamper, roller or vibratory system. The embankment placement shall closely follow the erection of each lift of geotextile and select fill. The select fill material should be roughly leveled and compacted prior to placing the next level of geotextile. At the end of each day's operations, the Contractor shall shape the last level of select fill to permit runoff of rainwater away from the wall face. The Engineer will perform one density test per 5000 cu yd (3800 cu m) and not less than one test per 2 ft (0.6 m) of lift.

Where geotextile fabric splices perpendicular to the wall face are required to connect separate pieces of geotextile, the fabric shall be overlapped by at least 4 ft. (1.2 m). No splices are allowed parallel to the wall face as the geotextile must extend continuously from the rear limits of the soil reinforcement, around the face and terminate at the end of the re-embedment length.

At locations where the plans specify a change of wall alignment, the fabric shall be neatly folded over itself to create inside turns or it may be cut perpendicular to the wall face and lapped at the wall face for outside wall turns to ensure no loss of select fill. Fabric layers shown terminating against a cut slope, sheet piling, concrete walls or other structures must have at least 3 ft. (1 meter) of additional fabric extending past or placed against the surface, neatly folded back in such a manner to ensure adequate embedment and no loss of select fill.

The thickness of each geotextile reinforcement layer shall be within 3 in. (75 mm) of that shown on the plans. The offset of the wall face bulge shall be within 5 in. (125 mm) of that shown on the plans at each layer, and along the entire length of wall. Failure to meet this tolerance may cause the Engineer to require the Contractor to disassemble and re-erect the affected portions of the wall.

Method of Measurement. Geotextile Retaining Wall will be measured for payment in square feet (square meters) of completed wall face. The area will be calculated from the top limits of the geotextile to the bottom level of fabric reinforcement at each variation along the length of the wall.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meters) for GEOTEXTILE RETAINING WALL.

Embankment placed outside of the select fill volume will be measured and paid for according to Sections 202 and/or 204 as applicable.

MECHANICAL SPLICERS
Effective: September 21, 1995 Revised: May 11, 2009

Description. This work shall consist of furnishing and installing mechanical splices according to the plans and this special provision.

Materials and Procedures. The mechanical connection may be made by means of an approved mechanical splicer. Splicer bar type systems lapped with the primary reinforcement will not be allowed. The mechanical splicer shall develop in tension at least 125 percent of the specified yield strength of the bar.

When both reinforcement bars being spliced are epoxy coated the mechanical splicer shall also be epoxy coated according to AASHTO M284.

Contact the Bureau of Materials for a current list of approved mechanical reinforcing bar splicers/coupler systems.

Installation. The Contractor shall supply the manufacturer's written installation instructions to the Engineer prior to installing the mechanical splices.

Testing. A minimum of two tension tests will be made with the method of splicing selected on each size bar to be spliced. The Contractor shall furnish certified copies of the test reports from an independent testing laboratory.

Basis of Payment. This work will be paid for at the contract unit price each for MECHANICAL SPLICERS.

SEGMENTAL CONCRETE BLOCK WALL
Effective: January 7, 1999 Revised: October 4, 2010

Description. This work shall consist of furnishing the design computations, shop plans, materials, equipment and labor to construct a Segmental Concrete Block Retaining Wall to the limits shown on the plans.

General. The wall shall consist of a leveling pad, precast concrete blocks (either dry-cast or wet cast), select fill and, if required by the design, soil reinforcement. 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 according to Article 1042.03(b) of the Standard Specifications. 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. The shop plans shall be sealed by an Illinois Licensed Structural 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 fill 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 fill, 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. (450 mm) 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. (152 mm)

(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.

Materials. The materials shall meet the following requirements:

(a) Dry-Cast Concrete Block: Dry-cast concrete block proposed for use shall be pre-cast and produced according Article 1042.02 and the requirements of ASTM C1372 except as follows:

1. Fly ash shall be according to Articles 1010.01 and 1010.02(b).
2. Ground granulated blast-furnace slag shall be according to Articles 1010.01 and 1010.05.
3. Aggregate shall be according to Articles 1003.02 and 1004.02, with the exception of gradation.
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) Wet-cast Concrete Block: Wet-cast concrete block proposed for use shall be pre-cast and produced according to Section 1020 and Article 1042.02. The concrete shall be Class PC with a minimum compressive strength of at least 3000 psi (31 MPa) at 28 days.

(c) Select fill: The select fill, defined as the material placed in the reinforced volume behind the wall, shall be according to Sections 1003 and 1004 of the Standard Specifications and the following:

(5) Select Fill Gradation. Either a coarse aggregate or a fine aggregate may be used. For coarse aggregate, gradations CA 6 thru CA 16 may be used. If geosynthetic reinforcing is used, the coarse aggregate gradations shall be limited to CA 12 thru CA 16. For fine aggregate, gradations FA 1, FA 2, or FA 20 may be used.

Other aggregate gradations may be used provided the maximum aggregate size is 1 1/2 in. (38 mm), the maximum material passing the #40 (425 μm) sieve is 60 percent, and the maximum material passing the #200 (75 μm) sieve is 15 percent.

(6) Select Fill Quality. The coarse or fine aggregate shall be Class B quality or better, except that a maximum of 15 percent of the material may be finer than the #200 (75 μm) sieve.

(7) Select Fill Internal Friction Angle. The effective internal friction angle for the coarse or fine aggregate shall be a minimum 34 degrees according to AASHTO T 236 on samples compacted to 95 percent density according to Illinois Modified AASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236. If the vendor's design uses a friction angle higher than 34 degrees, as indicated on the approved shop drawings, this higher value shall be taken as the minimum required.

(8) Select Fill and Geosynthetic Reinforcing. When geosynthetic reinforcing is used, the select fill pH shall be 4.5 to 9.0 according to AASHTO T 289.

(9) Test Frequency. Prior to start of construction, the Contractor shall provide internal friction angle and pH to show the select fill material meets the specification requirements. However, the pH will be required only when geosynthetic reinforcing is used. All test results shall not be older than 12 months. In addition, a sample of select fill material will be obtained for testing and approval by the Department. Thereafter, the minimum frequency of sampling and testing at the jobsite will be one per 20,000 cubic yards (15,500 cubic meters) of select fill material.

When a fine aggregate is selected, the rear of all block joints shall be covered by a non-woven needle punch geotextile filter material according to Article 1080.05 of the Standard Specifications and shall have a minimum permeability according to ASTM D4491 of 0.008 cm/sec. All fabric overlaps shall be 6 in. (150 mm) 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. (300 mm) wide continuous gradation filter to prevent the select fill material from passing through the block joints.

(d) 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.

(e) 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 (-29 and 60° C). The following standards shall be used in determining and demonstrating the soil reinforcement capacities:

ASTM D638 Test Method for Tensile Properties of Plastic
ASTM D1248 Specification for Polyethylene Plastics Molding and Extrusion Materials
ASTM D4218 Test Method for Carbon Black Content in Polyethylene Compounds
ASTM D5262 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 fill 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. The Engineer will perform one density test per 1500 ft (450 m) of the entire length of foundation material through both cut and fill areas. 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 fill 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 fill 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. (255 mm) loose measurement or the proposed block height.

The select fill 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 Engineer will perform one density test per 5000 cu yd (3800 cu m) and not less than one test per 2 ft (0.6m) of lift. The top 12 in. (300 mm) 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 0.5 in. (12 mm) when measured along a 10 ft. (3 m) straight edge.

Method of Measurement. Segmental Concrete Block Wall will be measured by the square foot (square meter) 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.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for SEGMENTAL CONCRETE BLOCK WALL.

PILING

Effective: May 11, 2009 Revised: January 22, 2010

Revise Article 512.04(a) of the Standard Specifications to read:

"(a) Splicing. Splicing of metal shell piles shall be as follows.

(1) Planned Splices. Planned field or shop splices may be used when allowed per Article 512.10 or when the lengths specified in Article 512.16 exceed the estimated lengths specified in the contract plans by at least 10 ft (3 m). The location of planned splices shall be approved by the Engineer and located to minimize the chance they will occur within the 10 ft (3 m) below the base of the footing, abutment, or pier.

(2) Unplanned Splices. Unplanned field splices shall be used as required to furnish lengths beyond those specified in Article 512.16. The length of additional segments shall be specified by the Engineer."

Revise Article 512.05(a) of the Standard Specifications to read:

"(a) Splicing. Splicing of steel piles shall be as follows.

(1) Planned Splices. Planned field or shop splices may be used when allowed per Article 512.10 or when the lengths specified in Article 512.16 exceed the estimated lengths specified in the contract plans by at least 10 ft (3 m). The location of planned splices shall be approved by the Engineer and located to minimize the chance they will occur within the 10 ft (3 m) below the base of the footing, abutment, or pier.

(2) Unplanned Splices. Unplanned field splices shall be used as required to furnish lengths beyond those specified in Article 512.16. The length of additional segments shall be specified by the Engineer."

Revise the first three paragraphs of Article 512.10 of the Standard Specifications to read:

"**512.10 Driving Equipment**. The equipment for driving piles shall be adequate for driving piles at least 10 ft (3 m) longer than the longest estimated pile length specified in the contract plans without splicing, unless the estimated pile length exceeds 55 ft (17 m) or prevented by vertical clearance restrictions. The use of shorter length equipment or the use of preplanned splices (necessitated by estimated pile lengths exceeding 55 ft (17 m) or vertical clearance restrictions) shall meet the approval of the Engineer. The equipment for driving piles shall be according to the following.

(a) Hammers. Piles shall be driven with an impact hammer such as a drop, steam/air, hydraulic, or diesel. The driving system selected by the Contractor shall not result in damage to the pile. The impact hammer shall be capable of being operated at an energy which will maintain a pile penetration rate between 1 and 10 blows per 1 in. (25 mm) when the nominal driven bearing of the pile approaches the nominal required bearing.

For hammer selection purposes, the minimum and maximum hammer energy necessary to achieve these penetrations may be estimated as follows.

$$E \geq \frac{32.90\ R_N}{F_{eff}} \quad \text{(English)}$$

$$E \leq \frac{65.80\ R_N}{F_{eff}} \quad \text{(English)}$$

$$E \geq \frac{10.00\ R_N}{F_{eff}} \quad \text{(metric)}$$

$$E \leq \frac{20.00\ R_N}{F_{eff}} \quad \text{(metric)}$$

Where:

R_N = Nominal required bearing in kips (kN)
E = Energy developed by the hammer per blow in ft lb (J)
F_{eff} = Hammer efficiency factor according to Article 512.14."

Add the following sentence to the beginning of the fourth paragraph of Article 512.11 of the Standard Specifications:

"Except as required to satisfy the minimum tip elevations required in 512.11(b) above, piles are not required to be driven more than one additional foot (300 mm) after the nominal driven bearing equals or exceeds the nominal required bearing; more than three additional inches (75 mm) after the nominal driven bearing exceeds 110 percent of the nominal required bearing; or more than one additional inch (25 mm) after the nominal driven bearing exceeds 150 percent of the nominal required bearing."

Revise the first paragraph of Article 512.14 of the Standard Specifications to read:

"**512.14 Determination of Nominal Driven Bearing.** The nominal driven bearing of each pile shall be determined by the WSDOT formula as follows.

$$R_{NDB} = \frac{6.6\ F_{eff}\ E\ Ln\left(10N_b\right)}{1000} \quad \text{(English)}$$

$$R_{NDB} = \frac{21.7\ F_{eff}\ E\ Ln\left(10N_b\right)}{1000} \quad \text{(metric)}$$

Where:

R_{NDB} = Nominal driven bearing of the pile in kips (kN)
N_b = Number of hammer blows per inch (25 mm) of pile penetration
E = Energy developed by the hammer per blow in ft lb (J)
F_{eff} = Hammer efficiency factor taken as:

0.55 for air/steam hammers
0.47 for open-ended diesel hammers and steel piles or metal shell piles
0.37 for open-ended diesel hammers and concrete or timber piles
0.35 for closed-ended diesel hammers
0.28 for drop hammers"

Add the following to Article 512.18 of the Standard Specifications.

"(h) When the lengths specified in Article 512.16 exceed the estimated lengths specified in the contract plans by at least 10 ft (3m), additional field splices (for metal shell and steel piles) required to provide the lengths specified in Article 512.16 will be paid for according to Article 109.04."

FREEZE-THAW AGGREGATES FOR CONCRETE SUPERSTRUCTURES POURED ON GRADE
Effective: April 30, 2010

Revise the first sentence of Article 1004.029(f) to read as follows.

"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, concrete superstructures on grade such as bridge approach slabs, or their repair using concrete, the gradation permitted will be determined from the results of the Department's Freeze-Thaw Test (Illinois Modified AASHTO T161)."

ALKALI-SILICA REACTION FOR CAST-IN-PLACE CONCRETE (BDE)
Effective: August 1, 2007 Revised: January 1, 2009

Description. This special provision is intended to reduce the risk of a deleterious alkali-silica reaction in concrete exposed to humid or wet conditions. The special provision is not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate or sodium formate. The special provision shall not apply to the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy. The special provision shall also not apply to precast products or precast prestressed products.

Aggregate Expansion Values. Each coarse and fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II cement having a total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.05 percent will be assigned to limestone or dolomite coarse aggregates and 0.03 percent to limestone or dolomite fine aggregates (manufactured stone sand); however the Department reserves the right to perform the ASTM C 1260 test.

Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

AGGREGATE GROUPS			
Coarse Aggregate or Coarse Aggregate Blend ASTM C 1260 Expansion	Fine Aggregate or Fine Aggregate Blend ASTM C 1260 Expansion		
	≤ 0.16%	> 0.16% - 0.27%	> 0.27%
≤ 0.16%	Group I	Group II	Group III
> 0.16% - 0.27%	Group II	Group II	Group III
> 0.27%	Group III	Group III	Group IV

Mixture Options. Based upon the aggregate group, the following mixture options shall be used; however, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silica reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

Group I - Mixture options are not applicable. Use any cement or finely divided mineral.
Group II - Mixture options 1, 2, 3, 4, or 5 shall be used.
Group III - Mixture options 1, 2 and 3 combined, 4, or 5 shall be used.
Group IV - Mixture options 1, 2 and 4 combined, or 5 shall be used.

For Class PP-3 concrete the mixture options are not applicable, and any cement may be used with the specified finely divided minerals.

a) Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used.

When a coarse or fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

Weighted Expansion Value = (a/100 x A) + (b/100 x B) + (c/100 x C) + …

Where: a, b, c... = percentage of aggregate in the blend;
A, B, C…= expansion value for that aggregate.

b) Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow. The replacement ratio is defined as "finely divided mineral:portland cement".

1) Class F Fly Ash. For Class PV, BS, MS, DS, SC, and SI concrete and cement aggregate mixture II (CAM II), Class F fly ash shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

2) Class C Fly Ash. For Class PV, MS, SC, and SI Concrete, Class C fly ash with 18 percent to less than 26.5 percent calcium oxide content, and less than 2.0 percent loss on ignition, shall replace 20 percent of the portland cement at a minimum replacement ratio of 1:1; or at a minimum replacement ratio of 1.25:1 if the loss on ignition is 2.0 percent or greater. Class C fly ash with less than 18 percent calcium oxide content shall replace 20 percent of the portland cement at a minimum replacement ratio of 1.25:1.

For Class PP-1, RR, BS, and DS concrete and CAM II, Class C fly ash with less than 26.5 percent calcium oxide content shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

3) Ground Granulated Blast-Furnace Slag. For Class PV, BS, MS, SI, DS, and SC concrete, ground granulated blast-furnace slag shall replace 25 percent of the portland cement at a minimum replacement ratio of 1:1.

For Class PP-1 and RR concrete, ground granulated blast-furnace slag shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

For Class PP-2, ground granulated blast-furnace slag shall replace 25 to 30 percent of the portland cement at a minimum replacement ratio of 1:1.

4) Microsilica or High Reactivity Metakaolin. Microsilica solids or high reactivity metakaolin shall be added to the mixture at a minimum 25 lb/cu yd (15 kg/cu m) or 27 lb/cu yd (16 kg/cu m) respectively.

c) Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.60 percent. When aggregate in Group II is involved, any finely divided mineral may be used with a portland cement.

d) Mixture Option 4. The cement used shall have a maximum total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.45 percent. When aggregate in Group II or III is involved, any finely divided mineral may be used with a portland cement.

e) Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is ≤ 0.16 percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result.

The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly. For latex concrete, the ASTM C 1567 test shall be performed without the latex. The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ($Na_2O + 0.658K_2O$), a new ASTM C 1567 test will not be required.

Testing. If an individual aggregate has an ASTM C 1260 expansion value > 0.16 percent, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The ASTM C 1293 test shall be performed with Type I or II cement having a total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container or wick of absorbent material, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 or 1567 test result. The Engineer will not accept the result if the precision and bias for the test methods are not met.

The laboratory performing the ASTM C 1567 test shall either be accredited by the AASHTO Materials Reference Laboratory (AMRL) for ASTM C 227 under Portland Cement Concrete or Aggregate; or shall be inspected for Hydraulic Cement - Physical Tests by the Cement and Concrete Reference Laboratory (CCRL) and shall be approved by the Department. The laboratory performing the ASTM C 1293 test shall be inspected for Portland Cement Concrete by CCRL and shall be approved by the Department.

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

Effective: January 1, 2009

Description. This special provision is intended to reduce the risk of a deleterious alkali-silica reaction in precast and precast prestressed concrete exposed to humid or wet conditions. The special provision is not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate or sodium formate. The special provision shall not apply to the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy. The special provision shall also not apply to cast-in-place concrete.

Aggregate Expansion Values. Each coarse and fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II cement having a total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors.

An expansion value of 0.05 percent will be assigned to limestone or dolomite coarse aggregates and 0.03 percent to limestone or dolomite fine aggregates (manufactured stone sand); however the Department reserves the right to perform the ASTM C 1260 test.

Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

AGGREGATE GROUPS			
Coarse Aggregate or Coarse Aggregate Blend ASTM C 1260 Expansion	Fine Aggregate or Fine Aggregate Blend ASTM C 1260 Expansion		
	≤ 0.16%	> 0.16% - 0.27%	> 0.27%
≤ 0.16%	Group I	Group II	Group III
> 0.16% - 0.27%	Group II	Group II	Group III
> 0.27%	Group III	Group III	Group IV

Mixture Options. Based upon the aggregate group, the following mixture options shall be used; however, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silica reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

Group I - Mixture options are not applicable. Use any cement or finely divided mineral.
Group II - Mixture options 1, 2, 3, 4, or 5 shall be used.
Group III - Mixture options 1, 2 and 3 combined, 4, or 5 shall be used.
Group IV - Mixture options 1, 2 and 4 combined, or 5 shall be used.

a) Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used.

When a coarse or fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

Weighted Expansion Value = (a/100 x A) + (b/100 x B) + (c/100 x C) + …

Where: a, b, c... = percentage of aggregate in the blend;
A, B, C…= expansion value for that aggregate.

b) Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow. The replacement ratio is defined as “finely divided mineral:portland cement”.

1) Class F Fly Ash. For Class PC concrete, precast products, and PS concrete, Class F fly ash shall replace 15 percent of the portland cement at a minimum replacement ratio of 1.5:1.

2) Class C Fly Ash. For Class PC Concrete, precast products, and Class PS concrete, Class C fly ash with 18 percent to less than 26.5 percent calcium oxide content, and less than 2.0 percent loss on ignition, shall replace 20 percent of the portland cement at a minimum replacement ratio of 1:1; or at a minimum replacement ratio of 1.25:1 if the loss on ignition is 2.0 percent or greater.

Class C fly ash with less than 18 percent calcium oxide content shall replace 20 percent of the portland cement at a minimum replacement ratio of 1.25:1.

3) Ground Granulated Blast-Furnace Slag. For Class PC concrete, precast products, and Class PS concrete, ground granulated blast-furnace slag shall replace 25 percent of the portland cement at a minimum replacement ratio of 1:1.

4) Microsilica or High Reactivity Metakaolin. Microsilica solids or high reactivity metakaolin shall be added to the mixture at a minimum 25 lb/cu yd (15 kg/cu m) or 27 lb/cu yd (16 kg/cu m) respectively.

c) Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.60 percent. When aggregate in Group II is involved, any finely divided mineral may be used with a portland cement.

d) Mixture Option 4. The cement used shall have a maximum total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.45 percent. When aggregate in Group II or III is involved, any finely divided mineral may be used with a portland cement.

e) Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is ≤ 0.16 percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly. The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

   If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ($Na_2O + 0.658K_2O$), a new ASTM C 1567 test will not be required.

Testing. If an individual aggregate has an ASTM C 1260 expansion value > 0.16 percent, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The ASTM C 1293 test shall be performed with Type I or II cement having a total equivalent alkali content ($Na_2O + 0.658K_2O$) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container or wick of absorbent material, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 or 1567 test result. The Engineer will not accept the result if the precision and bias for the test methods are not met.

The laboratory performing the ASTM C 1567 test shall either be accredited by the AASHTO Materials Reference Laboratory (AMRL) for ASTM C 227 under Portland Cement or Aggregate; or shall be inspected for Hydraulic Cement - Physical Tests by the Cement and Concrete Reference Laboratory (CCRL) and shall be approved by the Department. The laboratory performing the ASTM C 1293 test shall be inspected for Portland Cement Concrete by CCRL and shall be approved by the Department.

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

Effective: November 1, 2008 Revised: November 1, 2010

Replace the first paragraph of Article 107.22 of the Standard Specifications with the following:

"All proposed borrow areas, including commercial borrow areas; use areas, including, but not limited to temporary access roads, detours, runarounds, plant sites, and staging and storage areas; and/or waste areas are to be designated by the Contractor to the Engineer and approved prior to their use. Such areas outside the State of Illinois shall be evaluated, at no additional cost to the Department, according to the requirements of the state in which the area lies; and approval by the authority within that state having jurisdiction for such areas shall be forwarded to the Engineer. Such areas within Illinois shall be evaluated as described herein.

A location map delineating the proposed borrow area, use area, and/or waste area shall be submitted to the Engineer for approval along with an agreement from the property owner granting the Department permission to enter the property and conduct cultural and biological resource reconnaissance surveys of the site for archaeological resources, threatened or endangered species or their designated essential habitat, wetlands, prairies, and savannahs. The type of location map submitted shall be a topographic map, a plat map, or a 7.5 minute quadrangle map. Submittals shall include the intended use of the site and provide sufficient detail for the Engineer to determine the extent of impacts to the site. The Engineer will initiate cultural and biological resource reconnaissance surveys of the site, as necessary, at no cost to the Contractor. The Engineer will advise the Contractor of the expected time required to complete all surveys. If the proposed area is within 150 ft (45 m) of the highway right-of-way, a topographic map of the proposed site will be required as specified in Article 204.02."

CEMENT (BDE)

Effective: January 1, 2007 Revised: April 1, 2009

Revise Section 1001 of the Standard Specifications to read:

"**SECTION 1001. CEMENT**

1001.01 Cement Types. Cement shall be according to the following.

(a) Portland Cement. Acceptance of portland cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland cement shall be according to ASTM C 150, and shall meet the standard physical and chemical requirements. Type I or Type II may be used for cast-in-place, precast, and precast prestressed concrete. Type III may be used according to Article 1020.04, or when approved by the Engineer. All other cements referenced in ASTM C 150 may be used when approved by the Engineer.

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. The total of all inorganic processing additions shall be a maximum of 4.0 percent by weight (mass) of the cement. However, a cement kiln dust inorganic processing addition shall be limited to a maximum of 1.0 percent.

Organic processing additions shall be limited to grinding aids that improve the flowability of cement, reduce pack set, and improve grinding efficiency. Inorganic processing additions shall be limited to granulated blast-furnace slag according to the chemical requirements of AASHTO M 302, Class C fly ash according to the chemical requirements of AASHTO M 295, and cement kiln dust.

(b) Portland-Pozzolan Cement. Acceptance of portland-pozzolan cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland-pozzolan cement shall be according to ASTM C 595 and shall meet the standard physical and chemical requirements. Type IP may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. The pozzolan constituent for Type IP shall be a maximum of 21 percent of the weight (mass) of the portland-pozzolan cement.

For cast-in-place construction, portland-pozzolan cement shall not be used in concrete mixtures when the air temperature is below 40 ºF (4 ºC) without permission of the Engineer. If permission is given, the mix design strength requirement may require the Contractor to increase the cement or eliminate the cement factor reduction for a water-reducing or high range water-reducing admixture which is permitted according to Article 1020.05(b).

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids as defined in (a) above. Inorganic processing additions shall be limited to cement kiln dust at a maximum of 1.0 percent.

(c) Portland Blast-Furnace Slag Cement. Acceptance of portland blast-furnace slag cement shall be according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants".

Portland blast-furnace slag cement shall be according to ASTM C 595 and shall meet the standard physical and chemical requirements. Type IS portland blast-furnace slag cement may be used for cast-in-place, precast, and precast prestressed concrete, except when Class PP concrete is used. The blast-furnace slag constituent for Type IS shall be a maximum of 25 percent of the weight (mass) of the portland blast-furnace slag cement.

For cast-in-place construction, portland blast-furnace slag cement shall not be used in concrete mixtures when the air temperature is below 40 ºF (4 ºC) without permission of the Engineer. If permission is given, the mix design strength requirement may require the Contractor to increase the cement or eliminate the cement factor reduction for a water-reducing or high range water-reducing admixture which is permitted according to Article 1020.05(b).

The total of all organic processing additions shall be a maximum of 1.0 percent by weight (mass) of the cement. Organic processing additions shall be limited to grinding aids as defined in (a) above.

Inorganic processing additions shall be limited to cement kiln dust at a maximum of 1.0 percent.

(d) Rapid Hardening Cement. Rapid hardening cement shall be used according to Article 1020.04 or when approved by the Engineer. The cement shall be on the Department's current "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs", and shall be according to the following.

(1) The cement shall have a maximum final set of 25 minutes, according to Illinois Modified ASTM C 191.
(2) The cement shall have a minimum compressive strength of 2000 psi (13,800 kPa) at 3.0 hours, 3200 psi (22,100 kPa) at 6.0 hours, and 4000 psi (27,600 kPa) at 24.0 hours, according to Illinois Modified ASTM C 109.
(3) The cement shall have a maximum drying shrinkage of 0.050 percent at seven days, according to Illinois Modified ASTM C 596.
(4) The cement shall have a maximum expansion of 0.020 percent at 14 days, according to Illinois Modified ASTM C 1038.
(5) The cement shall have a minimum 80 percent relative dynamic modulus of elasticity; and shall not have a weight (mass) gain in excess of 0.15 percent or a weight (mass) loss in excess of 1.0 percent, after 100 cycles, according to AASHTO T 161, Procedure B.

(e) Calcium Aluminate Cement. Calcium aluminate cement shall be used only where specified by the Engineer. The cement shall meet the standard physical requirements for Type I cement according to ASTM C 150, except the time of setting shall not apply. The chemical requirements shall be determined according to ASTM C 114 and shall be as follows: minimum 38 percent aluminum oxide (Al_2O_3), maximum 42 percent calcium oxide (CaO), maximum 1 percent magnesium oxide (MgO), maximum 0.4 percent sulfur trioxide (SO_3), maximum 1 percent loss on ignition, and maximum 3.5 percent insoluble residue.

1001.02 Uniformity of Color. Cement contained in single loads or in shipments of several loads to the same project shall not have visible differences in color.

1001.03 Mixing Brands and Types. Different brands or different types of cement from the same manufacturing plant, or the same brand or type from different plants shall not be mixed or used alternately in the same item of construction unless approved by the Engineer.

1001.04 Storage. Cement shall be stored and protected against damage, such as dampness which may cause partial set or hardened lumps. Different brands or different types of cement from the same manufacturing plant, or the same brand or type from different plants shall be kept separate."

CONCRETE ADMIXTURES (BDE)
Effective: January 1, 2003 Revised: April 1, 2009

Replace the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

"(b) Admixtures. The use of admixtures to increase the workability or to accelerate the hardening of the concrete will be permitted when approved by the Engineer.

Admixture dosages shall result in the mixture meeting the specified plastic and hardened properties. The Department will maintain an Approved List of Corrosion Inhibitors. Corrosion inhibitor dosage rates shall be according to Article 1020.05(b)(12). The Department will also maintain an Approved List of Concrete Admixtures, and an admixture technical representative shall be consulted when determining an admixture dosage from this list. The dosage shall be within the range indicated on the approved list unless the influence by other admixtures, jobsite conditions (such as a very short haul time), or other circumstances warrant a dosage outside the range. The Engineer shall be notified when a dosage is proposed outside the range. To determine an admixture dosage, air temperature, concrete temperature, cement source and quantity, finely divided mineral sources(s) and quantity, influence of other admixtures, haul time, placement conditions, and other factors as appropriate shall be considered. The Engineer may request the Contractor to have a batch of concrete mixed in the lab or field to verify the admixture dosage is correct. An admixture dosage or combination of admixture dosages shall not delay the initial set of concrete by more than one hour. When a retarding admixture is required or appropriate for a bridge deck or bridge deck overlay pour, the initial set time shall be delayed until the deflections due to the concrete dead load are no longer a concern for inducing cracks in the completed work. However, a retarding admixture shall not be used to further extend the pour time and justify the alteration of a bridge deck pour sequence.

When determining water in admixtures for water/cement ratio, the Contractor shall calculate 70 percent of the admixture dosage as water, except a value of 50 percent shall be used for a latex admixture used in bridge deck latex concrete overlays."

Revise Section 1021 of the Standard Specifications to read:

"**SECTION 1021. CONCRETE ADMIXTURES**

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

Corrosion inhibitors will be maintained on the Department's Approved List of Corrosion Inhibitors. All other concrete admixture products will be maintained on the Department's Approved List of Concrete Admixtures. For the admixture submittal, a report prepared by an independent laboratory accredited by the AASHTO Materials Reference Laboratory (AMRL) for Portland Cement Concrete shall be provided. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications. However, for corrosion inhibitors the ASTM G 109 test information specified in ASTM C 1582 is not required to be from and independent lab. All other information in ASTM C 1582 shall be from and independent lab.

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

Prior to the approval of an admixture, the Engineer reserves the right to request a sample for testing. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). For freeze-thaw testing, the Department will perform the test according to AASHTO T 161, Procedure B. The flexural strength test will be performed according to AASHTO T 177. If the Engineer decides to test the admixture, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The test and reference concrete mixture shall contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by AASHTO.

The manufacturer shall include in the submittal the following admixture information: the manufacturing range for specific gravity, the midpoint and manufacturing range for residue by oven drying, and the manufacturing range for pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

For air-entraining admixtures according to Article 1021.02, the specific gravity allowable manufacturing range shall be established by the manufacturer and the test method shall be according to ASTM C 494. For residue by oven drying and pH, the allowable manufacturing range and test methods shall be according to ASTM C 260.

For admixtures according to Articles 1021.03, 1021.04, 1021.05, 1021.06, and 1021.07, the pH allowable manufacturing range shall be established by the manufacturer and the test method shall be according to ASTM E 70. For specific gravity and residue by oven drying, the allowable manufacturing range and test methods shall be according to ASTM C 494.

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

All admixtures, except chloride-based accelerators, shall contain a maximum of 0.3 percent chloride by weight (mass).

Random field samples may be taken by the Department to verify an admixture meets specification. A split sample will be provided to the manufacturer if requested. Admixtures that do not meet specification requirements or an allowable manufacturing range established by the manufacturer shall be replaced with new material.

1021.02 Air-Entraining Admixtures. Air-entraining admixtures shall be according to AASHTO M 154.

1021.03 Retarding and Water-Reducing Admixtures. The admixture shall be according to the following.

(a) The retarding admixture shall be according to AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
(b) The water-reducing admixture shall be according to AASHTO M 194, Type A.
(c) The high range water-reducing admixture shall be according to AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).

1021.04 Accelerating Admixtures. The admixture shall be according to AASHTO M 194, Type C (accelerating) or Type E (water reducing and accelerating).

1021.05 Self-Consolidating Admixtures. The self-consolidating admixture system shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a concrete mixture that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

The high range water-reducing admixture shall be according to AASHTO M 194, Type F.

The viscosity modifying admixture shall be according to ASTM C 494, Type S (specific performance).

1021.06 Rheology-Controlling Admixture. The rheology-controlling admixture shall be capable of producing a concrete mixture with a lower yield stress that will consolidate easier for slipform applications used by the Contractor. The rheology-controlling admixture shall be according to ASTM C 494, Type S (specific performance).

1021.07 Corrosion Inhibitor. The corrosion inhibitor shall be according to one of the following.

(a) Calcium Nitrite. The corrosion inhibitor shall contain a minimum 30 percent calcium nitrite by weight (mass) of solution, and shall comply with the requirements of AASHTO M 194, Type C (accelerating).

(b) Other Materials. The corrosion inhibitor shall be according to ASTM C 1582."

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)
Effective: June 1, 2010

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term "equipment" refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment's respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 [1/]	600-749	2002
	750 and up	2006
June 1, 2011 [2/]	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

June 1, 2012 [2/]	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (http://www.epa.gov/otaq/retrofit/verif-list.htm), or verified by the California Air Resources Board (CARB) (http://www.arb.ca.gov/diesel/verde/verdev.htm); or

b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

Diesel Retrofit Deficiency Deduction

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be $1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected. Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

CONSTRUCTION AIR QUALITY - DIESEL VEHICLE EMISSIONS CONTROL (BDE)
Effective: April 1, 2009 Revised: July 1, 2009

Diesel Vehicle Emissions Control. The reduction of construction air emissions shall be accomplished by using cleaner burning diesel fuel. The term “equipment” refers to any and all diesel fuel powered devices rated at 50 hp and above, to be used on the project site in excess of seven calendar days over the course of the construction period on the project site (including any “rental” equipment).

All equipment on the jobsite, with engine ratings of 50 hp and above, shall be required to: use Ultra Low Sulfur Diesel fuel (ULSD) exclusively (15 ppm sulfur content or less).

Diesel powered equipment in non-compliance will not be allowed to be used on the project site, and is also subject to a notice of non-compliance as outlined below.

The Contractor shall submit copies of monthly summary reports and include certified copies of the ULSD diesel fuel delivery slips for diesel fuel delivered to the jobsite for the reporting time period, noting the quantity of diesel fuel used.

If any diesel powered equipment is found to be in non-compliance with any portion of this specification, the Engineer will issue the Contractor a notice of non-compliance and identify an appropriate period of time, as outlined below under environmental deficiency deduction, in which to bring the equipment into compliance or remove it from the project site.

Any costs associated with bringing any diesel powered equipment into compliance with these diesel vehicle emissions controls shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall also not be grounds for a claim.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists, he/she will notify the Contractor in writing, and direct the Contractor to correct the deficiency within a specified time period. The specified time-period, which begins upon Contractor notification, will be from 1/2 hour to 24 hours long, based on the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge regarding the time period.

The deficiency will be based on lack of repair, maintenance and diesel vehicle emissions control.

If the Contractor fails to correct the deficiency within the specified time frame, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be $1,000.00 for each deficiency identified.

If a Contractor or subcontractor accumulates three environmental deficiency deductions in a contract period, the Contractor will be shutdown until the deficiency is corrected. Such a shutdown will not be grounds for any extension of contract time, waiver of penalties, or be grounds for any claim.

CONSTRUCTION AIR QUALITY - IDLING RESTRICTIONS (BDE)
Effective: April 1, 2009

Idling Restrictions. The Contractor shall establish truck-staging areas for all diesel powered vehicles that are waiting to load or unload material at the jobsite. Staging areas shall be located where the diesel emissions from the equipment will have a minimum impact on adjacent sensitive receptors. The Department will review the selection of staging areas, whether within or outside the existing highway right-of-way, to avoid locations near sensitive areas or populations to the extent possible. Sensitive receptors include, but are not limited to, hospitals, schools, residences, motels, hotels, daycare facilities, elderly housing and convalescent facilities. Diesel powered engines shall also be located as far away as possible from fresh air intakes, air conditioners, and windows. The Engineer will approve staging areas before implementation.

Diesel powered vehicle operators may not cause or allow the motor vehicle, when it is not in motion, to idle for more than a total of 10 minutes within any 60 minute period, except under any of the following circumstances:

1) The motor vehicle has a gross vehicle weight rating of less than 8000 lb (3630 kg).
2) The motor vehicle idles while forced to remain motionless because of on-highway traffic, an official traffic control device or signal, or at the direction of a law enforcement official.
3) The motor vehicle idles when operating defrosters, heaters, air conditioners, or other equipment solely to prevent a safety or health emergency.
4) A police, fire, ambulance, public safety, other emergency or law enforcement motor vehicle, or any motor vehicle used in an emergency capacity, idles while in an emergency or training mode and not for the convenience of the vehicle operator.
5) The primary propulsion engine idles for maintenance, servicing, repairing, or diagnostic purposes if idling is necessary for such activity.
6) A motor vehicle idles as part of a government inspection to verify that all equipment is in good working order, provided idling is required as part of the inspection.

7) When idling of the motor vehicle is required to operate auxiliary equipment to accomplish the intended use of the vehicle (such as loading, unloading, mixing, or processing cargo; controlling cargo temperature; construction operations, lumbering operations; oil or gas well servicing; or farming operations), provided that this exemption does not apply when the vehicle is idling solely for cabin comfort or to operate non-essential equipment such as air conditioning, heating, microwave ovens, or televisions.
8) When the motor vehicle idles due to mechanical difficulties over which the operator has no control.
9) The outdoor temperature is less than 32 °F (0 °C) or greater than 80 °F (26 °C).

When the outdoor temperature is greater than or equal to 32 °F (0 °C) or less than or equal to 80 °F (26 °C), a person who operates a motor vehicle operating on diesel fuel shall not cause or allow the motor vehicle to idle for a period greater than 30 minutes in any 60 minute period while waiting to weigh, load, or unload cargo or freight, unless the vehicle is in a line of vehicles that regularly and periodically moves forward.

The above requirements do not prohibit the operation of an auxiliary power unit or generator set as an alternative to idling the main engine of a motor vehicle operating on diesel fuel.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists based on non-compliance with the idling restrictions, he/she will notify the Contractor, and direct the Contractor to correct the deficiency.

If the Contractor fails to correct the deficiency a monetary deduction will be imposed. The monetary deduction will be $1,000.00 for each deficiency identified.

DETERMINATION OF THICKNESS (BDE)
Effective: April 1, 2009

Revise Articles 353.12 and 353.13 of the Standard Specifications to Articles 353.13 and 353.14 respectively.

Add the following Article to the Standard Specifications:

"**353.12 Tolerance in Thickness.** The thickness of base course pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous area, except for temporary construction, bike paths, and individual locations less than 500 ft (150 m) long, will be evaluated. Temporary construction is defined as those areas constructed and removed under the same contract. If the base course cannot be cored for thickness prior to placement of the cover layer(s), the Engineer will determine the thickness of the cover layer(s), and subtract them from the measured core thickness to determine the base course thickness.

The procedure described in Article 407.10(b) will be followed, except the option of correcting deficient pavement with additional lift(s) shall not apply."

Revise Article 354.09 of the Standard Specifications to read:

"**354.09 Tolerance in Thickness.** The thickness of base course widening pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous area, except for temporary construction; bike paths and individual locations less than 3 ft (1 m) wide or 1000 ft (300 m) long, will be evaluated.

Temporary construction is defined as those areas constructed and removed under the same contract. If the base course widening cannot be cored for thickness prior to placement of the cover layer(s), the Engineer will determine the thickness of the cover layer(s), and subtract them from the measured core thickness to determine the base course widening thickness.

The procedure described in Article 407.10(b) will be followed, except:

(a) The width of a unit shall be the width of the widening along one edge of the pavement.
(b) The length of the unit shall be 1000 ft (300 m).
(c) The option of correcting deficient pavement with additional lift(s) shall not apply."

Revise Article 355.09 of the Standard Specifications to read:

"**355.09 Tolerance in Thickness.** The thickness of HMA base course pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous area, except for temporary construction; bike paths and individual locations less than 500 ft (150 m) long, will be evaluated according to Article 407.10(b). Temporary construction is defined as those areas constructed and removed under the same contract. If the base course cannot be cored for thickness prior to placement of the cover layer(s), the Engineer will determine the thickness of the cover layer(s), and subtract them from the measured core thickness to determine the base course thickness."

Revise Article 356.07 of the Standard Specifications to read:

"**356.07 Tolerance in Thickness.** The thickness of HMA base course widening pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous area, except for temporary construction; bike paths and individual locations less than 3 ft (1 m) wide or 1000 ft (300 m) long, will be evaluated according to Article 407.10(b) except, the width of a unit shall be the width of the widening along one edge of the pavement and the length of a unit shall be 1000 ft (300 m). Temporary locations are defined as those constructed and removed under the same contract. If the base course widening cannot be cored for thickness prior to placement of the cover layer(s), the Engineer will determine the thickness of the cover layer(s)and subtract them from the measured core thickness to determine the base course widening thickness."

Revise Article 407.10 of the Standard Specifications to read:

"**407.10 Tolerance in Thickness.** Determination of pavement thickness shall be performed after the pavement surface tests and corrective action have been completed according to Article 407.09. Pay adjustments made for pavement thickness will be in addition to and independent of those made for pavement smoothness. Pavement pay items that individually contain at least 1000 sq yd (840 sq m) of contiguous pavement shall be evaluated with the following exclusions: temporary pavements; variable width pavements; radius returns; short lengths of contiguous pavements less than 500 ft (125 m) in length; and constant width portions of turn lanes less than 500 ft (125 m) in length. Temporary pavements are defined as pavements constructed and removed under the same contract.

The method described in Article 407.10(a), shall be used except for those pavements constructed in areas where access to side streets and entrances necessitates construction in segments less than 1000 ft (300 m). The method described in Article 407.10(b) shall be used in areas where access to side streets and entrances necessitates construction in segments less than 1000 ft (300 m).

(a) Percent Within Limits. The percent within limits (PWL) method shall be as follows.

(1) Lots and Sublots. The pavement will be divided into approximately equal lots of not more than 5000 ft (1500 m) in length. When the length of a continuous strip of pavement is 500 ft (150 m) or greater but less than 5000 ft (1500 m), these short lengths of pavement, ramps, turn lanes, and other short sections of continuous pavement will be grouped together to form lots approximately 5000 ft (1500 m) in length. Short segments between structures will be measured continuously with the structure segments omitted. Each lot will be subdivided into ten equal sublots. The width of a sublot and lot will be the width from the pavement edge to the adjacent lane line, from one lane line to the next, or between pavement edges for single-lane pavements.

(2) Cores. Cores 2 in. (50 mm) in diameter shall be taken from the pavement by the Contractor, at locations selected by the Engineer. The exact location for each core will be selected at random, but will result in one core per sublot. Core locations will be specified prior to beginning the coring operations.

The Contractor and the Engineer shall witness the coring operations, as well as the measuring and recording of the core lengths. The cores will be measured with a device supplied by the Department immediately upon removal from the core bit and prior to moving to the next core location. Upon concurrence of the length, the core samples shall be disposed of according to Article 202.03.

Upon completion of each core, all water shall be removed from the hole and the hole then filled with a rapid hardening mortar or concrete. The material shall be mixed in a separate container, placed in the hole, consolidated by rodding, and struck-off flush with the adjacent pavement.

(3) Deficient Sublot. When the length of the core in a sublot is deficient by more than ten percent of plan thickness, the Contractor may take three additional cores within that sublot at locations selected at random by the Engineer. If the Contractor chooses not to take additional cores, the pavement in that sublot shall be removed and replaced.

When the three additional cores are taken, the length of those cores will be averaged with the original core length. If the average shows the sublot to be deficient by ten percent or less, no additional action is necessary. If the average shows the sublot to be deficient by more than ten percent, the pavement in that sublot shall be removed and replaced; however, when requested in writing by the Contractor, the Engineer may permit in writing such deficient sublots to remain in place. For deficient sublots allowed to remain in place, additional lift(s) may be placed, at no additional cost to the Department, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The area(s) to be overlaid, material to be used, thickness(es) of the lift(s), and method of placement will be approved by the Engineer.

When a deficient sublot is removed and replaced, or additional lifts are placed, the corrected sublot shall be retested for thickness. The length of the new core taken in the sublot will be used in determining the PWL for the lot.

When a deficient sublot is left in place, and no additional lift(s) are placed, no payment will be made for the deficient sublot. The length of the original core taken in the sublot will be used in determining the PWL for the lot.

(4) Deficient Lot. After addressing deficient sublots, the PWL for each lot will be determined. When the PWL of a lot is 60 percent or less, the pavement in that lot shall be removed and replaced; however, when requested in writing by the Contractor, the Engineer may permit in writing such deficient lots to remain in place. For deficient lots allowed to remain in place, additional lift(s) may be placed, at no additional cost to the Department, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The area(s) to be overlaid, material to be used, thickness(es) of the lift(s), and method of placement will be approved by the Engineer.

When a deficient lot is removed and replaced, or additional lifts are placed, the corrected lot shall be retested for thickness. The PWL for the lot will then be recalculated based upon the new cores; however, the pay factor for the lot shall be a maximum of 100 percent.

When a deficient lot is left in place, and no additional lift(s) are placed, the PWL for the lot will not be recalculated.

(5) Right of Discovery. When the Engineer has reason to believe the random core selection process will not accurately represent the true conditions of the work, he/she may order additional cores. The additional cores shall be taken at specific locations determined by the Engineer. The Engineer will provide notice to the Contractor containing an explanation of the reasons for his/her action. The need for, and location of, additional cores will be determined prior to commencement of coring operations.

When the additional cores show the pavement to be deficient by more than ten percent of plan thickness, more additional cores shall be taken to determine the limits of the deficient pavement and that area shall be removed and replaced; however, when requested in writing by the Contractor, the Engineer may permit in writing such areas of deficient pavement to remain in place. The area of deficient pavement will be defined using the length between two acceptable cores and the full width of the sublot. An acceptable core is a core with a length of at least 90 percent of plan thickness.

For deficient areas allowed to remain in place, additional lift(s) may be placed, at no additional cost to the Department, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The area(s) to be overlaid, material to be used, thickness(es) of the lift(s), and method of placement will be approved by the Engineer.

When an area of deficient pavement is removed and replaced, or additional lifts are placed, the corrected pavement shall be retested for thickness.

When an area of deficient pavement is left in place, and no additional lift(s) are placed, no payment will be made for the deficient pavement.

When the additional cores show the pavement to be at least 90 percent of plan thickness, the additional cores will be paid for according to Article 109.04.

(6) Profile Index Adjustment. After any area of pavement is removed and replaced or any additional lifts are placed, the corrected areas shall be retested for pavement smoothness and any necessary profile index adjustments and/or corrections will be made based on these final profile readings prior to retesting for thickness.

(7) Determination of PWL. The PWL for each lot will be determined as follows.

Definitions:

x_i = Individual values (core lengths) under consideration
n = Number of individual values under consideration (10 per lot)
$\bar{x}$ = Average of the values under consideration
LSL = Lower Specification Limit (98% of plan thickness)
Q_L = Lower Quality Index
S = Sample Standard Deviation
PWL = Percent Within Limits

Determine $\bar{x}$ for the lot to the nearest two decimal places.

Determine S for the lot to the nearest three decimal places using:

$$S = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}} \quad \text{where} \quad \sum (x_i - \bar{x})^2 = (x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \ldots\ldots + (x_{10} - \bar{x})^2$$

Determine Q_L for the lot to the nearest two decimal places using:

$$Q_L = \frac{(\bar{x} - LSL)}{S}$$

Determine PWL for the lot using the Q_L and the following table. For Q_L values less than zero the value shown in the table must be subtracted from 100 to obtain PWL.

(8) Pay Factors. The pay factor (PF) for each lot will be determined, to the nearest two decimal places, using:

PF (in percent) = 55 + 0.5 (PWL)

If $\bar{x}$ for a lot is less than the plan thickness, the maximum PF for that lot shall be 100 percent.

(9) Payment. Payment of incentive or disincentive for pay items subject to the PWL method will be calculated using:

Payment = (((TPF/100)-1) x CUP) x (TOTPAVT - DEFPAVT)

TPF = Total Pay Factor
CUP = Contract Unit Price
TOTPAVT = Area of Pavement Subject to Coring
DEFPAVT = Area of Deficient Pavement

The TPF for the pavement shall be the average of the PF for all the lots; however, the TPF shall not exceed 102 percent.

Area of Deficient pavement (DEFPAVT) is defined as an area of pavement represented by a sublot deficient by more than ten percent which is left in place with no additional thickness added.

Area of Pavement Subject to Coring (TOTPAVT) is defined as those pavement areas included in lots for pavement thickness determination.

PERCENT WITHIN LIMITS							
Quality Index (Q_L)*	Percent Within Limits (PWL)	Quality Index (Q_L)*	Percent Within Limits (PWL)	Quality Index (Q_L)*	Percent Within Limits (PWL)	Quality Index (Q_L)*	Percent Within Limits (PWL)
0.00	50.00	0.40	65.07	0.80	78.43	1.20	88.76
0.01	50.38	0.41	65.43	0.81	78.72	1.21	88.97
0.02	50.77	0.42	65.79	0.82	79.02	1.22	89.17
0.03	51.15	0.43	66.15	0.83	79.31	1.23	89.38
0.04	51.54	0.44	66.51	0.84	79.61	1.24	89.58
0.05	51.92	0.45	66.87	0.85	79.90	1.25	89.79
0.06	52.30	0.46	67.22	0.86	80.19	1.26	89.99
0.07	52.69	0.47	67.57	0.87	80.47	1.27	90.19
0.08	53.07	0.48	67.93	0.88	80.76	1.28	90.38
0.09	53.46	0.49	68.28	0.89	81.04	1.29	90.58
0.10	53.84	0.50	68.63	0.90	81.33	1.30	90.78
0.11	54.22	0.51	68.98	0.91	81.61	1.31	90.96
0.12	54.60	0.52	69.32	0.92	81.88	1.32	91.15
0.13	54.99	0.53	69.67	0.93	82.16	1.33	91.33
0.14	55.37	0.54	70.01	0.94	82.43	1.34	91.52
0.15	55.75	0.55	70.36	0.95	82.71	1.35	91.70
0.16	56.13	0.56	70.70	0.96	82.97	1.36	91.87
0.17	56.51	0.57	71.04	0.97	83.24	1.37	92.04
0.18	56.89	0.58	71.38	0.98	83.50	1.38	92.22
0.19	57.27	0.59	71.72	0.99	83.77	1.39	92.39
0.20	57.65	0.60	72.06	1.00	84.03	1.40	92.56
0.21	58.03	0.61	72.39	1.01	84.28	1.41	92.72
0.22	58.40	0.62	72.72	1.02	84.53	1.42	92.88
0.23	58.78	0.63	73.06	1.03	84.79	1.43	93.05
0.24	59.15	0.64	73.39	1.04	85.04	1.44	93.21
0.25	59.53	0.65	73.72	1.05	85.29	1.45	93.37
0.26	59.90	0.66	74.04	1.06	85.53	1.46	93.52
0.27	60.28	0.67	74.36	1.07	85.77	1.47	93.67
0.28	60.65	0.68	74.69	1.08	86.02	1.48	93.83
0.29	61.03	0.69	75.01	1.09	86.26	1.49	93.98
0.30	61.40	0.70	75.33	1.10	86.50	1.50	94.13
0.31	61.77	0.71	75.64	1.11	86.73	1.51	94.27
0.32	62.14	0.72	75.96	1.12	86.96	1.52	94.41
0.33	62.51	0.73	76.27	1.13	87.20	1.53	94.54
0.34	62.88	0.74	76.59	1.14	87.43	1.54	94.68
0.35	63.25	0.75	76.90	1.15	87.66	1.55	94.82
0.36	63.61	0.76	77.21	1.16	87.88	1.56	94.95
0.37	63.98	0.77	77.51	1.17	88.10	1.57	95.08
0.38	64.34	0.78	77.82	1.18	88.32	1.58	95.20
0.39	64.71	0.79	78.12	1.19	88.54	1.59	95.33

*For Q_L values less than zero, subtract the table value from 100 to obtain PWL

PERCENT WITHIN LIMITS (continued)					
Quality Index (Q_L)*	Percent Within Limits (PWL)	Quality Index (Q_L)*	Percent Within Limits (PWL)	Quality Index (Q_L)*	Percent Within Limits (PWL)
1.60	95.46	2.00	98.83	2.40	99.89
1.61	95.58	2.01	98.88	2.41	99.90
1.62	95.70	2.02	98.92	2.42	99.91
1.63	95.81	2.03	98.97	2.43	99.91
1.64	95.93	2.04	99.01	2.44	99.92
1.65	96.05	2.05	99.06	2.45	99.93
1.66	96.16	2.06	99.10	2.46	99.94
1.67	96.27	2.07	99.14	2.47	99.94
1.68	96.37	2.08	99.18	2.48	99.95
1.69	96.48	2.09	99.22	2.49	99.95
1.70	96.59	2.10	99.26	2.50	99.96
1.71	96.69	2.11	99.29	2.51	99.96
1.72	96.78	2.12	99.32	2.52	99.97
1.73	96.88	2.13	99.36	2.53	99.97
1.74	96.97	2.14	99.39	2.54	99.98
1.75	97.07	2.15	99.42	2.55	99.98
1.76	97.16	2.16	99.45	2.56	99.98
1.77	97.25	2.17	99.48	2.57	99.98
1.78	97.33	2.18	99.50	2.58	99.99
1.79	97.42	2.19	99.53	2.59	99.99
1.80	97.51	2.20	99.56	2.60	99.99
1.81	97.59	2.21	99.58	2.61	99.99
1.82	97.67	2.22	99.61	2.62	99.99
1.83	97.75	2.23	99.63	2.63	100.00
1.84	97.83	2.22	99.66	2.64	100.00
1.85	97.91	2.25	99.68	≥ 2.65	100.00
1.86	97.98	2.26	99.70		
1.87	98.05	2.27	99.72		
1.88	98.11	2.28	99.73		
1.89	98.18	2.29	99.75		
1.90	98.25	2.30	99.77		
1.91	98.31	2.31	99.78		
1.92	98.37	2.32	99.80		
1.93	98.44	2.33	99.81		
1.94	98.50	2.34	99.83		
1.95	98.56	2.35	99.84		
1.96	98.61	2.36	99.85		
1.97	98.67	2.37	99.86		
1.98	98.72	2.38	99.87		
1.99	98.78	2.39	99.88		

*For Q_L values less than zero, subtract the table value from 100 to obtain PWL

(b) Minimum Thickness. The minimum thickness method shall be as follows.

(1) Length of Units. The length of a unit will be a continuous strip of pavement 500 ft (150 m) in length.
(2) Width of Units. The width of a unit will be the width from the pavement edge to the adjacent lane line, from one lane line to the next, or between pavement edges for single-lane pavements.
(3) Thickness Measurements. Pavement thickness will be based on 2 in. (50 mm) diameter cores.

Cores shall be taken from the pavement by the Contractor at locations selected by the Engineer. When determining the thickness of a unit, one core shall be taken in each unit.

The Contractor and the Engineer shall witness the coring operations, as well as the measuring and recording of the cores. Core measurements will be determined immediately upon removal from the core bit and prior to moving to the next core location. Upon concurrence of the length, the core samples may be disposed of according to Article 202.03.

Upon completion of each core, all water shall be removed from the hole and the hole then filled with a rapid hardening mortar or concrete. The material shall be mixed in a separate container, placed in the hole, consolidated by rodding, and struck-off flush with the adjacent pavement.

(4) Unit Deficient in Thickness. In considering any portion of the pavement that is deficient, the entire limits of the unit will be used in computing the deficiency or determining the remedial action required.

(5) Thickness Equals or Exceeds Specified Thickness. When the thickness of a unit equals or exceeds the specified plan thickness, payment will be made at the contract unit price per square yard (square meter) for the specified thickness.

(6) Thickness Deficient by Ten Percent or Less. When the thickness of a unit is less than the specified plan thickness by ten percent or less, a deficiency deduction will be assessed against payment for the item involved. The deficiency will be a percentage of the contract unit price as given in the following table.

Percent Deficiency (of Plan Thickness)	Percent Deduction (of Contract Unit Price)
0.0 to 2.0	0
2.1 to 3.0	20
3.1 to 4.0	28
4.1 to 5.0	32
5.1 to 7.5	43
7.6 to 10.0	50

(7) Thickness Deficient by More than Ten Percent. When a core shows the pavement to be deficient by more than ten percent of plan thickness, additional cores shall be taken on each side of the deficient core, at stations selected by the Contractor and offsets selected by the Engineer, to determine the limits of the deficient pavement. No core shall be located within 5 ft (1.5 m) of a previous core obtained for thickness determination. The first acceptable core obtained on each side of a deficient core will be used to determine the length of the deficient pavement. An acceptable core is a core with a thickness of at least 90 percent of plan thickness. The area of deficient pavement will be defined using the length between two acceptable cores and the full width of the unit. The area of deficient pavement shall be removed and replaced; however, when requested in writing by the Contractor, the Engineer may permit in writing such areas of deficient pavement to remain in place.

For deficient areas allowed to remain in place, additional lift(s) may be placed, at no additional cost to the Department, to bring the deficient pavement to plan thickness when the Engineer determines grade control conditions will permit such lift(s). The area(s) to be overlaid, material to be used, thickness(es) of the lift(s), and method of placement will be approved by the Engineer.

When an area of deficient pavement is removed and replaced, or additional lifts are placed, the corrected pavement shall be retested for thickness. The thickness of the new core will be used to determine the pay factor for the corrected area.

When an area of deficient pavement is left in place, and no additional lift(s) are placed, no payment will be made for the deficient pavement. In addition, an amount equal to two times the contract cost of the deficient pavement will be deducted from the compensation due the Contractor.

The thickness of the first acceptable core on each side of the core more than ten percent deficient will be used to determine any needed pay adjustments for the remaining areas on each side of the area deficient by more than ten percent. The pay adjustment will be determined according to Article 407.10(b)(6).

(8) Right of Discovery. When the Engineer has reason to believe any core location does not accurately represent the true conditions of the work, he/she may order additional cores. These additional cores shall be taken at specific locations determined by the Engineer. The Engineer will provide notice to the Contractor containing an explanation of the reasons for his/her action.

When the additional cores show the pavement to be deficient by more than ten percent of plan thickness, the procedures outlined in Article 407.10(b)(7) shall be followed, except the Engineer will determine the additional core locations.

When the additional cores, ordered by the Engineer, show the pavement to be at least 90 percent of plan thickness, the additional cores will be paid for according to Article 109.04.

(9) Profile Index Adjustment. After any area of pavement is removed and replaced or any additional lifts are added, the corrected areas shall be retested for pavement smoothness and any necessary profile index adjustments and/or corrections will be made based on these final profile readings prior to retesting for thickness."

Revise Article 482.06 of the Standard Specifications to read:

"**482.06 Tolerance in Thickness.** The shoulder shall be constructed to the thickness shown on the plans. When the contract includes square yards (square meters) as the unit of measurement for HMA shoulder, thickness determinations shall be made according to Article 407.10(b)(3) and the following.

(a) Length of the Units. The length of a unit shall be a continuous strip of shoulder 2500 ft (750 m) long.

(b) Width of the Units. The width of the unit shall be the full width of the shoulder.

(c) Thickness Deficient by More than Ten Percent. When a core shows the shoulder to be deficient by more than ten percent of plan thickness, additional cores shall be taken on each side of the deficient core, at stations selected by the Contractor and offsets selected by the Engineer, to determine the limits of the deficient shoulder. No core shall be located within 5 ft (1.5 m) of a previous core obtained for thickness determination. The first acceptable core obtained on each side of a deficient core will be used to determine the length of the deficient shoulder. An acceptable core is a core with a thickness of at least 90 percent of plan thickness. The area of deficient shoulder will be defined using the length between two acceptable cores and the full width of the unit. The area of deficient shoulder shall be brought to specified thickness by the addition of the applicable mixture, at no additional cost to the Department and subject to the lift thickness requirements of Article 312.05, or by removal and replacement with a new mixture. However, the surface elevation of the completed shoulder shall not exceed by more than 1/8 in. (3 mm) the surface elevation of the adjacent pavement. When requested in writing by the Contractor, the Engineer may permit in writing such thin shoulder to remain in place. When an area of thin shoulder is left in place, and no additional lift(s) are placed, no payment will be made for the thin shoulder. In addition, an amount equal to two times the contract unit price of the shoulder will be deducted from the compensation due the Contractor.

When an area of deficient shoulder is removed and replaced, or additional lifts are placed, the corrected pavement shall be retested for thickness.

(d) Right of Discovery. When the Engineer has reason to believe any core location does not accurately represent the true conditions of the work, he/she may order additional cores. When the additional cores, ordered by the Engineer, show the shoulder to be at least 90 percent of plan thickness, the additional cores will be paid for according to Article 109.04. When the additional core shows the shoulder to be less than 90 percent of plan thickness, the procedure in (c), above shall be followed."

Revise Article 483.07 of the Standard Specifications to read:

"**483.07 Tolerance in Thickness.** The shoulder shall be constructed to the thickness shown on the plans. Thickness determinations shall be made according to Article 482.06 except the option of correcting deficient pavement with additional lift(s) shall not apply."

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000 Revised: January 1, 2011

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575.

When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor:

> The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform **21.00%** of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

(a) The bidder documents that enough DBE participation has been obtained to meet the goal; or
(b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders may consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at www.dot.il.gov.

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement. The failure of the bidder to comply will render the bid not responsive.

(a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.

(b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.

(c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The names and addresses of DBE firms that will participate in the contract;

(2) A description, including pay item numbers, of the work each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

(4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;

(5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,

(6) If the contract goal is not met, evidence of good faith efforts.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document the good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work performance to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal.

This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder’s responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm’s price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder’s failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts.

Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons for the determination.

(c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. 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 documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contact. Credit will be given for the following:

    (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

    (2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement.

(e) DBE as a material supplier:

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

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract.

The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal.

(a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.

(b) The Contractor must notify and obtain written approval from the Department's Bureau of Small Business Enterprises prior to replacing a DBE or making any change in the participation of a DBE. Approval for replacement will be granted only if it is demonstrated that the DBE is unable or unwilling to perform. The Contractor must make every good faith effort to find another certified DBE subcontractor to substitute for the original DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the original DBE, to the extent needed to meet the contract goal.

(c) Any deviation from the DBE condition-of-award or contract specifications must be approved, in writing, by the Department. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract.

(d) In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

    (1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or
    (2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or
    (3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonably competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A, must be signed and submitted.

(f) If the commitment of work is in the form of additional tasks assigned to an existing subcontract, than a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(g) All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau of Small Business Enterprises and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau of Small Business Enterprises will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.

(h) The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (j) of this part.

(i) The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

(j) Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages.

A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department.

EQUIPMENT RENTAL RATES (BDE)
Effective: August 2, 2007 Revised: January 2, 2008

Replace the second and third paragraphs of Article 105.07(b)(4)a. of the Standard Specifications with the following:

"Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4)."

Replace Article 109.04(b)(4) of the Standard Specifications with the following:

"(4) Equipment. Equipment used for extra work shall be authorized by the Engineer. The equipment shall be specifically described, be of suitable size and capacity for the work to be performed, and be in good operating condition. For such equipment, the Contractor will be paid as follows.

a. Contractor Owned Equipment. Contractor owned equipment will be paid for by the hour using the applicable FHWA hourly rate from the "Equipment Watch Rental Rate Blue Book" (Blue Book) in effect when the force account work begins. The FHWA hourly rate is calculated as follows.

FHWA hourly rate = (monthly rate/176) x (model year adj.) x (Illinois adj.) + EOC

Where: EOC = Estimated Operating Costs per hour (from the Blue Book)

The time allowed will be the actual time the equipment is operating on the extra work. For the time required to move the equipment to and from the site of the extra work and any authorized idle (standby) time, payment will be made at the following hourly rate: 0.5 x (FHWA hourly rate - EOC).

All time allowed shall fall within the working hours authorized for the extra work.

The rates above include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, overhaul and maintenance of any kind, depreciation, storage, overhead, profits, insurance, and all incidentals. The rates do not include labor.

The Contractor shall submit to the Engineer sufficient information for each piece of equipment and its attachments to enable the Engineer to determine the proper equipment category. If a rate is not established in the Blue Book for a particular piece of equipment, the Engineer will establish a rate for that piece of equipment that is consistent with its cost and use in the industry.

b. Rented Equipment. Whenever it is necessary for the Contractor to rent equipment to perform extra work, the rental and transportation costs of the equipment plus five percent for overhead will be paid. In no case shall the rental rates exceed those of established distributors or equipment rental agencies.

All prices shall be agreed to in writing before the equipment is used."

FRICTION AGGREGATE (BDE)
Effective: January 1, 2011

Revise Article 1004.01(a)(4) of the Standard Specifications to read:

"(4) Crushed Stone. Crushed stone shall be the angular fragments resulting from crushing undisturbed, consolidated deposits of rock by mechanical means. Crushed stone shall be divided into the following, when specified.

a. Carbonate Crushed Stone. Carbonate crushed stone shall be either dolomite or limestone. Dolomite shall contain 11.0 percent or more magnesium oxide (MgO). Limestone shall contain less than 11.0 percent magnesium oxide (MgO).
b. Crystalline Crushed Stone. Crystalline crushed stone shall be either metamorphic or igneous stone, including but is not limited to, quartzite, granite, rhyolite and diabase."

Revise Article 1004.03(a) of the Standard Specifications to read:

"**1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA).** The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	Allowed Alone or in Combination: Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA All Other	Stabilized Subbase or Shoulders	Allowed Alone or in Combination: Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag[1/] Crushed Concrete

<table>
<tr><th>Use</th><th>Mixture</th><th>Aggregates Allowed</th></tr>
<tr><td>HMA
High ESAL
Low ESAL</td><td>Binder
IL-25.0, IL-19.0,
or IL-19.0L

SMA Binder</td><td><u>Allowed Alone or in Combination:</u>

Crushed Gravel
Carbonate Crushed Stone[2/]
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Concrete[3/]</td></tr>
<tr><td>HMA
High ESAL
Low ESAL</td><td>C Surface and Leveling Binder
IL-12.5,IL-9.5,
or IL-9.5L

SMA
Ndesign 50 Surface</td><td><u>Allowed Alone or in Combination:</u>

Crushed Gravel
Carbonate Crushed Stone[2/]
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag[4/]
Crushed Concrete[3/]</td></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">D Surface and Leveling Binder
IL-12.5 or
IL-9.5

SMA
Ndesign 50
Surface</td><td><u>Allowed Alone or in Combination:</u>

Crushed Gravel
Carbonate Crushed Stone (other than Limestone)[2/]
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)[5/]
Crushed Steel Slag[4/ 5/]
Crushed Concrete[3/]</td></tr>
<tr><td><u>Other Combinations Allowed:</u>

<table><tr><th>Up to...</th><th>With...</th></tr><tr><td>25% Limestone</td><td>Dolomite</td></tr><tr><td>50% Limestone</td><td>Any Mixture D aggregate other than Dolomite</td></tr><tr><td>75% Limestone</td><td>Crushed Slag (ACBF)[5/] or Crushed Sandstone</td></tr></table></td></tr>
<tr><td>HMA
High ESAL</td><td>E Surface
IL-12.5 or
IL-9.5

SMA
Ndesign 80
Surface</td><td><u>Allowed Alone or in Combination:</u>

Crushed Gravel
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)[5/]
Crushed Steel Slag[5/]
Crushed Concrete[3/]

No Limestone.</td></tr>
</table>

		Other Combinations Allowed:	
		Up to...	*With...*
		50% Dolomite[2/]	Any Mixture E aggregate
		75% Dolomite[2/]	Crushed Sandstone, Crushed Slag (ACBF)[5/], Crushed Steel Slag[5/], or Crystalline Crushed Stone
		75% Crushed Gravel or Crushed Concrete[3/]	Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF)[5/], or Crushed Steel Slag[5/]
HMA High ESAL	F Surface IL-12.5 or IL-9.5 SMA Ndesign 80 Surface	Allowed Alone or in Combination: Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF)[5/] Crushed Steel Slag[5/] No Limestone.	
		Other Combinations Allowed:	
		Up to...	*With...*
		50% Crushed Gravel, Crushed Concrete[3/], or Dolomite[2/]	Crushed Sandstone, Crushed Slag (ACBF)[5/], Crushed Steel Slag[5/], or Crystalline Crushed Stone

1/ Crushed steel slag allowed in shoulder surface only.
2/ Carbonate crushed stone shall not be used in SMA Ndesign 80. In SMA Ndesign 50, carbonate crushed stone shall not be blended with any of the other aggregates allowed alone in Ndesign 50 SMA binder or Ndesign 50 SMA surface.
3/ Crushed concrete will not be permitted in SMA mixes.
4/ Crushed steel slag shall not be used as leveling binder.
5/ When either slag is used, the blend percentages listed shall be by volume."

HMA - HAULING ON PARTIALLY COMPLETED FULL-DEPTH PAVEMENT (BDE)
Effective: January 1, 2008

Revise Article 407.08 of the Standard Specifications to read:

"**407.08 Hauling on the Partially Completed Full-Depth Pavement.** Legally loaded trucks will be permitted on the partially completed full-depth HMA pavement only to deliver HMA mixture to the paver, provided the last lift has cooled a minimum of 12 hours. Hauling shall be limited to the distances shown in the following tables.

The pavement surface temperature shall be measured using an infrared gun. The use of water to cool the pavement to permit hauling will not be allowed. The Contractor's traffic pattern shall minimize hauling on the partially completed pavement and shall vary across the width of the pavement such that "tracking" of vehicles, one directly behind the other, does not occur.

MAXIMUM HAULING DISTANCE FOR PAVEMENT SURFACE TEMPERATURE BELOW 105 ºF (40 ºC)				
Total In-Place Thickness Being Hauled On, in. (mm)	Thickness of Lift Being Placed			
	3 in. (75 mm) or less		More than 3 in. (75 mm)	
	Modified Soil Subgrade	Granular Subbase	Modified Soil Subgrade	Granular Subbase
3.0 to 4.0 (75 to 100)	0.75 miles (1200 m)	1.0 mile (1600 m)	0.50 miles (800 m)	0.75 miles (1200 m)
4.1 to 5.0 (101 to 125)	1.0 mile (1600 m)	1.5 miles (2400 m)	0.75 miles (1200 m)	1.0 mile (1600 m)
5.1 to 6.0 (126 to 150)	2.0 miles (3200 m)	2.5 miles (4000 m)	1.5 miles (2400 m)	2.0 miles (3200 m)
6.1 to 8.0 (151 to 200)	2.5 miles (4000 m)	3.0 miles (4800 m)	2.0 miles (3200 m)	2.5 miles (4000 m)
Over 8.0 (200)	No Restrictions			

MAXIMUM HAULING DISTANCE FOR PAVEMENT SURFACE TEMPERATURE OF 105 ºF (40 ºC) AND ABOVE				
Total In-Place Thickness Being Hauled On, in. (mm)	Thickness of Lift Being Placed			
	3 in. (75 mm) or less		More than 3 in. (75 mm)	
	Modified Soil Subgrade	Granular Subbase	Modified Soil Subgrade	Granular Subbase
3.0 to 4.0 (75 to 100)	0.50 miles (800 m)	0.75 miles (1200 m)	0.25 miles (400 m)	0.50 miles (800 m)
4.1 to 5.0 (101 to 125)	0.75 miles (1200 m)	1.0 mile (1600 m)	0.50 miles (800 m)	0.75 miles (1200 m)
5.1 to 6.0 (126 to 150)	1.0 mile (1600 m)	1.5 miles (2400 m)	0.75 miles (1200 m)	1.0 mile (1600 m)
6.1 to 8.0 (151 to 200)	2.0 miles (3200 m)	2.5 miles (4000 m)	1.5 miles (2400 m)	2.0 miles (3200 m)
Over 8.0 (200)	No Restrictions			

Permissive hauling on the partially completed pavement shall not relieve the Contractor of his/her responsibility for damage to the pavement. Any portion of the full-depth HMA pavement that is damaged by hauling shall be removed and replaced, or otherwise repaired to the satisfaction of the Engineer.

Crossovers used to transfer haul trucks from one roadway to the other shall be at least 1000 ft (300 m) apart and shall be constructed of material that will prevent tracking of dust or mud on the completed HMA lifts. The Contractor shall construct, maintain, and remove all crossovers."

HOT-MIX ASPHALT – ANTI-STRIPPING ADDITIVE (BDE)
Effective: November 1, 2009

Revise the first and second paragraphs of Article 1030.04(c) of the Standard Specifications to read:

"(c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283. To be considered acceptable by the Department as a mixture not susceptible to stripping, the conditioned to unconditioned split tensile strength ratio (TSR) shall be equal to or greater than 0.85 for 6 in. (150 mm) specimens. Mixtures, either with or without an additive, with TSRs less than 0.85 for 6 in. (150 mm) specimens will be considered unacceptable. Also, the conditioned tensile strength for mixtures containing an anti-strip additive shall not be lower than the original conditioned tensile strength determined for the same mixture without the anti-strip additive.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option."

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)
Effective: January 1, 2010

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

"Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 2 in. (50 mm), from each pavement edge. (i.e. for a 4 in. (100 mm) lift the near edge of the density gauge or core barrel shall be within 4 in. (100 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.

b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced ten feet apart longitudinally along the unconfined pavement edge and centered at the random density test location."

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

"Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-9.5, IL-12.5	Ndesign ≥ 90	92.0 – 96.0%	90.0%
IL-9.5,IL-9.5L, IL-12.5	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0, IL-25.0	Ndesign ≥ 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L, IL-25.0	Ndesign < 90	93.0 – 97.4%	90.0%
SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%
All Other	Ndesign = 30	93.0 - 97.4%	90.0%"

HOT-MIX ASPHALT – DROP-OFFS (BDE)
Effective: January 1, 2010

Revise the third paragraph of Article 701.07 of the Standard Specifications to read:

"At locations where construction operations result in a differential in elevation exceeding 3 in. (75 mm) between the edge of pavement or edge of shoulder within 3 ft (900 mm) of the edge of the pavement and the earth or aggregate shoulders, Type I or II barricades or vertical panels shall be placed at 100 ft (30 m) centers on roadways where the posted speed limit is 45 mph or greater and at 50 ft (15 m) centers on roadways where the posted speed limit is less than 45 mph."

IMPACT ATTENUATORS, TEMPORARY (BDE)
Effective: November 1, 2003 Revised: January 1, 2007

Description. This work shall consist of furnishing, installing, maintaining, and removing temporary impact attenuators of the category and test level specified.

Materials. Materials shall meet the requirements of the impact attenuator manufacturer and the following:

Item	Article/Section
(a) Fine Aggregate (Note 1)	003.01
(b) Steel Posts, Structural Shapes, and Plates	1006.04
(c) Rail Elements, End Section Plates, and Splice Plates	1006.25
(d) Bolts, Nuts, Washers and Hardware	1006.25
(e) Hollow Structural Tubing	1006.27(b)
(f) Wood Posts and Wood Blockouts	1007.01, 1007.02, 1007.06
(g) Preservative Treatment	1007.12
(h) Packaged Rapid Hardening Mortar	1018.01

Note 1. Fine aggregate shall be FA 1 or FA 2, Class A quality. The sand shall be unbagged and shall have a maximum moisture content of five percent.

CONSTRUCTION REQUIREMENTS

General. Impact Attenuators shall meet the testing criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350 for the test level specified and shall be on the Department's approved list.

Installation. Regrading of slopes or approaches for the installation shall be as shown on the plans.

Attenuator bases, when required by the manufacturer, shall be constructed on a prepared subgrade according to the manufacturer's specifications. The surface of the base shall be slightly sloped or crowned to facilitate drainage.

Impact attenuators shall be installed according to the manufacturer's specifications and include all necessary transitions between the impact attenuator and the item to which it is attached.

When water filled attenuators are used between November 1 and April 15, they shall contain anti-freeze according to the manufacturer's recommendations.

Markings. Sand module impact attenuators shall be striped with alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes. There shall be at least two of each stripe on each module.

Other types of impact attenuators shall have a terminal marker applied to their nose and reflectors along their sides.

Maintenance. All maintenance of the impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer.

Relocate. When relocation of temporary impact attenuators is specified, they shall be removed, relocated and reinstalled at the new location. The reinstallation requirements shall be the same as those for a new installation.

Removal. When the Engineer determines the temporary impact attenuators are no longer required, the installation shall be dismantled with all hardware becoming the property of the Contractor.

Surplus material shall be disposed of according to Article 202.03. Anti-freeze, when present, shall be disposed of/recycled according to local ordinances.

When impact attenuators have been anchored to the pavement, the anchor holes shall be repaired with rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

Basis of Payment. This work will be paid for at the contract unit price per each for IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, WIDE); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, RESETTABLE); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, NARROW); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, WIDE); or IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) of the test level specified.

Relocation of the devices will be paid for at the contract unit price per each for IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE); IMPACT ATTENUATORS, RELOCATE (SEVERE USE); or IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE); of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

LIQUIDATED DAMAGES (BDE)
Effective: April 1, 2009

Revise the table in Article 108.09 of the Standard Specifications to read:

"Schedule of Deductions for Each Day of Overrun in Contract Time			
Original Contract Amount		Daily Charges	
From More Than	To and Including	Calendar Day	Work Day
$ 0	$ 100,000	$ 375	$ 500
100,000	500,000	625	875
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,125	1,550
3,000,000	5,000,000	1,425	1,950
5,000,000	10,000,000	1,700	2,350
10,000,000	And over	3,325	4,650"

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM / EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)
Effective: April 1, 2007 Revised: November 1, 2009

Revise Article 105.03(a) of the Standard Specifications to read:

"(a) National Pollutant Discharge Elimination System (NPDES) / Erosion and Sediment Control Deficiency Deduction When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, or the Contractor's activities represents a violation of the Department's NPDES permits, the Engineer will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from 1/2 hour to 1 week based on the urgency of the situation and the nature of the work effort required. The Engineer will be the sole judge.

A deficiency may be any lack of repair, maintenance, or implementation of erosion and/or sediment control devices included in the contract, or any failure to comply with the conditions of the Department's NPDES permits. A deficiency may also be applied to situations where corrective action is not an option such as the failure to participate in a jobsite inspection of the project, failure to install required measures prior to initiating earth moving operations, disregard of concrete washout requirements, or other disregard of the NPDES permit.

If the Contractor fails to correct a deficiency within the specified time, a daily monetary deduction will be imposed for each calendar day or portion of a calendar day until the deficiency is corrected to the satisfaction of the Engineer.

The calendar day(s) will begin with notification to the Contractor and end with the Engineer's acceptance of the correction. The base value of the daily monetary deduction is $1000.00 and will be applied to each location for which a deficiency exists. The value of the deficiency deduction assessed for each infraction will be determined by multiplying the base value by a Gravity Adjustment Factor provided in Table A. Except for failure to participate in a required jobsite inspection of the project prior to initiating earthmoving operations which will be based on the total acreage of planned disturbance at the following multipliers: <5 Acres: 1; 5-10 Acres: 2; >10-25 Acres: 3; >25 Acres: 5. For those deficiencies where corrective action was not an option, the monetary deduction will be immediate and will be valued at one calendar day multiplied by a Gravity Adjustment Factor.

Table A
Deficiency Deduction Gravity Adjustment Factors

Types of Violations	Soil Disturbed and Not Permanently Stabilized At Time of Violation			
	< 5 Acres	5 - 10 Acres	>10 - 25 Acres	> 25 Acres
Failure to Install or Properly Maintain BMP	0.1 - 0.5	0.2 - 1.0	0.5 - 2.5	1.0 - 5
Careless Destruction of BMP	0.2 - 1	0.5 - 2.5	1.0 - 5.	1.0 - 5
Intrusion into Protected Resource	1.0 - 5	1.0 - 5	2.0 - 10	2.0 - 10
Failure to properly manage Chemicals, Concrete Washouts or Residuals, Litter or other Wastes	0.2 - 1	0.2 - 1	0.5 - 2.5	1.0 - 5
Improper Vehicle and Equipment Maintenance, Fueling or Cleaning	0.1 - 0.5	0.2 - 1	0.2 - 1	0.5 - 2.5
Failure to Provide or Update Written or Graphic Plans Required by SWPPP	0.2 - 1	0.5 - 2.5	1.0 - 5	1.0 - 5
Failure to comply with Other Provisions of the NPDES Permit	0.1 - 0.5	0.2 - 1	0.2 - 1	0.5 - 2.5"

PAVEMENT MARKING REMOVAL (BDE)
Effective: April 1, 2009

Add the following to the end of the first paragraph of Article 783.03(a) of the Standard Specifications:

"The use of grinders will not be allowed on new surface courses."

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.

PIPE CULVERTS (BDE)
Effective: April 1, 2009 Revised: April 1, 2010

Revise Tables IIIA, IIIB, and IIIC of Article 542.03 of the Standard Specifications to read:

"PIPE CULVERT TABLE IIIA

PLASTIC PIPE PERMITTED FOR A GIVEN PIPE DIAMETER
AND FILL HEIGHT OVER THE TOP OF THE PIPE

Nom. Dia.	Type 1 Fill Height: 3' and less with 1' minimum cover							Type 2 Fill Height: Greater than 3', not exceeding 10'						
in.	PVC	CPVC	PVCPW -794	PVCPW -304	PE	CPE	PEPW	PVC	CPVC	PVCPW -794	PVCPW -304	PE	CPE	PEPW
10	X	NA	NA	NA	X	NA	NA	X	*	NA	NA	X	NA	NA
12	X	X	X	X	X	X	NA	X	X	X	X	X	X	NA
15	X	X	X	X	X	X	NA	X	X	X	X	X	X	NA
18	X	X	X	X	X	X	X	X	X	X	X	X	X	X
21	X	X	X	X	NA	NA	X	X	X	X	X	NA	NA	X
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X
30	X	X	X	X	X	X	X	X	X	X	X	X	X	X
36	X	X	X	X	X	X	X	X	X	X	X	X	X	X
42	NA	NA	X	X	X	X	X	NA	NA	X	X	X	X	X
48	NA	NA	X	X	X	X	X	NA	NA	X	X	X	X	X

PIPE CULVERT TABLE IIIA (metric)

PLASTIC PIPE PERMITTED FOR A GIVEN PIPE DIAMETER
AND FILL HEIGHT OVER THE TOP OF THE PIPE

Nom. Dia.	Type 1 Fill Height: 1 m and less with 0.3 m minimum cover							Type 2 Fill Height: Greater than 1 m, not exceeding 3 m						
mm	PVC	CPVC	PVCPW -794	PVCPW -304	PE	CPE	PEPW	PVC	CPVC	PVCPW -794	PVCPW -304	PE	CPE	PEPW
250	X	NA	NA	NA	X	NA	NA	X	*	NA	NA	X	NA	NA
300	X	X	X	X	X	X	NA	X	X	X	X	X	X	NA
375	X	X	X	X	X	X	NA	X	X	X	X	X	X	NA
450	X	X	X	X	X	X	X	X	X	X	X	X	X	X
525	X	X	X	X	NA	NA	X	X	X	X	X	NA	NA	X
600	X	X	X	X	X	X	X	X	X	X	X	X	X	X
750	X	X	X	X	X	X	X	X	X	X	X	X	X	X
900	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1000	NA	NA	X	X	X	X	X	NA	NA	X	X	X	X	X
1200	NA	NA	X	X	X	X	X	NA	NA	X	X	X	X	X

PVC	Polyvinyl Chloride (PVC) Pipe
CPVC	Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
PVCPW-794	Polyvinyl Chloride (PVC) Profile Wall Pipe-794
PVCPW-304	Polyvinyl Chloride (PVC) Profile Wall Pipe-304
PE	Polyethylene (PE) Pipe with a Smooth Interior
CPE	Corrugated Polyethylene (PE) Pipe with a Smooth Interior
PEPW	Polyethylene (PE) Profile Wall Pipe
X	This material may be used for the given pipe diameter and fill height.
NA	This material is Not Acceptable for the given pipe diameter and fill height.
*	May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification.

PIPE CULVERT TABLE IIIB

PLASTIC PIPE PERMITTED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE

Nom. Dia.	Type 3 Fill Height: Greater than 10', not exceeding 15'						Type 4 Fill Height: Greater than 15', not exceeding 20'				
in.	PVC	CPVC	PVCPW -794	PVCPW -304	PE	PEPW	PVC	CPVC	PVCPW -794	PVCPW -304	
10	X	*	NA	NA	X	NA	X	*	NA	NA	
12	X	X	X	X	X	NA	X	X	X	X	
15	X	X	X	X	X	NA	X	X	X	X	
18	X	X	X	X	X	X	X	X	X	X	
21	X	X	X	X	NA	X	X	X	X	X	
24	X	X	X	X	X	X	X	X	X	X	
30	X	X	X	X	X	X	X	X	X	X	
36	X	X	X	X	X	X	X	X	X	X	
42	NA	NA	X	X	X	X	NA	NA	X	X	
48	NA	NA	X	X	X	X	NA	NA	X	X	

PIPE CULVERT TABLE IIIB (metric)

PLASTIC PIPE PERMITTED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE

Nom. Dia.	Type 3 Fill Height: Greater than 3 m, not exceeding 4.5 m						Type 4 Fill Height: Greater than 4.5 m, not exceeding 6 m				
mm	PVC	CPVC	PVCPW -794	PVCPW -304	PE	PEPW	PVC	CPVC	PVCPW -794	PVCPW -304	
250	X	*	NA	NA	X	NA	X	*	NA	NA	
300	X	X	X	X	X	NA	X	X	X	X	
375	X	X	X	X	X	NA	X	X	X	X	
450	X	X	X	X	X	X	X	X	X	X	
525	X	X	X	X	NA	X	X	X	X	X	
600	X	X	X	X	X	X	X	X	X	X	
750	X	X	X	X	X	X	X	X	X	X	
900	X	X	X	X	X	X	X	X	X	X	
1000	NA	NA	X	X	X	X	NA	NA	X	X	
1200	NA	NA	X	X	X	X	NA	NA	X	X	

PVC	Polyvinyl Chloride (PVC) Pipe
CPVC	Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
PVCPW-794	Polyvinyl Chloride (PVC) Profile Wall Pipe-794
PVCPW-304	Polyvinyl Chloride (PVC) Profile Wall Pipe-304
PE	Polyethylene (PE) Pipe with a Smooth Interior
PEPW	Polyethylene (PE) Profile Wall Pipe
X	This material may be used for the given pipe diameter and fill height.
NA	This material is Not Acceptable for the given pipe diameter and fill height.
*	May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification.

PIPE CULVERT TABLE IIIC

PLASTIC PIPE PERMITTED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE

Nom. Dia.	Type 5 Fill Height: Greater Than 20', not exceeding 25'				Type 6 Fill Height: Greater than 25', not exceeding 30'				Type 7 Fill Height: Greater than 30', not exceeding 35'	
in.	PVC	CPVC	PVCPW -794	PVCPW -304	PVC	CPVC	PVCPW -794	PVCPW -304	PVC	
10	X	*	NA	NA	X	*	NA	NA	X	
12	X	X	X	X	X	X	X	X	X	
15	X	X	X	X	X	NA	NA	NA	X	
18	X	X	X	X	X	NA	NA	NA	X	
21	X	X	X	X	X	NA	NA	NA	X	
24	X	X	X	X	X	NA	NA	NA	X	
30	X	NA	NA	NA	X	NA	NA	NA	X	
36	X	NA	NA	NA	X	NA	NA	NA	X	
42	NA	NA	NA	NA	NA	NA	NA	NA	NA	
48	NA	NA	NA	NA	NA	NA	NA	NA	NA	

PIPE CULVERT TABLE IIIC (metric)

PLASTIC PIPE PERMITTED FOR A GIVEN PIPE DIAMETER AND FILL HEIGHT OVER THE TOP OF THE PIPE

Nom. Dia.	Type 5 Fill Height: Greater Than 6 m, not exceeding 7.5 m				Type 6 Fill Height: Greater Than 7.5 m, not exceeding 9 m				Type 7 Fill Height: Greater Than 9 m, not exceeding 10.5 m	
mm	PVC	CPVC	PVCPW -794	PVCPW -304	PVC	CPVC	PVCPW -794	PVCPW -304	PVC	
250	X	*	NA	NA	X	*	NA	NA	X	
300	X	X	X	X	X	X	X	X	X	
375	X	X	X	X	X	NA	NA	NA	X	
450	X	X	X	X	X	NA	NA	NA	X	
525	X	X	X	X	X	NA	NA	NA	X	
600	X	X	X	X	X	NA	NA	NA	X	
750	X	NA	NA	NA	X	NA	NA	NA	X	
900	X	NA	NA	NA	X	NA	NA	NA	X	
1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	
1200	NA	NA	NA	NA	NA	NA	NA	NA	NA	

PVC	Polyvinyl Chloride (PVC) Pipe
CPVC	Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior
PVCPW-794	Polyvinyl Chloride (PVC) Profile Wall Pipe-794
PVCPW-304	Polyvinyl Chloride (PVC) Profile Wall Pipe-304
X	This material may be used for the given pipe diameter and fill height.
NA	This material is Not Acceptable for the given pipe diameter and fill height.
*	May be used if Bureau of Materials and Physical Research approves and with manufacturer's certification."

Add the following paragraph to the end of Article 542.04(d) of the Standard Specifications:

"PVC and PE pipes shall be joined according to the manufacturer's specifications."

Revise the second paragraph of Article 542.04(f) of the Standard Specifications to read:

"When using flexible pipe, as listed in the first table of Article 542.03, the aggregate shall be continued to a height of at least 1 ft (300 mm) above the top of the pipe and compacted to a minimum of 95 percent of standard lab density by mechanical means."

Revise the first paragraph of Article 542.04(i) of the Standard Specifications to read:

"(i) Deflection Testing for Pipe Culverts. All PE and PVC pipe culverts shall be tested for deflection not less than 30 days after the pipe is installed and the backfill compacted. The testing shall be performed in the presence of the Engineer."

Revise the ninth paragraph of Article 542.11 of the Standard Specifications to read:

"End sections for polyvinylchloride (PVC) and polyethylene (PE) culvert pipes will be paid for at the contract unit price per each for METAL END SECTIONS, of the diameter specified."

Revise Article 1040.04(b) of the Standard Specifications to read:

"(b) Corrugated PE Pipe with a Smooth Interior. The pipe shall be according to AASHTO M 294 (nominal size – 12 to 48 in. (300 to 1200 mm)). The pipe shall be Type S or D."

Revise the first paragraph of Article 1040.04(c) of the Standard Specifications to read:

"(c) PE Profile Wall Pipe. The pipe shall be according to ASTM F 894 and shall have a minimum ring stiffness constant of 160. The pipe shall also have a minimum cell classification of PE 334433C as defined in ASTM D 3350."

POST MOUNTING OF SIGNS (BDE)
Effective: January 1, 2011

Revise the second paragraph of Article 701.14 of the Standard Specifications to read:

"Post mounted signs shall be a breakaway design. The sign shall be within five degrees of vertical. Two posts shall be used for signs greater than 16 sq ft (1.5 sq m) in area or where the height between the sign and the ground exceeds 7 ft (2.1 m)."

PRECAST CONCRETE HANDLING HOLES (BDE)
Effective: January 1, 2007

Add the following to Article 540.02 of the Standard Specifications:

"(g) Handling Hole Plugs 1042.16"

Add the following paragraph after the sixth paragraph of Article 540.06 of the Standard Specifications:

"Handling holes shall be filled with a precast concrete plug and sealed with mastic or mortar, or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation. When metal lifting inserts are used, their sockets shall be filled with mastic or mortar."

Add the following to Article 542.02 of the Standard Specifications:

"(ee) Handling Hole Plugs 1042.16"

Revise the fifth paragraph of Article 542.04(d) of the Standard Specifications to read:

"Handling holes in concrete pipe shall be filled with a precast concrete plug and sealed with mastic or mortar; or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation."

Add the following to Article 550.02 of the Standard Specifications:

"(o) Handling Hole Plugs 1042.16"

Replace the fourth sentence of the fifth paragraph of Article 550.06 of the Standard Specifications with the following:

"Handling holes in concrete pipe shall be filled with a precast concrete plug and sealed with mastic or mortar; or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation."

Add the following to Article 602.02 of the Standard Specifications:

"(p) Handling Hole Plugs 1042.16(a)"

Replace the fifth sentence of the first paragraph of Article 602.07 of the Standard Specifications with the following:

"Handling holes shall be filled with a precast concrete plug and sealed with mastic or mortar. The plug shall not project beyond the inside surface after installation. When metal lifting inserts are used, their sockets shall be filled with mastic or mortar."

Add the following to Section 1042 of the Standard Specifications:

"**1042.16 Handling Hole Plugs.** Plugs for handling holes in precast concrete products shall be as follows.

(a) Precast Concrete Plug. The precast concrete plug shall have a tapered shape and shall have a minimum compressive strength of 3000 psi (20,700 kPa) at 28 days.

(b) Polyethylene Plug. The polyethylene plug shall have a "mushroom" shape with a flat round top and a stem with three different size ribs. The plug shall fit snuggly and cover the handling hole.

The plug shall be according to the following.

Mechanical Properties	Test Method	Value (min.)
Flexural Modulus	ASTM D 790	3300 psi (22,750 kPa)
Tensile Strength (Break)	ASTM D 638	1600 psi (11,030 kPa)
Tensile Strength (Yield)	ASTM D 638	1200 psi (8270 kPa)

Thermal Properties	Test Method	Value (min.)
Brittle Temperature	ASTM D 746	-49 ºF (-45 ºC)
Vicat Softening Point	ASTM D 1525	194 ºF (90 ºC)"

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 547 W. Jackson Blvd. Chicago, IL 60661	58 trains daily 70 MPH	40 trains daily 50 MPH (max)

DOT/AAR No.: 372184D RR Mile Post: 22.0
RR Division: Milwaukee Dist. West Line RR Sub-Division: Elgin Subdivision

For Freight/Passenger Information Contact: Kerry Brunette Phone: 312-322-6991
For Insurance Information Contact: Kerry Brunette Phone: 312-322-6991

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.

RAISED REFLECTIVE PAVEMENT MARKERS (BDE)
Effective: November 1, 2009 Revised: April 1, 2010

Revise the first sentence of the second paragraph of Article 781.03(a) of the Standard Specifications to read:

"The pavement shall be cut to match the bottom contour of the marker using a concrete saw fitted with 18 and 20 in. (450 and 500 mm) diameter blades."

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)
Effective: July 1, 2004 Revised: July 1, 2010

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for precast concrete products.

Materials. Materials shall be according to Section 1021 of the Standard Specifications.

Mix Design Criteria. The mix design criteria shall be as follows:

(a) The minimum cement factor shall be according to Article 1020.04 of the Standard Specifications. If the maximum cement factor is not specified, it shall not exceed 7.05 cwt/cu yd (418 kg/cu m).

(b) The maximum allowable water/cement ratio shall be according to Article 1020.04 of the Standard Specifications or 0.44, whichever is lower.

(c) The slump requirements of Article 1020.04 of the Standard Specifications shall not apply.

(d) The coarse aggregate gradations shall be CA 13, CA 14, CA 16, or a blend of these gradations. CA 11 may be used when the Contractor provides satisfactory evidence to the Engineer that the mix will not segregate. The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used.

(e) The slump flow range shall be ± 2 in. (± 50 mm) of the Contractor target value, and within the overall Department range of 20 in. (510 mm) minimum to 28 in. (710 mm) maximum.

(f) The visual stability index shall be a maximum of 1.

(g) The J-ring value shall be a maximum of 4 in. (100 mm). The Contractor may specify a lower maximum in the mix design.

(h) The L-box blocking ratio shall be a minimum of 60 percent. The Contractor may specify a higher minimum in the mix design.

(i) The hardened visual stability index shall be a maximum of 1.

Mixing Portland Cement Concrete. In addition to Article 1020.11 of the Standard Specifications, the mixing time for central-mixed concrete shall not be reduced as a result of a mixer performance test. Truck-mixed or shrink-mixed concrete shall be mixed in a truck mixer for a minimum of 100 revolutions.

Wash water, if used, shall be completely discharged from the drum or container before the succeeding batch is introduced.

The batch sequence, mixing speed, and mixing time shall be appropriate to prevent cement balls and mix foaming for central-mixed, truck-mixed, and shrink-mixed concrete.

Placing and Consolidating. The maximum distance of horizontal flow from the point of deposit shall be 25 ft (7.6 m), unless approved otherwise by the Engineer.

Concrete shall be rodded with a piece of lumber, conduit, or vibrator if the material has lost its fluidity prior to placement of additional concrete. The vibrator shall be the pencil head type with a maximum diameter or width of 1 in. (25 mm). Any other method for restoring the fluidity of the concrete shall be approved by the Engineer.

Mix Design Approval. The Contractor shall obtain mix design approval according to the Department's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products".

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)
Effective: April 2, 2005

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting in accordance with Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

TEMPORARY EROSION CONTROL (BDE)
Effective: November 1, 2002 Revised: January 1, 2011

Add the following to Article 280.02 of the Standard Specifications to read:

"(k) Filter Fabric 1080.03
(l) Urethane Foam/Geotextile ..... 1081.15(i)"

Revise the third paragraph of Article 280.03 of the Standard Specifications to read:

"Erosion control systems shall be installed prior to beginning any activities which will potentially create erodible conditions. Erosion control systems for areas outside the limits of construction such as storage sites, plant sites, waste sites, haul roads, and Contractor furnished borrow sites shall be installed prior to beginning soil disturbing activities at each area.

These offsite systems shall be designed by the Contractor and be subject to the approval of the Engineer."

Add the following paragraph after the third paragraph of Article 280.03 of the Standard Specifications:

"The temporary erosion and sediment control systems shown on the plans represent the minimum systems anticipated for the project. Conditions created by the Contractor's operations, or for the Contractor's convenience, which are not covered by the plans, shall be protected as directed by the Engineer at no additional cost to the Department. Revisions or modifications of the erosion and sediment control systems shall have the Engineer's written approval."

Revise Article 280.04(a) of the Standard Specifications to read:

"(a) Temporary Ditch Checks. This system consists of the construction of temporary ditch checks to prevent siltation, erosion, or scour of ditches and drainage ways. Temporary ditch checks shall be constructed with products from the Department's approved list, rolled excelsior, or with aggregate placed on filter fabric when specified. Filter fabric shall be installed according to the requirements of Section 282. Riprap shall be placed according to Article 281.04. Manufactured ditch checks shall be installed according to the manufacturer's specifications. Spacing of ditch checks shall be such that the low point in the center of one ditch check is at the same elevation as the base of the ditch check immediately upstream. Temporary ditch checks shall be sufficiently long enough that the top of the device in the middle of the ditch is 6 in. (150 mm) lower than the bottom of the terminating ends of the ditch side slopes.

When rolled excelsior is used, each ditch check shall be installed and maintained such that the device is no less than 10 in. (250 mm) high at the point of overflow. Units installed at a spacing requiring a height greater than 10 in. (250 mm) shall be maintained at the height for the spacing at which they were originally installed."

Revise the last sentence of the first paragraph Article 280.04(b) of the Standard Specifications to read:

"The barrier shall be constructed with rolled excelsior, silt filter fence, or urethane foam/geotextiles."

Revise the last sentence of the first paragraph of Article 280.04(g) of the Standard Specifications to read:

"The temporary mulch cover shall be installed according to Article 251.03 except for any reference to seeding."

Add the following to Article 280.04 of the Standard Specifications:

(h) Temporary Erosion Control Blanket. This system consists of temporarily installing erosion control blanket or heavy duty erosion control blanket over areas that are to be reworked during a later construction phase. Work shall be according to Article 251.04 except references to seeding and fertilizer shall not apply. When an area is to be reworked more than once, the blanket shall be carefully removed, properly stored, and then reinstalled over the same area."

Revise Article 280.07(b) of the Standard Specifications to read:

"(b) Temporary Ditch Checks. This work will be measured for payment along the long axis of the device in place in feet (meters) except for aggregate ditch checks which will be measured for payment in tons (metric tons). Payment will not be made for aggregate in excess of 108 percent of the amount specified by the Engineer."

Revise Article 280.07(f) of the Standard Specifications to read:

"(f) Temporary Mulch. This work will be measured for payment according to Article 251.05(b)."

Add the following to Article 280.07 of the Standard Specifications:

"(g) Temporary Erosion Control Blanket. This work will be measured for payment in place in square yards (square meters) of actual surface covered.

Add the following paragraph after the ninth paragraph of Article 280.07 of the Standard Specifications:

"Temporary or permanent erosion control systems required for areas outside the limits of construction will not be measured for payment."

Revise Article 280.08(b) of the Standard Specifications to read:

"(b) Temporary Ditch Checks. This work will be paid for at the contract unit price per foot (meter) for TEMPORARY DITCH CHECKS except for aggregate ditch checks which will be paid for at the contract unit price per ton (metric ton) for AGGREGATE DITCH CHECKS."

Revise Article 280.08(f) of the Standard Specifications to read:

"(f) Temporary Mulch. Temporary Mulch will be paid for according to Article 251.06."

Add the following to Article 280.08 of the Standard Specifications:

"(g) Temporary Erosion Control Blanket. Temporary Erosion Control Blanket will be paid for at the contract unit price per square yard (square meter) for TEMPORARY EROSION CONTROL BLANKET or TEMPORARY HEAVY DUTY EROSION CONTROL BLANKET.

The work of removing, storing, and reinstalling the blanket over areas to be reworked more than once will not be paid for separately but shall be included in the cost of the temporary erosion control blanket or temporary heavy duty erosion control blanket."

Delete the tenth (last) paragraph of Article 280.08 of the Standard Specifications.

Revise the second sentence of the first paragraph of Article 1081.15(e) of the Standard Specifications to read:

"The upstream facing of the aggregate ditch check shall be constructed of gradation CA 3. The remainder of the ditch check shall be constructed of gradation RR 3."

Revise Article 1081.15(f) of the Supplemental Specifications to read:

"(f) Rolled Excelsior. Rolled excelsior shall consist of an excelsior fiber filling totally encased inside netting and sealed with metal clips or knotted at the ends. The fiber density shall be a minimum of 1.24 lb/cu ft (20 kg/cu m) based on a moisture content of 22 percent at manufacturing. The netting shall be composed of a polyester or polypropylene material which retains 70 percent of its strength after 500 hours of exposure to sunlight. The maximum opening of the net shall be 1 x 1 in. (25 x 25 mm)."

Add the following to Article 1081.15 of the Standard Specifications:

"(i) Urethane Foam/Geotextile. Urethane foam/geotextile shall be triangular shaped having a minimum height of 10 in. (250 mm) in the center with equal sides and a minimum 20 in. (500 mm) base. The triangular shaped inner material shall be a low density urethane foam. The outer cover shall be a woven geotextile fabric placed around the inner material and allowed to extend beyond both sides of the triangle a minimum of 18 in. (450 mm).

(1) The geotextile shall meet the following properties:

Property	Value	Test Method
Grab Tensile Strength lb (N) (min.)	124 (550) min.	ASTM D 4632
Grab Elongation @ Brake (percent)	15 min.	ASTM D 4632
Burst Strength psi (kPa)	280 (1930) min.	ASTM D 3786
AOS (Sieve No.)	30 min.	ASTM D 4751
UV Resistance (500 hours) (percent)	80 min.	ASTM D 4355

(2) The urethane foam shall meet the following properties:

Property	Value	Test Method
Density lb/cu ft (kg/cu m)	1.0 ± 0.1 (16.0 ± 1.6)	ASTM D 3574
Tensile Strength psi (kPa)	10 (70) min.	ASTM D 3574
Elongation (percent)	125 min.	ASTM D 3574
Tear Resistance lb/in. (N/mm)	1.25 (0.22)	ASTM D 3574"

TRAFFIC BARRIER TERMINAL, TYPE 6 (BDE)
Effective: January 1, 2010

Delete the fourth paragraph of Article 631.07 of the Standard Specifications.

TRAFFIC CONTROL SURVEILLANCE (BDE)
Effective: January 1, 2011

Revise the first sentence of the first paragraph of Article 701.10 of the Standard Specifications to read:

"When open holes, broken pavement, trenches over 3 in. (75 mm) deep and 4 in. (100 mm) wide or other hazards are present within 8 ft (2.4 m) of the edge of an open lane, the Contractor shall furnish traffic control surveillance during all hours when the Contractor is not engaged in construction operations."

TRUCK MOUNTED/TRAILER MOUNTED ATTENUATORS (BDE)
Effective: January 1, 2010

Revise Article 701.03(k) of the Standard Specifications to read:

"(k) Truck Mounted/Trailer Mounted Attenuators .....1106.02"

Revise Article 701.15(h) of the Standard Specifications to read:

"(h) Truck Mounted/Trailer Mounted Attenuators (TMA). TMA units shall have a roll ahead distance in the event of an impact. The TMA shall be between 100 and 200 ft (30 and 60 m) behind the vehicle ahead or the workers. This distance may be extended by the Engineer.

TMA host vehicles shall have the parking brake engaged when stationary.

The driver and passengers of the TMA host vehicle should exit the vehicle if the TMA is to remain stationary for 15 minutes or more in duration."

Revise Article 1106.02(g) of the Standard Specifications to read:

"(g) Truck Mounted/Trailer Mounted Attenuators. The attenuator shall be a NCHRP 350 approved unit for Test Level 3. Test Level 2 may be used as directed by the Engineer for normal posted speeds less than or equal to 45 mph."

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)
Effective: November 2, 2006 Revised: April 1, 2009

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and pavement preservation type surface treatments. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, or joint filling/sealing.

The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$

Where: CA = Cost Adjustment, $.
BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, $/ton ($/metric ton).
BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting, $/ton ($/metric ton).
$\%AC_V$ = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.
Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: Q, tons = A x D x (G_{mb} x 46.8) / 2000. For HMA mixtures measured in square meters: Q, metric tons = A x D x (G_{mb} x 24.99) / 1000. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and % AC_V.

For bituminous materials measured in gallons: Q, tons = V x 8.33 lb/gal x SG / 2000
For bituminous materials measured in liters: Q, metric tons = V x 1.0 kg/L x SG / 1000

Where: A = Area of the HMA mixture, sq yd (sq m).
D = Depth of the HMA mixture, in. (mm).
G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
V = Volume of the bituminous material, gal (L).
SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

Percent Difference = $\{(BPI_L - BPI_P) \div BPI_L\} \times 100$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

RETURN WITH BID

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR
BITUMINOUS MATERIALS COST ADJUSTMENTS

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. After award, this form, when submitted, shall become part of the contract.

Contract No.: _____

Company Name:_____

Contractor's Option:

Is your company opting to include this special provision as part of the contract?

Yes ☐ No ☐

Signature: _____ **Date:** _____

FUEL COST ADJUSTMENT (BDE) (RETURN FORM WITH BID)
Effective: April 1, 2009 Revised: July 1, 2009

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form or failure to indicate contract number, company name and sign and date the form shall make this contract exempt of fuel cost adjustments for all categories of work. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and work added by adjusted unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Added work paid for by time and materials will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

(a) Categories of Work.

(1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.

(2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.

(5) Category E: Structures. Structure items having a cumulative bid price that exceeds $250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units

Category	Factor	Units
A - Earthwork	0.34	gal / cu yd
B – Subbase and Aggregate Base courses	0.62	gal / ton
C – HMA Bases, Pavements and Shoulders	1.05	gal / ton
D – PCC Bases, Pavements and Shoulders	2.53	gal / cu yd
E – Structures	8.00	gal / $1000

Metric Units

Category	Factor	Units
A - Earthwork	1.68	liters / cu m
B – Subbase and Aggregate Base courses	2.58	liters / metric ton
C – HMA Bases, Pavements and Shoulders	4.37	liters / metric ton
D – PCC Bases, Pavements and Shoulders	12.52	liters / cu m
E – Structures	30.28	liters / $1000

(c) Quantity Conversion Factors.

Category	Conversion	Factor
B	sq yd to ton	0.057 ton / sq yd / in depth
	sq m to metric ton	0.00243 metric ton / sq m / mm depth
C	sq yd to ton	0.056 ton / sq yd / in depth
	sq m to metric ton	0.00239 m ton / sq m / mm depth
D	sq yd to cu yd	0.028 cu yd / sq yd / in depth
	sq m to cu m	0.001 cu m / sq m / mm depth

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$CA = (FPI_P - FPI_L) \times FUF \times Q$

Where: CA = Cost Adjustment, $
FPI_P = Fuel Price Index, as published by the Department for the month the work is performed, $/gal ($/liter)
FPI_L = Fuel Price Index, as published by the Department for the month prior to the letting, $/gal ($/liter)
FUF = Fuel Usage Factor in the pay item(s) being adjusted
Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Progress Payments. Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Final Quantities. Upon completion of the work and determination of final pay quantities, an adjustment will be prepared to reconcile any differences between estimated quantities previously paid and the final quantities. The value for the balancing adjustment will be based on a weighted average of FPI_P and Q only for those months requiring the cost adjustment. The cost adjustment will be applicable to the final measured quantities of all applicable pay items.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the FPI_L and FPI_P in excess of five percent, as calculated by:

Percent Difference = $\{(FPI_L - FPI_P) \div FPI_L\} \times 100$

Return With Bid

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR FUEL COST ADJUSTMENT

The bidder shall submit this completed form with his/her bid. Failure to submit the form or properly complete contract number, company name, and sign and date the form shall make this contract exempt of fuel cost adjustments in all categories. Failure to indicate "Yes" for any category of work at the time of bid will make that category of work exempt from fuel cost adjustment. After award, this form, when submitted shall become part of the contract.

Contract No.: _____

Company Name:_____

Contractor's Option:

Is your company opting to include this special provision as part of the contract plans for the following categories of work?

Category A Earthwork.	Yes	☐
Category B Subbases and Aggregate Base Courses	Yes	☐
Category C HMA Bases, Pavements and Shoulders	Yes	☐
Category D PCC Bases, Pavements and Shoulders	Yes	☐
Category E Structures	Yes	☐

Signature: _____ **Date:** _____

STORM WATER POLLUTION PREVENTION PLAN

Illinois Department of Transportation

Storm Water Pollution Prevention Plan

Route	FAU 2578 (IL 53)	Marked Rte.	2578
Section	532B	Project No.	C-91-397-97
County	DuPage	Contract No.	60477

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Diane M. O'Keefe, P.E.
Print Name

Deputy Director, Region One Engineer
Title

Illinois Department of Transportation, District One
Agency

Signature

1-31-11
Date

I. Site Description:

A. The following is a description of the project location:

Illinois Route 53 (FAU 2578) is a north-south Principal Arterial and Suburban Minor Arterial that runs through the western suburbs of Chicago in DuPage County. The project is located between the villages of Addison and Itasca. The project limits are along IL 53 between Army Trail Road on the South and the Elgin O'Hare Expressway on the north, a distance of approximately 4.1 miles. Approximately 1300 ft of the road as it goes over Spring Brook Creek was ommited from the project.

B. The following is a description of the construction activity which is the subject of this plan:

The proposed improvements will include realigning the roadway, adding additional through lanes, signalized intersection improvements, intersection turn radii improvements to accommodate truck traffic, and adding right and left turn lane channelization at the intersections.

C. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading:

Erosion Control Items are considered to be high priority items on this contract. Erosion control measures will be installed prior to any construction activity that will potentially create erodible conditions. The contractor will be required to implement and maintain sediment control measures prior to stripping existing vegetation. Temporary Erosion Control Seeding shall be provided according to the Standard Specifications per substage as soon as rough grading is completed in a section. No sediment shall be allowed to flow downstream at any time. Construction will be completed in two general stages. Stage 1 will be construction of the eastbound lanes and Stage 2 will be construction of the westbound lanes.

Phase 1 - South of Springbrook Creek Project
- Temporary Erosion Control measures
- Final Grading
- Permanent Seeding

- Remove Temporary Erosion Control Measures

Phase 2 - North of Springbrook Creek Project
- Temporary Erosion Control measures
- Final Grading
- Permanent Seeding
- Remove Temporary Erosion Control Measures

D. The total area of the construction site is estimated to be 83 acres.

The total area of the site that is estimated will be disturbed by excavation, grading or other activities is 83 acres.

E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:

0.75

The difference between the pre- and post-development runoff coefficient is minimal.

F. The following is a description of the soil types found at the project site followed by information regarding their erosivity:

The most predominant soil types in the region according to the USDA Soil Survey are Markham Silt Loam, Orthents (Clayey), and Beecher Silt Loam. The erosion potential of Beecher Silt Loam is low, but Markham Silt Loam and Orthents are susceptible to water erosion.

G. The following is a description of potentially erosive areas associated with this project:

- Construction adjacent to existing wetlands.
- Ditch and storm sewer excavations.

H. The following is a description of soil disturbing activities, their locations, and their erosive factors (e.g. steepness of slopes, length of slopes, etc):

Roadway Grading - Along the entire length of the proposed roadway. Side slopes are 4:1 on IL 53 and 4:1 on the side streets where side slopes drain into proposed adjacent ditches, temporary ditch checks will be used. Erosion control blanket and seeding will line the ditches. Pipe protection will be provided on the upstream end of all culverts that collect runoff from the ROW. Inlet filter baskets or equivalent will be placed at all inlets and open lid structures.

In order to prevent downstream contamination, sediment-bearing water at all dewatering operations will pass through an area controlled by a ditch check. Dewatering directly into storm sewers is prohibited.

Removal of existing storm sewer - various locations along length of project.

I. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking (to be added after contractor identifies locations), areas of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) and locations where storm water is discharged to surface water including wetlands.

J. The following is a list of receiving water(s) and the ultimate receiving water(s), and areal extent of wetland acreage at the site. The location of the receiving waters can be found on the erosion and sediment control plans:

Wetland impacts include Wetland #2 at 0.01 ac, #5 at 0.04 ac, #9 at 0.01 ac, #10 at 0.13 ac, and #11 at 0.02 ac. Total wetland mitigation provided is to be determined.

The Army Corps of Engineers will issue a permit for this project.

The site discharges via Illinois Department of Trasportation Storm Sewer System (MS4) pipes and roadway ditches to various receivers. There are approxiamately 10 connections to existing storms sewers (other municipalities' MS4's). There are approximately 6 discharges to wetlands that are within the watershed of two unnamed tributaries of Salt Creek, and discharge to wetlands in the Springbrook Creek watershed. The site directly discharges to receiving waters that are not listed as Biologicially Significant streams.

K. The following pollutants of concern will be associated with this construction project:

☒ Soil Sediment	☒ Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids)
☒ Concrete	☒ Antifreeze / Coolants
☒ Concrete Truck Waste	☒ Waste water from cleaning construction equipment
☒ Concrete Curing Compounds	☐ Other (specify)
☐ Solid Waste Debris	☐ Other (specify)
☒ Paints	☐ Other (specify)
☒ Solvents	☐ Other (specify)
☒ Fertilizers / Pesticides	☐ Other (specify)

II. Controls:

This section of the plan addresses the controls that will be implemented for each of the major construction activities described in I.C. above and for all use areas, borrow sites, and waste sites. For each measure discussed, the contractor will be responsible for its implementation as indicated. The contractor shall provide to the resident engineer a plan for the implementation of the measures indicated. The contractor, and subcontractors, will notify the resident engineer of any proposed changes, maintenance, or modifications to keep construction activities compliant with the permit. Each such contractor has signed the required certification on forms which are attached to, and are a part of, this plan:

A. Erosion and Sediment Controls

1. **Stabilized Practices:** Provided below is a description of interim and permanent stabilization practices, including site specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include but are not limited to: temporary seeding, permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided below in II(A)(1)(a) and II(A)(3), stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceases on all disturbed portions of the site where construction will not occur for a period of 14 or more calendar days.

   a. Where the initiation of stabilization measures by the 7th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

   The following Stabilization Practices will be used for this project:

☒ Preservation of Mature Vegetation	☒ Erosion Control Blanket / Mulching
☐ Vegetated Buffer Strips	☒ Sodding
☒ Protection of Trees	☐ Geotextiles
☒ Temporary Erosion Control Seeding	☒ Other (specify) Pipe Protection
☐ Temporary Turf (Seeding, Class 7)	☒ Other (specify) Stabilized FlowLine
☐ Temporary Mulching	☐ Other (specify)
☒ Permanent Seeding	☐ Other (specify)

   Describe how the Stabilization Practices listed above will be utilized:

   1. Preservation of Mature Vegetation - Areas of existing vegetation on and adjacent to the right of way shall be protected from disturbance and accidental intrusions of construction equipment and personnel.
   2. Protection of Trees - Trees with a diameter of more then 6 inches will be protected with boards branded continuously around the trunk or with temporary fencing in the case of multistem trees.
   3. Temporary Erosion Control Seeding - Utilized on all temporary seeding areas. Applied to all bare areas every seven days to minimize the amount of exposed surface area.

4. Permanent Seeding - All disturbed soils within the construction zone will be permanently stabilized with either sodding or with Permanent Seeding and Erosion Control Blanket as soon as the area is at final grade.
5. Erosion Control Blanket - Used in conjunction with permanent seeding and at the detention basins
6. Sodding - utilized adjacent to residential lots to protect residential lots from construction activities.
7. Stabilized Flow Line – The Contractor shall provide to the RE a plan to have a stabilized flow connection between upstream and downstream ends of storm sewers under construction when rain is forecasted during storm sewer construction, so that flow will not erode.

2. **Structural Practices:** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include but are not limited to: perimeter erosion barrier, earth dikes, drainage swales, sediment traps, ditch checks, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

The following Structural Practices will be used for this project:

☒	Perimeter Erosion Barrier	☐	Rock Outlet Protection
☒	Temporary Ditch Check	☒	Riprap
☒	Storm Drain Inlet Protection	☐	Gabions
☒	Sediment Trap	☐	Slope Mattress
☐	Temporary Pipe Slope Drain	☐	Retaining Walls
☐	Temporary Sediment Basin	☐	Slope Walls
☐	Temporary Stream Crossing	☐	Concrete Revetment Mats
☒	Stabilized Construction Exits	☐	Level Spreaders
☐	Turf Reinforcement Mats	☒	Other (specify) Pipe Protection
☐	Permanent Check Dams	☐	Other (specify)
☐	Permanent Sediment Basin	☐	Other (specify)
☐	Aggregate Ditch	☐	Other (specify)
☐	Paved Ditch	☐	Other (specify)

Describe how the Structural Practices listed above will be utilized:

1. Perimeter Erosion Barrier - A silt filter fence will be placed on the perimeter of the construction area to intercept waterborne silt and prevent it from leaving the site.
2. Temporary Ditch Check - Rolled excelsior or urethane foam/geotextile ditch checks shall be used in swales and ditches where the runoff velocity is greater than 3 fps or as directed by the Engineer in order to prevent downstream erosion.
3. Storm Drain Inlet Protection - Inlet and pipe protection will be provided for storm sewers and culverts. Inlet Sediment Filters will be placed in all inlets, catch basins, and manholes during construction and will be cleaned on a regular basis.
4. Sediment Traps - Will be constructed and maintained by the Contractor, as directed by the Engineer.
5. Stabilized Construction Exits - Provided at designated entrance/exit points for construction vehicles to reduce the amount of soil transferred to public roads. The Stabilized Construction Exit is a combination of aggregate, silt fence, sediment barrier, and a sediment trapping device. The sediment trapped will be disposed of as appropriate.
6. Riprap - Used at the inlet and outlets of proposed culverts to dissipate energy and reduce velocities.
7. Pipe Protection - Aggregate rock check dams and straw wattles.

3. **Storm Water Management:** Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

a. Such practices may include but are not limited to: storm water detention structures (including wet ponds), storm water retention structures, flow attenuation by use of open vegetated swales and natural depressions, infiltration of runoff on site, and sequential systems (which combine several practices).

The practices selected for implementation were determined on the basis of the technical guidance in Section 59-8 (Erosion and Sediment Control) in Chapter 59 (Landscape Design and Erosion Control) of the Illinois Department of Transportation Bureau of Design and Environment Manual. If practices other than those discussed in Section 59-8 are selected for implementation or if practices are applied to situations different from those covered in Section 59-8, the technical basis for such decisions will be explained below.

b. Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. maintenance of hydrologic conditions such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of Storm Water Management Controls.

Practices used on this project are covered in chapter 59 of the Illinois Department of Transportation Bureau of Design and Environment Manual.

Permanent measures for storm water management controls will be placed as soon as possible during construction and include:
- Runoff will be filtered through vegetated ditches. Proposed vegetation in all ditches will provide a buffering effect for run off contaminants. Ditch back slopes and flow lines should be brought to final grade early in the construction sequence, and receive permanent seeding as soon as the final grade and topsoil have been placed.
- As velocity warrants, all outlet structures will be protected by rip-rap aprons.
- Storm sewers include restrictors that will provide for detention within the proposed storm sewer.

4. Other Controls:

a. Vehicle Entrances and Exits – Stabilized construction entrances and exits must be constructed to prevent tracking of sediments onto roadways.

The contractor will provide the resident engineer with a written plan identifying the location of stabilized entrances and exits and the procedures (s)he will use to construct and maintain them.

b. Material Delivery, Storage, and Use – The following BMPs shall be implemented to help prevent discharges of construction materials during delivery, storage, and use:
- All products delivered to the project site must be properly labeled.
- Water tight shipping containers and/or semi trailers shall be used to store hand tools, small parts, and most construction materials that can be carried by hand, such as paint cans, solvents, and grease.
- A storage/containment facility should be chosen for larger items such as drums and items shipped or stored on pallets. Such material is to be covered by a tin roof or large sheets of plastic to prevent precipitation from coming in contact with the products being stored.
- Large items such as light stands, framing materials and lumber shall be stored in the open in a general storage area. Such material shall be elevated with wood blocks to minimize contact with storm water runoff.
- Spill clean-up materials, material safety data sheets, an inventory of materials, and emergency contact numbers shall be maintained and stored in one designated area and each Contractor is to inform his/her employees and the resident engineer of this location.

c. Stockpile Management – BMPs shall be implemented to reduce or eliminate pollution of storm water from stockpiles of soil and paving materials such as but not limited to portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate sub base, and pre-mixed aggregate. The following BMPs may be considered:
- Perimeter Erosion Barrier
- Temporary Seeding
- Temporary Mulch
- Plastic Covers
- Soil Binders

- Storm Drain Inlet Protection

The contractor will provide the resident engineer with a written plan of the procedures (s)he will use on the project and how they will be maintained.

d. Waste Disposal. No materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.

e. The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

f. The contractor shall provide a written and graphic plan to the resident engineer identifying where each of the above areas will be located and how they are to be managed.

5. Approved State or Local Laws

The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans, site permits, storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI, to be authorized to discharge under permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

All management practices, controls, and other provisions provided in this plan are in accordance with the IDOT Standard Specifications for Road and Bridge Construction adopted January 1, 2007, and the Illinois Urban Manual revised February 2002.

III. Maintenance:

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, the vegetation, erosion and sediment control measures and other protective measures identified in this plan. The resident engineer will provide maintenance guides to the contractor for the practices associated with this project.

The following erosion and sediment control measures will be checked weekly and after each significant rainfall (0.5 inches or greater in a 24 hour period):
1. Seeding - all erodible bare earth areas will be temporarily seeded on a weekly basis.
2. Perimeter Erosion Barrier - Sediment will be removed when the integrity of the fence is compromised and any fence that collapses will be replaced immediately.
3. Ditch Checks - Sediment will be removed when the integrity of the ditch check is compromised and any ditch checks that fails will be repaired or replaced immediately.

All maintenance of erosion control systems will be the responsibility of the contractor. All locations where vehicles enter or exit the construction site and all other areas subject to erosion should also be inspected periodically.

All erosion and sediment control measures will be checked weekly and after each significant rainfall, 0.5 inch or greater in a 24 hour period, or equivalent snowfall. During winter months, all measures will be checked after each significant snowmelt.

The follow items will be checked:

- Storm drain inlet protection - clean sediment out after every storm > 0.5 inches
- Sediment Traps
- Riprap - replace pieces dislodged
- Pipe protection - repair any undermining, add protection length if flows end-around
- Erosion control blanket/Temporary Mulching - repair wind-blown roll-up
- Permanent Seeding

- Sodding

Items should be checked for structural integrity, sediment accumulation, and functionality. Any damage of undermining should be immediately repaired. Accumulated sediment should be removed and properly disposed of (see Article 202.03) as required. Stone at the sediment traps and riprap aprons shall be replaced due to washout. All erodible bare earth areas with temporary seeding will be inspected weekly and reseeded if necessary. Perimeter erosion barrier will be maintained throughout the length of the contract; deteriorated fabrics will be replaced, wire connections restored, and fabric properly trenched. Perimeter erosion barrier will consist of ditch checks in areas of concentrated flow. All slope, berm, or outlet erosion will be repaired immediately. Sediment traps and ditch checks will be cleaned once silt fills 50% of their capacity. All maintenance will be carried out as specified in the IDOT Standard Specifications.

All maintenance of the erosion control systems will be the responsibility of the contractor.

Erosion control through vegetation stabilization will have sufficient cover to reduce erosion prior to the end of the growing season (November 1). Disturbance in the non-growing season must be stabilized with non-vegetated means (blanket or mulch).

IV. Inspections:

Qualified personnel shall inspect disturbed areas of the construction site which have not yet been finally stabilized, structural control measures, and locations where vehicles and equipment enter and exit the site. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

A. There are several locations where offsite runoff enters IDOT's separate storm sewer system (MS4). Water quality at these locations must be inspected and any evidence of illicit connections recorded. Disturbed areas, use areas (storage of materials, stockpiles, machine maintenance, fueling, etc.), borrow sites, and waste sites shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Discharge locations or points that are accessible, shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.

B. Based on the results of the inspection, the description of potential pollutant sources identified in section I above and pollution prevention measures identified in section II above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspections shall be implemented within ½ hour to 1 week based on the urgency of the situation. The resident engineer will notify the contractor of the time required to implement such actions through the weekly inspection report.

C. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section IV(B) shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.

D. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the resident engineer shall notify the appropriate IEPA Field Operations Section office by email at: epa.swnoncomp@illinois.gov, telephone or fax within 24 hours of the incident. The resident Engineer shall then complete and submit an "Incidence of Noncompliance" (ION) report for the identified violation within 5 days of the incident. The resident engineer shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

The Incidence of Non-Compliance shall be mailed to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control

Attn: Compliance Assurance Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

V. Non-Storm Water Discharges:

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge.

A. Spill Prevention and Control – BMPs shall be implemented to contain and clean-up spills and prevent material discharges to the storm drain system. The contractor shall produce a written plan stating how his/her company will prevent, report, and clean up spills and provide a copy to all of his/her employees and the resident engineer. The contractor shall notify all of his/her employees on the proper protocol for reporting spills. The contractor shall notify the resident engineer of any spills immediately.

B. Concrete Residuals and Washout Wastes – The following BMPs shall be implemented to control residual concrete, concrete sediments, and rinse water:
   - Temporary Concrete Washout Facilities shall be constructed for rinsing out concrete trucks. Signs shall be installed directing concrete truck drivers where designated washout facilities are located.
   - The contractor shall have the location of temporary concrete washout facilities approved by the resident engineer.
   - All temporary concrete washout facilities are to be inspected by the contractor after each use and all spills must be reported to the resident engineer and cleaned up immediately.
   - Concrete waste solids/liquids shall be disposed of properly.

C. Litter Management – A proper number of dumpsters shall be provided on site to handle debris and litter associated with the project. The Contractor is responsible for ensuring his/her employees place all litter including marking paint cans, soda cans, food wrappers, wood lathe, marking ribbon, construction string, and all other construction related litter in the proper dumpsters.

D. Vehicle and Equipment Cleaning – Vehicles and equipment are to be cleaned in designated areas only, preferably off site.

E. Vehicle and Equipment Fueling – A variety of BMPs can be implemented during fueling of vehicles and equipment to prevent pollution. The contractor shall inform the resident engineer as to which BMPs will be used on the project. The contractor shall inform the resident engineer how (s)he will be informing his/her employees of these BMPs (i.e. signs, training, etc.). Below are a few examples of these BMPs:
   - Containment
   - Spill Prevention and Control
   - Use of Drip Pans and Absorbents
   - Automatic Shut-Off Nozzles
   - Topping Off Restrictions
   - Leak Inspection and Repair

F. Vehicle and Equipment Maintenance – On site maintenance must be performed in accordance with all environmental laws such as proper storage and no dumping of old engine oil or other fluids on site.

VI. Failure to Comply:

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of a National Pollutant Discharge Elimination System/Erosion and Sediment Control Deficiency Deduction against the contractor and/or penalties under the NPDES permit which could be passed onto the contractor.

Illinois Department of Transportation

Contractor Certification Statement

The Resident Engineer is to make copies of this form and every contractor and sub-contractor will be required to complete their own separate form.

Route	FAU 2578 (IL53)	Marked Rt.	Illinois Route 53
Section	532B	Project No.	C-91-397-97
County	DuPage	Contract No.	60477

This certification statement is part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with General NPDES Permit No. ILR10 issued by the Illinois Environmental Protection Agency.

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

In addition, I have read and understand all of the information and requirements stated in the Storm Water Pollution Prevention Plan for the above mentioned project; I have provided all documentation required to be in compliance with the ILR10 and Storm Water Pollution Prevention Plan and will provide timely updates to these documents as necessary.

☐ Contractor

☐ Sub-Contractor

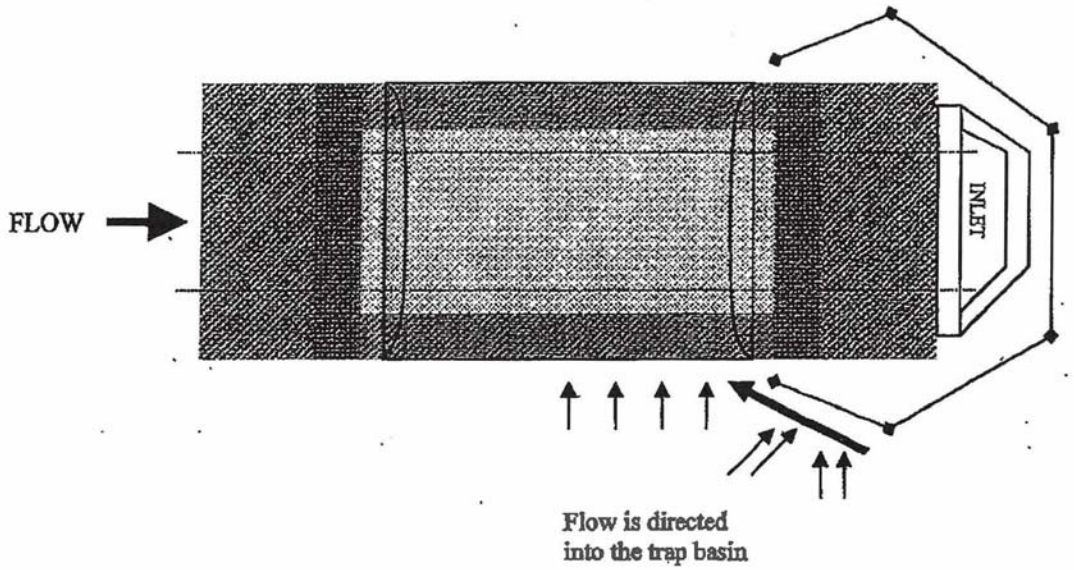
Print Name	Signature
Title	Date
Name of Firm	Telephone
Street Address	City/State/ZIP

Illinois Department of Transportation

Construction of a Sediment Trap
A Best Management Practice
Used for Jobsite Outfall Protection

This guide documents the implementation and use of the new preferred method of jobsite outfall protection. Silt fence is not an effective protection measure, because it is not permeable enough for a major outfall. A sediment trap is only effective with a suitable quantity of water in it. For this reason, it is encouraged that sediment traps be used to protect outfalls with a drainage area greater than 4,500 square feet (~.1 Acres) and less than 216,000 square feet (~5 Acres). Above 216,000 square feet, a sediment basin should be used to drain the area, or a diversion should be constructed to divert clean water from upstream around the construction site. On most IDOT projects, there isn't enough room on state right of way for a sediment basin, so a diversion is generally the solution for large drainage areas. In locations with drainage areas between .1 and 5 acres, sediment traps should be constructed on all current and new construction projects where practical, effective immediately. Remember, this is simply a new configuration of old pay items, so nothing should need to be added to the contract. For permanent sediment traps being constructed, contact Rick Wanner in the District One headquarters, Bureau of Maintenance office for evaluation and to ensure that maintenance is informed of the trap's existence.

Sediment Trap



LEGEND

- Ditch Check (Stone, Triangular Silt Dike, Excelsior Roll)
- Silt Fence
- Water's path into the trap
- Trap basin to allow sediment to settle
- Erosion Control Blanket and seeding (on side slope)
- Seeding only
- Exterior flow protection (Protecting against shear stress)

PURPOSE:

A sediment trap is a containment area where sediment-laden runoff is temporarily detained under stagnant conditions, allowing sediment to settle out before the runoff is discharged. Sediment traps are formed by excavation of a small, shallow, long basin in a low drainage area, with a ditch check on the upstream and downstream side of the trap basin. The sediment trap is an effective ditch outfall or inlet/pipe protection system for drainage areas no greater than 216,000 sq. ft. (~5 acres) and no less than 4,500 square feet (~.1 acres).

IMPLEMENTATION:

- Construct prior to wet season and construction activities.
- Locate where sediment-laden runoff enters a storm drain or watercourse.
- Sediment traps are never to be located in live streams.
- Access to the sediment trap must be available for maintenance purposes.
- Consider whether the trap is needed as a long term or a temporary practice. Use permanent (stone) or temporary (excelsior rolls, triangular silt dikes) ditch checks accordingly.

DESIGN:

- Sediment traps generally release a slow flow that may be directed into a culvert, a sewer inlet or may simply be released to another sediment trap if there is a large drainage area.
- Sediment traps must have silt fence surrounding the acceptor to ensure water does not flow into the pipe unfiltered unless the acceptor is a ditch, in which case, no additional silt fence is needed. This silt fence should be positioned such that the water may still flow from the sides of the trap into the trap basin, and if possible, the silt fence should direct water into the trap basin, on the upstream side of the second ditch check.
- A ditch check must be located on both the upstream and downstream ends of the holding trap basin. These ditch checks may be triangular silt dikes or excelsior rolls for temporary sediment traps, or stone for permanent sediment traps. The ditch check on the downstream side of the trap must be contained within the silt fence if the acceptor is a culvert. Otherwise, for outlets, the ditch check must be located on the downstream side of the perimeter barrier.
- Temporary sediment traps should be built with the timeframe of the construction job in mind, or a single construction season. Temporary traps should be constructed using either triangular silt dikes or excelsior rolls.
- If the sediment trap is to remain functional as a permanent water quality feature, it should be constructed using stone ditch checks. Permanent sediment traps must be constructed in locations out of the sub-grade of the road, and out of the clear zone. Ditch checks in permanent sediment traps must have a 2:1 slope or flatter on both the upstream and the downstream side of the ditch check.
- A sediment trap can also be a semi-permanent feature. If the ditch checks are made of excelsior rolls, they will function for a while, but will eventually break down. This allows for the construction of a trap that will remain in place after construction, but will not permanently remain in place. This may allow for establishment of vegetation as the primary filtration method in place of the ditch check without blocking water unnaturally or permanently.
- The top of ditch checks are to be at least 1-½' higher than the bottom of the holding trap basin, and should be no less than 1' higher than the water's normal flowing height. Also, ditch checks should be spaced such that the bottom of the upstream ditch check is no higher than the top of the downstream ditch check. This will depend on the slope of the ditch.

- The holding trap basin should be excavated so that the cross-section looks like a 'U' (instead of a 'V'). This U-shaped ditch discourages erosion in the middle crook of the ditch and increases the capacity of the trap.
- The trap basin shall have a capacity of no less than 3600 cubic feet per acre of drainage area. This is enough space to hold 1 inch of water per acre. See Figure 1 for standard dimensions. If the drainage area is less than 4,500 sq. ft. (.1 acre), consider using an inlet filter or another BMP in place of the sediment trap.
- Under no circumstance shall a sediment trap or series of sediment traps cover a total drainage area of more than 5 acres. If this is the case, or an appropriate amount of land is available, a sediment basin should be constructed in place of a sediment trap.
- Stabilize any exposed soil in the sediment trap that could be subject to erosion from the flow of water, including the trap basin. A Turf Reinforcement Mat and permanent seeding works well for long term installations, but temporary seeding and/or an erosion control blanket will suffice as a temporary measure.
- An armored overflow must be constructed.
- Regardless of the type of acceptor (with the sole exception of a ditch), leave approximately 5 feet between the final ditch check and the acceptor. This allows the water flow to settle, which lowers the risk of disturbing sediment that may be in the acceptor. This gap should be protected against the effects of shear stress from the flowing water.
  On particularly steep slopes, it may be most effective to place multiple smaller sediment traps in rapid succession to cover the drainage area. In this case, it would be most cost-efficient to allow sediment traps to share ditch checks.
- Shear stress can cause sediment to be picked up by flowing water. Attention should be paid to the shear stress to ensure that the soil in the ditch before and after the sediment trap does not get eroded. These areas must be protected. See the Shear Stress page (6) for formulas and more information.

PLANS AND SPECIFICATIONS:

- The plans and specifications for sediment traps will show the following requirements:
  - Location of the sediment trap(s).
  - Size of the trap basin including width, length, and depth.
  - Minimum cross section of embankment.
  - Minimum profile through spillway.
  - Location of emergency spillway, if used.
  - Graduation and quality of stone.
  - The installation, inspection, and maintenance schedules with the responsible party identified.

INSPECTION/MAINTENANCE:

- Sediment traps are to be inspected by the resident engineer and contractor every 7 calendar days and after a storm event of ½" or greater (including snowfall) on a temporary basis. On a permanent basis, traps should be checked at least once every 2 years.
- The trap should be cleaned of silt when the trap becomes 50% filled. The material removed must be disposed of in accordance with good housekeeping practices, incorporated into the fill material, or disposed of in accordance with IEPA regulations.
- Inspect the outlet for erosion and any needed stabilization.
- Inspect the outlet for any sediment discharge and discolored water.
- If sediment is discharged or other pollutants are identified at the discharge point, other BMPs, such as sand filters, may be required to filter pollutants.
- Note that the first ditch check is primarily used to slow the water, while the second is primarily used to catch remaining sediment. Inspection of the first ditch check, therefore, is primarily a structural inspection, while the second is primarily a check for sediment clogging.

NOTES ON THE DIMENSIONS OF THE TRAP:

The volume of the trap may be calculated using the following formula (only applies on shallow slopes of 5% or less):

Volume = (Depth of the trap)*(Length between ditch checks)*(Width of the ditch)

SEDIMENT TRAP DIMENSION MATRIX

Depth	Length	Width	Capacity (cu. ft.)	Drainage Area Max. (sq. ft.)	Drainage Area Max. (acres)
1-1/2'	125'	10'	1,875	22,500	.52
1-1/2'	100'	10'	1,500	18,000	.417
1-1/2'	75'	10'	1,125	13,500	.3125
1-1/2'	50'	10'	750	9,000	.21
1-1/2'	25'	10'	375	4,500	.1
2'	100'	10'	2,000	24,000	.55
2'	80'	10'	1,600	19,000	.44
2'	60'	10'	1,200	14,500	.33
2'	40'	10'	800	9,600	.22
2'	30'	10'	600	7,250	.17
2'	25'	10'	500	6,000	.14

Figure 1

For reference, 1 Acre ~ 43200 sq. ft.

Shear Stress

STRAIGHT SECTIONS OF DITCHES

$$\tau_d = \gamma(dS)$$

where

τ_d = maximum shear stress, lb/ft^2 (Pa)
γ = unit weight of water, 62.4 lb/ft^3 (9810 N/m^3)
d = maximum depth of flow, ft (m)
S = average bed slope or energy slope, ft/ft (m/m)

BENDS IN DITCHES

Flow around a channel bend imposes higher shear stresses on the channel boundaries. The maximum shear stress in a bend is a function of the radius of curvature and the bottom width of the channel and is given by:

$$\tau_b = K_b \tau_d$$

where

τ_b = maximum shear stress in a bend, lb/ft^2 (Pa)

$$K_b = 2.38 - 0.206\left(\frac{R_c}{B}\right) + 0.0073\left(\frac{R_c}{B}\right)^2$$

where

K_b = bend coefficient - function of Rc/B
R_c = radius to centerline of channel, ft (m)
B = bottom width of channel, ft (m)

To determine which BMP to use to protect the ditch, calculate the Shear Stress and compare to the following values:

- < 3 psf (147 Pa) → Erosion Control Blanket and Seeding
- < 8 psf (392 Pa) → Turf Reinforcement Mat and Seeding
- > 8 psf (392 Pa) → Stone lining

RELEVANT PAY ITEMS:

EARTH EXCAVATION

- PERIMETER EROSION BARRIER
- Stone size IDOT CA-1
- ROCKFILL
- TEMPORARY DITCH CHECKS
- TEMPORARY EROSION CONTROL SEEDING or SEEDING, CLASS 2A
- TEMPORARY EROSION CONTROL BLANKET

IEPA NOTICE OF INTENT

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
NOTICE OF INTENT (NOI)
GENERAL PERMIT TO DISCHARGE STORM WATER CONSTRUCTION SITE ACTIVITIES

OWNER INFORMATION

Company/Owner Name: Illinois Department of Transportation
Mailing Address: 201 West Center Court Phone: 847-705-4000
City: Schaumburg State: IL Zip: 60196 Fax:
Contact Person: Diane O'Keefe E-mail: diane.okeefe@illinois.gov
Owner Type: State MS4 Community: ☒ Yes ☐ No

CONTRACTOR INFORMATION

Contractor Name:
Mailing Address: Phone:
City: State: Zip: Fax:

CONSTRUCTION SITE INFORMATION

Select One: ☐ New ☒ Change of information for: ILR10
Project Name: IL RTE 53 (FAU RTE 2578) County: DuPage
Street Address: Army Trail Rd - Elgin O'Hare Expwy City: Addison/Itasca IL Zip: 60101/60143

Latitude:	41	55	51	Longitude:	88	01	56	12	40N	10E
	(Deg)	(Min)	(Sec)		(Deg)	(Min)	(Sec)	Section	Township	Range

Approximate Construction Start Date 8/2010 Approximate Construction End Date 8/2012

Total size of construction site in acres: 83
If less than 1 acre, is the site part of a larger common plan of development?
☒ Yes ☐ No

Fee Schedule for Construction Sites:
Less than 5 acres - $250
5 or more acres - $750

STORM WATER POLLUTION PREVENTION PLAN

Has the Storm Water Pollution Prevention Plan been submitted to Agency? ☒ Yes ☐ No
(Submit SWPPP electronically to: epa.constilr10swppp@illinois.gov)

Location of SWPPP for viewing: Address: IDOT - District 1 Office City: Schaumburg
SWPPP contact information: Inspector qualifications:
Contact Name: Rajendra Shah P.E.
Phone: 847-705-4000 Fax: E-mail: rajendra.shah@illinois.gov
Project inspector, if different from above Inspector qualifications:
Inspector's Name:
Phone: Fax: E-mail:

For Office Use Only

Log:
Permit No. ILR10 _ _ _ _
Date:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
NOTICE OF INTENT (NOI)
GENERAL PERMIT TO DISCHARGE STORM WATER CONSTRUCTION SITE ACTIVITIES

TYPE OF CONSTRUCTION

Select One: Transportation SIC Code: _____

Type a detailed description of the project:

Pavement reconstruction and widening, installation of new storm sewer and drainage facilities, and other related improvements.

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency ☒ Yes ☐ No

Endangered Species ☒ Yes ☐ No

RECEIVING WATER INFORMATION

Does your storm water discharge directly to: ☐ Waters of the State or ☒ Storm Sewer

Owner of storm sewer system: IDOT, Village of Addison, Village of Itasca

Name of closest receiving water body to which you discharge: Springbrook Creek

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

Owner Signature: _____ Date: _____

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276

Or submit electronically to: epa.constilr10swppp@illinois.gov

For Office Use Only

Log:
Permit No. ILR10 _ _ _ _
Date:

Information required by this form must be provided to comply with 415 ILCS 5/39 (1996). Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

IL 532 2104
WPC 623 Rev. 12/09

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

ATTACHMENTS

I. GENERAL

1. These contract provisions shall apply to all word 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

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

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 advised 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 listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-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 submitting payroll copies of 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 that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked 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 contractors' 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 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.

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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.

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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 tie 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.

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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.

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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 shall be the minimum paid by contractors and subcontractors to laborers and mechanics.

NOTICE

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

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

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

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

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