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

WHO CAN BID ?

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

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

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

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

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

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

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

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

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

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

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

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

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

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

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

ADDENDUMS TO THE PROPOSAL FORMS

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

RETURN WITH BID

25

Proposal Submitted By
Name
Address
City

Letting March 11, 2005

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

NOTICE TO PROSPECTIVE BIDDERS
This proposal can be used for bidding purposes by only those companies that request and receive written AUTHORIZATION TO BID from IDOT's Central Bureau of Construction.
(SEE INSTRUCTIONS ON THE INSIDE OF COVER)

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

Springfield, Illinois 62764

Contract No. 60293
COOK County
Section 1314B
Route FAI 90
Project NHI-90-4(116)82
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

Checked by F

(Printed by authority of the State of Illinois)

INSTRUCTIONS

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

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

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

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

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

2. Other special documentation and/or information that may be required by the contract special provisions

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

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

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

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

RETURN WITH BID

PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

   _____

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

   Contract No. 60293
   COOK County
   Section 1314B
   Project NHI-90-4(116)82
   Route FAI 90
   District 1 Construction Funds

   0.21 km of superstructure replacement, intersection improvement and traffic signal modernization for the existing bridge carrying Nagle Avenue over I-90 (Kennedy Expressway) also includes work on the Gregory Avenue retaining wall, all located in Chicago.

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, 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.

BD 354 (Rev. 11/2001)

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

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

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

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid Dollars	Cents

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

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

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60293

State Job # - C-91-096-97
PPS NBR - 1-74496-0100
County Name - COOK- -
Code - 31 - -
District - 1 - -
Section Number - 1314B

Project Number
NHI-0904/116/082

Route
FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MX030112	HP ENHANCED SHOTCRETE	SQ M	14.300				
MX030151	SS D I T1 200	METER	12.500				
MX030199	TEMP PAVEMENT	SQ M	21.000				
MX030300	CON ATS 25 GALVS PVC	METER	105.000				
MX032016	BR APP PVT CON PCC SP	SQ M	151.000				
MX032178	TEMP INFO SIGNING	SQ M	11.500				
MX032198	MA STL MONOTUBE 12.19	EACH	1.000				
MX032306	BR FENCE RAIL PAR MTD	METER	146.000				
MX032308	EC C TRPLX 2-1C6 1C8G	METER	669.000				
MX032311	MA STL MONOTUBE 6.10	EACH	3.000				
MX032312	MA STL MONOTUBE 8.00	EACH	1.000				
MX032313	MA STL MONOTUBE 10.70	EACH	2.000				
MX032499	MA STL SL 3.66 IO	EACH	12.000				
MX032500	PS AB 292 7G 9.9M IO	EACH	2.000				
MX032507	PVC CON T 50 S80	METER	271.000				

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Project Number NHI-0904/116/082

Route FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MX032508	PVC CON ES 50 S80	METER	186.000				
MX032627	PS AB 318 3G 10.5M	EACH	3.000				
MX032765	PVC CON T 75 S80	METER	34.000				
MX032767	CONCRETE FOUND 500	METER	3.000				
MX032768	CONCRETE FOUND 600	METER	22.300				
MX032770	CONC FND 750 SPL PRKY	METER	10.100				
MX032774	ELCBL C 12 7/C	METER	116.000				
MX032776	ELCBL C 12 19/C	METER	525.000				
MX032779	EX S CLAY P SS T2 200	METER	18.000				
MX033109	DRILL/SET SOLDIER PIL	CU M	35.500				
MX033369	PVC CON T 100 S80	METER	37.000				
MX033523	EL MH 1.2 X 1.8 X 1.8	EACH	1.000				
MX033524	EL MH 1 X 1.2 X 1.2	EACH	7.000				
MX033525	PS AB 250 3G 10.5	EACH	4.000				
MX033526	PS AB 250 7G 10.5	EACH	1.000				

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Section Number - 1314B

Project Number NHI-0904/116/082

Route FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MX033527	PS AB 381 7G 10.5M IO	EACH	2.000				
MX406M20	LEV BIND MM SUPER N70	M TON	176.000				
MX406076	P BCSC SUPER "F" N90	M TON	341.000				
MX406218	BCBC SUP IL-19.0 N90	M TON	21.000				
MX482280	BIT SHLD SUPER 150	SQ M	72.000				
MX482380	BIT SHLD SUPER 250	SQ M	6.000				
MX815005	TR & BKFIL W SCRN/SND	METER	342.000				
MX873041	ELCBL C 4 2/C	METER	185.000				
MX873046	ELCBL C 14 2/C TW SH	METER	600.000				
MZ047300	PROTECTIVE SHIELD	SQ M	1,180.000				
M2010110	TREE REMOV 6-15	UNIT	80.000				
M2010210	TREE REMOV OVER 15	UNIT	31.000				
M2011000	TEMPORARY FENCE	METER	188.000				
M2011700	SUPPLE WATERING	UNIT	26.900				
M2020010	EARTH EXCAVATION	CU M	507.000				

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Project Number NHI-0904/116/082

Route FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M2040800	FURNISHED EXCAV	CU M	170.000				
M2070220	POROUS GRAN EMBANK	CU M	1,145.000				
M2080150	TRENCH BACKFILL	CU M	79.000				
M2113100	TOPSOIL F & P 100	SQ M	488.000				
M2500210	SEEDING CL 2A	HA	0.200				
M2500400	NITROGEN FERT NUTR	KG	23.000				
M2500500	PHOSPHORUS FERT NUTR	KG	23.000				
M2500600	POTASSIUM FERT NUTR	KG	23.000				
M2500750	MOWING	HA	1.000				
M2510630	EROSION CONTR BLANKET	SQ M	1,823.000				
M2520110	SODDING SALT TOLERANT	SQ M	488.000				
M2800250	TEMP EROS CONTR SEED	KG	2.000				
M2800400	PERIMETER EROS BAR	METER	346.000				
M3111100	SUB GRAN MAT B 100	SQ M	1,430.000				
M3530245	PCC BSE CSE 245	SQ M	1,356.000				

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Project Number: NHI-0904/116/082
Route: FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M4030200	BIT MATLS PR CT	M TON	1.300				
M4060300	AGG PR CT	M TON	6.000				
M4060400	MIX CR JTS FLANGEWYS	M TON	9.400				
M4060980	BIT SURF REM BUTT JT	SQ M	89.000				
M4060990	TEMPORARY RAMP	SQ M	113.000				
M4061000	BIT REPL OVER PATCH	M TON	0.900				
M4205050	BR APPROACH PAVT SPL	SQ M	540.000				
M4230200	PCC DRIVEWAY PAVT 200	SQ M	48.000				
M4240125	PC CONC SIDEWALK 125	SQ M	444.000				
M4400065	BIT SURF REM 65	SQ M	1,395.000				
M4400415	BIT REM OV PATCH 115	SQ M	34.000				
M4402000	PAVEMENT REM	SQ M	1,452.000				
M4402010	DRIVE PAVEMENT REM	SQ M	32.000				
M4402040	COMB CURB GUTTER REM	METER	415.000				
M4402050	SIDEWALK REM	SQ M	481.000				

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Project Number: NHI-0904/116/082
Route: FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M4402060	APPROACH SLAB REM	SQ M	224.000				
M4402420	MEDIAN REMOVAL	SQ M	90.000				
M4402530	PAVED SHLD REMOVAL	SQ M	6.000				
M4427025	CL C PATCH T1 250	SQ M	50.000				
M4427225	CL C PATCH T2 250	SQ M	40.000				
M4427325	CL C PATCH T3 250	SQ M	45.000				
M4430020	STRIP REF CR CON TR	METER	575.000				
M5010240	CONC REM	CU M	145.200				
M5010465	SLOPE WALL REMOV	SQ M	18.000				
M5020100	STRUCTURE EXCAVATION	CU M	1,285.000				
M5030040	PREF JOINT SEAL 102	METER	50.200				
M5030350	CONC STRUCT	CU M	311.300				
M5030360	CONC SUP-STR	CU M	590.100				
M5030390	BR DECK GROOVING	SQ M	1,453.000				
M5030450	PROTECTIVE COAT	SQ M	3,238.000				

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Code - 31 - -
District - 1 - -
Section Number - 1314B

Project Number: NHI-0904/116/082
Route: FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M5041219	F&E P P CON I-BM 1219	METER	863.500				
M5050405	F & E STRUCT STEEL	KG	950.000				
M5070211	FUR SOLDIER PILES HP	METER	107.500				
M5080205	REINF BARS, EPOXY CTD	KG	90,430.000				
M5090050	PEDESTRIAN RAIL	METER	63.000				
M5110100	SLOPE WALL 100	SQ M	125.000				
M5120900	TEMP SHT PILING	SQ M	125.000				
M5503050	SS 2 RCP CL 3 300	METER	21.000				
M5504800	SS CLEANED	METER	804.000				
M5870020	BRIDGE SEAT SEALER	SQ M	74.000				
M5910100	GEOCOMPOSITE WALL DR	SQ M	31.000				
M6010085	GEO FAB-FRENCH DRAIN	SQ M	102.000				
M6010610	PIPE UNDERDRAINS 150	METER	199.500				
M6010710	PIPE UNDERDRN 150 SP	METER	3.000				
M6011205	BACKSLOPE DRN T1 100	METER	19.500				

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Project Number: NHI-0904/116/082
Route: FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M6020140	CB A 1.2M D T8G	EACH	2.000				
M6020230	CB A 1.2M D T1FOL CHG	EACH	4.000				
M6060500	COMB CC&G TB15.30	METER	372.400				
M6060520	COMB CC&G TB15.30 SPL	METER	53.500				
M6320030	GUARDRAIL REMOV	METER	27.000				
M6640100	CH LK FENCE 1.2	METER	55.000				
M6641920	CH LK FENCE REMOV	METER	138.500				
M7030100	SHORT-TERM PAVT MKING	METER	2,266.000				
M7030210	TEMP PVT MK LTR & SYM	SQ M	28.000				
M7030220	TEMP PVT MK LINE 100	METER	4,255.000				
M7030240	TEMP PVT MK LINE 150	METER	52.000				
M7030280	TEMP PVT MK LINE 600	METER	54.000				
M7030510	PAVT MARK TAPE T3 L&S	SQ M	7.000				
M7030520	PAVT MARK TAPE T3 100	METER	274.000				
M7030540	PAVT MARK TAPE T3 150	METER	50.000				

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Project Number: NHI-0904/116/082
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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M7030580	PAVT MARK TAPE T3 600	METER	12.000				
M7031000	WORK ZONE PAVT MK REM	SQ M	338.000				
M7040100	TEMP CONC BARRIER	METER	259.250				
M7040200	REL TEMP CONC BARRIER	METER	82.350				
M7800100	THPL PVT MK LTR & SYM	SQ M	29.000				
M7800105	THPL PVT MK LINE 100	METER	1,567.000				
M7800115	THPL PVT MK LINE 150	METER	414.000				
M7800120	THPL PVT MK LINE 200	METER	64.000				
M7800125	THPL PVT MK LINE 300	METER	86.000				
M7800140	THPL PVT MK LINE 600	METER	45.000				
M7800405	PREF PL PM TB LN 100	METER	226.000				
M7800415	PREF PL PM TB LN 150	METER	82.000				
M7800440	PREF PL PM TB LN 600	METER	23.000				
M7800500	PREF PL PM TC LTR-SYM	SQ M	7.000				
M7830100	PAVT MARKING REMOVAL	SQ M	221.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M8101070	CON P 75 GALVS	METER	434.000				
M8110200	CON AT ST 100 GALVS	METER	404.000				
M8130120	JBX SS AS 150X150X100	EACH	8.000				
M8130185	JBX SS AS 300X250X150	EACH	6.000				
M8130223	JBX SS AS 400X350X150	EACH	2.000				
M8160400	UD 3#4 #6G EPRRHW 30	METER	135.000				
M8170425	EC C EPR RHW 1C 10	METER	420.000				
M8750700	TS POST A 4.55	EACH	2.000				
M8860100	DET LOOP T1	METER	101.000				
XX001792	FUR & MAIN AUTO VEH	VEH MO	12.000				
X0321141	C FDN BSE MTD SL CONT	EACH	2.000				
X0322680	C FDN TY M BM TS CONT	EACH	2.000				
X0322709	CONTR ST LT BM 1P 100	EACH	1.000				
X0322712	STREET NAME SIGN	EACH	7.000				
X0323426	SED CONT DR ST INL CL	EACH	15.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60293

State Job # - C-91-096-97
PPS NBR - 1-74496-0100
County Name - COOK- -
Code - 31 - -
District - 1 - -
Section Number - 1314B

Project Number: NHI-0904/116/082
Route: FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0324893	BREAKDOWN HAND/MAN	EACH	7.000				
X0324896	PED SH P LED 2F 2S BM	EACH	3.000				
X0324900	SERV CON TO CECO LINE	EACH	1.000				
X0324901	REM EX ST LIGHT FDN	EACH	5.000				
X0324902	REM EX TR SIGNAL FDN	EACH	10.000				
X0329890	SS FAC 4P DT TBC BM	EACH	2.000				
X0934500	FIBER OPTIC SIGN BM	EACH	3.000				
X0934600	FIBER OPTIC SIGN MAM	EACH	2.000				
X0966600	SN MESS ELEC ILLUM BM	EACH	1.000				
X0966700	JUNC BOX POLE/POST MT	EACH	10.000				
X4021000	TEMP ACCESS- PRIV ENT	EACH	3.000				
X4023000	TEMP ACCESS- ROAD	EACH	3.000				
X7011015	TR C-PROT EXPRESSWAYS	L SUM	1.000				
X8210302	PROT-MAIN UNPASS LUM	L SUM	1.000				
X8210453	LUM SL HPS400W240V IO	EACH	12.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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Project Number: NHI-0904/116/082
Route: FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X8410102	TEMP LIGHTING SYSTEM	L SUM	1.000				
X8420100	REM EX UNDERPASS LUM	EACH	12.000				
X8801300	SH P LED 1F 3S BM	EACH	7.000				
X8801310	SH P LED 1F 3S MAM	EACH	8.000				
X8801345	SH P LED 1F 4S BM	EACH	3.000				
X8801350	SH P LED 1F 4S MAM	EACH	3.000				
X8810397	PED SH P LED 1F 2S BM	EACH	6.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0018000	DRAINAGE SCUPPERS SPL	EACH	20.000				
Z0018500	DRAINAGE STR CLEANED	EACH	15.000				
Z0018800	DRAINAGE SYSTEM	L SUM	1.000				
Z0030250	IMP ATTN TEMP NRD TL3	EACH	4.000				
Z0030350	IMP ATTN REL NRD TL3	EACH	2.000				
Z0048665	RR PROT LIABILITY INS	L SUM	1.000				
Z0076600	TRAINEES	HOUR	1,500.000		0.800		1,200.000

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Route: FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
20101100	TREE TRUNK PROTECTION	EACH	10.000				
28000500	INLET & PIPE PROTECT	EACH	7.000				
28000510	INLET FILTERS	EACH	15.000				
40600895	CONSTRUC TEST STRIP	EACH	1.000				
50101600	REM EXIST SUP-STR	L SUM	1.000				
50300310	ELAST BEARING ASSY T1	EACH	50.000				
50500505	STUD SHEAR CONNECTORS	EACH	288.000				
51500100	NAME PLATES	EACH	1.000				
60100060	CONC HDWL FOR P DRAIN	EACH	2.000				
60235200	INLET TA T1FOL (CHGO)	EACH	1.000				
60300305	FR & LIDS ADJUST	EACH	1.000				
60300310	FR & LIDS ADJUST SPL	EACH	27.000				
60406520	FR & LIDS OL (CHGO)	EACH	2.000				
63100167	TR BAR TRM T1 SPL TAN	EACH	1.000				
67000400	ENGR FIELD OFFICE A	CAL MO	12.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
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District - 1 - -
Section Number - 1314B

Project Number: NHI-0904/116/082
Route: FAI 90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
67100100	MOBILIZATION	L SUM	1.000				
70101800	TRAF CONT & PROT SPL	L SUM	1.000				
70103815	TR CONT SURVEILLANCE	CAL DA	60.000				
82107100	UNDERPAS LUM 70W HPS	EACH	8.000				
88500500	IND L DET AMP	EACH	1.000				
89000100	TEMP TR SIG INSTALL	EACH	2.000				
89502375	REMOV EX TS EQUIP	EACH	2.000				

CONTRACT NUMBER **60293**

THIS IS THE TOTAL BID **$** _____

NOTES:

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

RETURN WITH BID

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

I. GENERAL

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

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

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

II. ASSURANCES

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

B. Felons

1. The Illinois Procurement Code provides:

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

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

C. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

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

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

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

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

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

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

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

D. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

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

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

E. Inducements

1. The Illinois Procurement Code provides:

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

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

F. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

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

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

G. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

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

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

H. Confidentiality

1. The Illinois Procurement Code provides:

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

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

RETURN WITH BID

I. Insider Information

1. The Illinois Procurement Act provides:

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

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

III. CERTIFICATIONS

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

B. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

C. Educational Loan

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

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

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

D. Bid-Rigging/Bid Rotating

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

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

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

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

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

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

E. International Anti-Boycott

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

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

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

F. Drug Free Workplace

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

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

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

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

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

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

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

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

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

G. Debt Delinquency

1. The Illinois Procurement Code provides:

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

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

H. Sarbanes-Oxley Act of 2002

1. The Illinois Procurement Code provides:

Section 50-60(c).

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

I. ADDENDA

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

J. Section 42 of the Environmental Protection Act

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

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

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

_____
_____
_____

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

IV. DISCLOSURES

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

B. Financial Interests and Conflicts of Interest

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

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

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

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

C. Disclosure Form Instructions

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

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

CERTIFICATION STATEMENT

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

_____
(Bidding Company)

_____ _____
Name of Authorized Representative (type or print) Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

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

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

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than $90,420.00? YES ___ NO___
3. Does anyone in your organization receive more than $90,420.00 of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES ___ NO __
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than $90,420.00? YES ___ NO __

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

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

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

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

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

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

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

D. Bidders Submitting More Than One Bid

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

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

_____

_____

RETURN WITH BID/OFFER

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A
Financial Information & Potential Conflicts of Interest Disclosure

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

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)

NAME: _____

ADDRESS _____

_____

Type of ownership/distributable income share:

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

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

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

(a) State employment, currently or in the previous 3 years, including contractual employment of services.
Yes ___ No __

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

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

2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds $90,420.00, (60% of the Governor's salary as of 7/1/01) provide the name the State agency for which you are employed and your annual salary. _____
_____

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

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

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

Yes ___No __

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

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

2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds $90,420.00, (60% of the Governor's salary as of 7/1/01) provide the name of the spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____
_____

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds $90,420.00, (60% of the salary of the Governor as of 7/1/01) are you entitled to receive (i) more than 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes ___ No __

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds $90,420.00, (60% of the Governor's salary as of 7/1/01) are you and your spouse or any minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income from your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor?

Yes ___ No __

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

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

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United State of America, or any unit of local government authorized by the Constitution of the State of Illinois or the 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 __

RETURN WITH BID/OFFER

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

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

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

APPLICABLE STATEMENT

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

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

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

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

NOT APPLICABLE STATEMENT

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

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

_____
Name of Authorized Representative (type or print)

_____
Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative — Date

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Other Contracts & Procurement Related Information Disclosure

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

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

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

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

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

THE FOLLOWING STATEMENT MUST BE SIGNED

_____
Name of Authorized Representative (type or print)

_____
Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

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

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

(a) All bidders on construction contracts shall complete and submit, along with and as part of their bids, a Bidder's Employee Utilization Form (Form BC-1256) setting forth a projection and breakdown of the total workforce intended to be hired and/or allocated to such contract work by the bidder including a projection of minority and female employee utilization in all job classifications on the contract project.

(b) The Department of Transportation shall review the Employee Utilization Form, and workforce projections contained therein, of the contract awardee to determine if such projections reflect an underutilization of minority persons and/or women in any job classification in accordance with the Equal Employment Opportunity Clause and Section 7.2 of the Illinois Department of Human Rights' Rules and Regulations for Public Contracts adopted as amended on September 17, 1980. If it is determined that the contract awardee's projections reflect an underutilization of minority persons and/or women in any job classification, it shall be advised in writing of the manner in which it is underutilizing and such awardee shall be considered to be in breach of the contract unless, prior to commencement of work on the contract project, it submits revised satisfactory projections or an acceptable written affirmative action plan to correct such underutilization including a specific timetable geared to the completion stages of the contract.

(c) The Department of Transportation shall provide to the Department of Human Rights a copy of the contract awardee's Employee Utilization Form, a copy of any required written affirmative action plan, and any written correspondence related thereto. The Department of Human Rights may review and revise any action taken by the Department of Transportation with respect to these requirements.

RETURN WITH BID

Illinois Department of Transportation

Contract No. 60293
COOK County
Section 1314B
Project NHI-90-4(116)82
Route FAI 90
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							
JOB CATEGORIES	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.		APPREN-TICES		ON THE JOB TRAINEES		TOTAL EMPLOYEES		MINORITY EMPLOYEES	
	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								

FOR DEPARTMENT USE ONLY

*Other minorities are defined as Asians (A) or Native Americans (N).

Please specify race of each employee shown in Other Minorities column.

Note: See instructions on the next page

RETURN WITH BID

Contract No. 60293
COOK County
Section 1314B
Project NHI-90-4(116)82
Route FAI 90
District 1 Construction Funds

PART II. WORKFORCE PROJECTION - continued

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

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

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

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

PART III. AFFIRMATIVE ACTION PLAN

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

B. The undersigned bidder understands and agrees that the minority and female employee utilization projection submitted herein, and the goals and timetable included under an Affirmative Action Plan if required, are deemed to be part of the contract specifications.

Company _____ Telephone Number _____

_____

Address _____

NOTICE REGARDING SIGNATURE

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

Signature: _____ Title: _____ Date: _____

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

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

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

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

RETURN WITH BID

ADDITIONAL FEDERAL REQUIREMENTS

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

A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.

B. CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY:

1. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause. YES _____ NO _____

2. If answer to #1 is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations? YES _____ NO _____

RETURN WITH BID

Contract No. 60293
COOK County
Section 1314B
Project NHI-90-4(116)82
Route FAI 90
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.

RETURN WITH BID

Illinois Department of Transportation

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 below the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the State of Illinois under the conditions of the bid bond as shown above.

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

PROPOSAL ENVELOPE

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 323
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

NOTICE

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

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

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

Contract No. 60293
COOK County
Section 1314B
Project NHI-90-4(116)82
Route FAI 90
District 1 Construction Funds

Illinois Department of Transportation

Illinois Department of Transportation

NOTICE TO BIDDERS

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

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

   Contract No. 60293
   COOK County
   Section 1314B
   Project NHI-90-4(116)82
   Route FAI 90
   District 1 Construction Funds

0.21 km of superstructure replacement, intersection improvement and traffic signal modernization for the existing bridge carrying Nagle Avenue over I-90 (Kennedy Expressway) also includes work on the Gregory Avenue retaining wall, all located in Chicago.

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

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

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

By Order of the
Illinois Department of Transportation

Timothy W. Martin, Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS
Adopted March 1, 2005

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

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

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

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

TABLE OF CONTENTS

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2002, (hereinafter referred to as the Standard Specifications); the latest edition of the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways" in effect on the date of invitation for bids; 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 F.A.U. Route 2783 (Nagle Avenue) at FAI 90, Section 1314B, Project: NHI-090-4(116) 082 in Cook County, and in the case of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and govern.

FAI 90 at Nagle Avenue
Section: 1314B
County: Cook
Contract Number: 60293

LOCATION OF PROJECT

Nagle Avenue is a Minor Arterial roadway and an unmarked state route (FAU 2783) located in north-central Cook County on the northwest side of the City of Chicago, and includes the following grade separation structure over the John F. Kennedy Expressway (Interstate 90): Nagle Avenue over Interstate 90 (Structure Number 016-0708). I-90 is classified as a controlled access interstate highway. Bryn Mawr Avenue is an unmarked state route. Gregory Avenue is a local street. The proposed project construction limits for Nagle Avenue extend from approximately 50m north of Catalpa Avenue to approximately 60m north of Bryn Mawr Avenue. Interstate 90 is a designated Class I truck route. Nagle Avenue is not a designated truck route.

DESCRIPTION OF PROJECT

The removal and replacement of the existing superstructure, substructure repair work and retaining wall (1) construction. The length of the improvement is 212 meters. The proposed typical bridge cross section consists of one 3.75 meter lane and one 3.3 meter through lane in each direction and one 3.3 meter left turn lane in each direction. The existing deck will be widened from 23.16 meters out-to-out to 24.9 meters out-to-out. The scope of work will also include approach roadway work, bridge railing/fencing, traffic signal modernization, and lighting.

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.

UTILITY COORDINATION - CITY OF CHICAGO

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

The City of Chicago may make adjustments to their street lighting and/or traffic signal facilities. The Contractor shall coordinate his work and cooperate with the City of Chicago in these adjustments.

This coordination and cooperation by the Contractor will not be paid for separately but shall be considered included in the costs of the contract.

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 and Type	Location	Estimated Dates for Start and Completion	Action
Commonwealth Edison			
Underground Duct	0+897, right	During Construction	Maintain
Underground Duct	1+095, right	During Construction	Maintain
NICOR			
300 mm Underground Line	0+897, left	During Construction	Maintain
300 mm Underground Line	1+095, right	During Construction	Maintain
Valve Shut-off Box	0+915.6, right	During Construction	Adjust
Valve Shut-off Box	0+919.5, right	During Construction	Adjust
Valve Shut-off Box	0+929.5, right	During Construction	Adjust
Valve Shut-off Box	0+935.8, right	During Construction	Adjust
Valve Shut-off Box	0+943.5, left	During Construction	Adjust
Valve Shut-off Box	1+043.5, left	During Construction	Adjust
Valve Shut-off Box	1+052.0, left	During Construction	Adjust
Valve Shut-off Box	1+053.6, left	During Construction	Adjust
Valve Shut-off Box	1+053.6, left	During Construction	Adjust
Valve Shut-off Box	1+054.0, left	During Construction	Adjust
Valve Shut-off Box	1+054.1, left	During Construction	Adjust
Valve Shut-off Box	1+060.7, right	During Construction	Adjust
Valve Shut-off Box	1+082.7, right	During Construction	Adjust

Name of Utility and Type	Location	Estimated Dates for Start and Completion	Action
City of Chicago Department of Water			
300 mm Water Main	0+897, right	During Construction	Maintain
300 mm Water Main	1+095, left	During Construction	Maintain
900 mm Water Main	4+474, right	During Construction	Maintain
300 mm Water Main	5+500, left	During Construction	Maintain
Fire Hydrant	0+932.4, right	During Construction	Relocate
Fire Hydrant	1+052.6, left	During Construction	Relocate
Valve Shut-off Box	0+905.5, left	During Construction	Adjust
Valve Shut-off Box	0+908.7, right	During Construction	Relocate
Valve Shut-off Box	0+911.3, left	During Construction	Relocate
Valve Shut-off Box	0+918.6, left	During Construction	Relocate
Valve Shut-off Box	0+921.1, right	During Construction	Relocate
Valve Shut-off Box	0+930.2, left	During Construction	Relocate
Valve Shut-off Box	0+930.7, right	During Construction	Relocate
Valve Shut-off Box	0+935.5, left	During Construction	Relocate
Valve Shut-off Box	0+937.3, right	During Construction	Relocate
Valve Shut-off Box	1+062.3, right	During Construction	Relocate
Valve Shut-off Box	1+063.3, left	During Construction	Relocate
Valve Shut-off Box	1+070.4, right	During Construction	Relocate
Valve Shut-off Box	1+073.8, left	During Construction	Relocate
Valve Shut-off Box	1+081.5, right	During Construction	Relocate
Valve Shut-off Box	1+084.4, left	During Construction	Relocate
Valve Shut-off Box	1+087.7, right	During Construction	Relocate
Valve Shut-off Box	1+092.9, right	During Construction	Relocate
Valve Shut-off Box	1+095.4, left	During Construction	Relocate

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.

COMPLETION DATE PLUS GUARANTEED WORKING DAYS

The Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on October 31, 2005 except as specified herein.

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

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

BACKFILLING STORM SEWER UNDER ROADWAY

Effective: September 30, 1985 Revised: July 2, 1994

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

STORM SEWERS AND SEWER CONNECTIONS TO CITY OF CHICAGO SEWERS

Effective: September 30, 1985 Revised: July 2, 1994

This work consists of constructing storm sewers or sewer connections to City of Chicago sewers, in accordance with Section 550 of the Standard Specifications and the details shown in the plans at the locations shown on the plans.

All storm sewers and sewer connections 525 mm (21 inches) in diameter and smaller shall be best quality tile socket pipe conforming to the specifications for Extra Strength Clay Pipe, ASTM C 700, except as otherwise specified on the plans. Sewer pipes shall be gasketed in such a manner as to produce a compression type joint conforming to the requirements of ASTM C 425.

All storm sewer 600 mm (24 inches) in diameter or larger shall be reinforced concrete pipe conforming to the requirements of C-76, Class-III, wall "B" with "O-Ring" joints. Joints for catch basin and inlet connections shall be packed with oakum, caulked and beveled off with portland cement mortar.

This work will be measured and paid for at the contract unit price per meter (foot) for STORM SEWER in accordance with Articles 550.08 and 550.09 of the Standard Specifications.

CLEANING EXISTING DRAINAGE STRUCTURES

Effective: September 30, 1985 November 1, 1996

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

All existing drainage structures which are to be adjusted or reconstructed shall be cleaned in accordance with Article 602.14 of the Standard Specifications. This work will be paid for in accordance with Article 602.15 of the Standard Specifications.

All other existing drainage structures which are specified to be cleaned on the plans will be cleaned in accordance with Article 602.14 of the Standard Specifications. This work will be paid for at the contract unit price each for DRAINAGE STRUCTURES TO BE CLEANED, and at the contract unit price per meter (foot) for STORM SEWERS TO BE CLEANED.

FRAMES AND LIDS TO BE ADJUSTED (SPECIAL)

Effective: August 1, 1995 Revised: November 1, 1996

Add the following to Article 603.09 of the Standard Specifications:

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

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

WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT)

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

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

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

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

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

TRAFFIC CONTROL PLAN

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

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

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

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

STANDARDS: 701001, 701011, 701101, 701106, 701301, 701306, 701400, 701401, 701402, 701411, 701501, 701601, 701606, 701701, 701801, 702001, 704001

DETAILS:

- Suggested Stages of Construction and Traffic Control – Typical Sections, Shoulder Closure, Stage I and Stage II.

- Exit and Entrance Ramp Closure Details, TC-8
- Traffic Control Details (for Freeway) – Center Lane Closure Multi-Lane Weave Shoulder Lane, TC-9
- Traffic Control and Protection for Side Roads, Intersections and Driveways, TC-10
- Multilane Freeway Pavement Marking, TC-12
- Traffic Control and Protection at Turn Bays (To Remain Open to Traffic), TC-14
- Pavement Marking Letters and Symbols for Traffic Staging, TC-16
- Traffic Control for Shoulder Closures and Partial Ramp Closures, TC-17
- Temporary Information Signing, TC-22
- City of Chicago Typical Pavement Markings, TC-24 (Sheets 1 and 2)

SPECIAL PROVISIONS:

- Work Zone Traffic Control Devices
- Work Zone Speed Limit Signs
- Work Zone Public Information Signs
- Maintenance of Roadways
- Work Zone Traffic Control (Lump Sum)
- Traffic Control Plan
- Keeping the Expressway Open to Traffic
- Failure to Open Traffic Lanes to Traffic
- Traffic Control and Protection (Expressways)
- Traffic Control Surveillance (Expressways)
- Temporary Information Signing
- Temporary Information Signing for Lane Closures

KEEPING THE EXPRESSWAY OPEN TO TRAFFIC:

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

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

Location: Kennedy (I-94) @ Nagle

WEEK NIGHT	TYPE OF CLOSURE	ALLOWABLE LANE CLOSURE HOURS		
Sunday thru Thursday	**One Lane**	**9:00 pm**	**To**	**5:00 am**
	Two Lanes	**Midnight (12:01 am)**	**To**	**5:00 am**
Friday	**One Lane**	**10:00 pm (Fri.)**	**To**	**8:00 am (Sat.)**
	Two Lanes	**Midnight (12:01 am - Sat.)**	**To**	**6:00 am (Sat.)**
Saturday	**One Lane**	**9:00 pm (Sat.)**	**To**	**10:00 am (Sun.)**
	Two Lanes	**Midnight (12:01 am - Sun.)**	**To**	**8:00 am (Sun.)**

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

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

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

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

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

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

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

The Contractor will be required to cooperate with all other contractors when erecting lane closures on the expressway. All lane closures within one (1) mile of each other in one direction of the expressway shall be on the same side of the pavement and any lane closure within a half (1/2) mile of each other should be connected. The maximum length of any lane closure on the

project and combined with any adjacent projects shall be three (3) miles. Gaps between successive permanent lane closures shall be no less than two (2) miles in length.

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

FAILURE TO OPEN TRAFFIC LANES TO TRAFFIC:

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

One Lane Blocked = $3000

Two Lanes Blocked = $6000

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

TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)

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

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

GENERAL

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

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

The Contractor shall coordinate all traffic control work on this project with adjoining or overlapping projects, including barricade placement necessary to provide a uniform traffic detour pattern. When directed by the Engineer, the Contractor shall remove all traffic control

devices that were furnished, installed, or maintained by him under this contract, and such devices shall remain the property of the Contractor. All traffic control devices shall remain in place until specific authorization for relocation or removal is received from the Engineer.

Signs

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

Exit Gore Signs

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

Rough Grooved Surface Signs

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

Drums/Barricades

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

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

Vertical Barricades

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

Temporary Concrete Barrier Wall

Prismatic barrier wall reflectors shall be installed on both the face of the wall next to traffic and the top of all temporary concrete barrier wall. These reflectors shall be placed at 50 foot centers

along tangents and at 25 foot centers on curves. The color of these reflectors shall match the color of the edgelines (yellow on the left and crystal or white on the right). If the base of the temporary concrete barrier wall is 12 inches or less from the travel lane, then the wall shall also have a 6 inch wide temporary pavement marking edgeline (yellow on the left and white on the right).

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

Basis of Payment:

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

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

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

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

Where "X" = Difference between original and final sum total value of all work items for which traffic control and protection is required. / Original sum total value of all work items for which traffic control and protection is required.

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

b) The Engineer may require additional traffic control be installed in accordance with standards and/or designs other than those included in the plans. In such cases, the standards and/or designs will be made available to the Contractor at least one week in advance of the change in traffic control. Payment for any additional traffic control required will be in accordance with Article 109.04 of the Standard Specifications.

c) Revisions in the phasing of construction or maintenance operations, requested by the Contractor, may require traffic control to be installed in accordance with standards and/or designs other than those included in the plans. Revisions or modifications to the traffic control shown in the contract shall be submitted by the Contractor for approval by the Engineer. No additional payment will be made for a Contractor requested modification.

d) Temporary concrete barrier wall will be measured and paid for according to Section 704.

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

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

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

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

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

TRAFFIC CONTROL SURVEILLANCE (EXPRESSWAYS)

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

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

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

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

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

TEMPORARY INFORMATION SIGNING

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

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

	Item	**Article/Section**
a.)	Sign Base (Notes 1 & 2)	1090
b.)	Sign Face (Note 3)	1091
c.)	Sign Legends	1092
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 4)	1090.01

Note 1. The Contractor may use 16mm (5/8 inch) instead of 19mm (3/4 inch) thick plywood.
Note 2. Type A sheeting can be used on the plywood base.
Note 3. All sign faces shall be Type A except all orange signs shall meet the requirements of Article 1084.02(b).
Note 4. The overlay panels shall be 2mm (0.08 inch) thick.

GENERAL CONSTRUCTION REQUIRMENTS

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

Signs which are placed along the roadway and/or within the construction zone shall be installed according to the requirements of Article 702.05 and Article 720.04. The signs shall be 2.1m (7') above the near edge of the pavement and shall be a minimum of 600mm (2') beyond the edge of the paved shoulder. A minimum of 2 posts shall be used.

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

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

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

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

Basis Of Payment: This work shall be paid for at the contract unit price per square meter (square feet) for TEMPORARY INFORMATION SIGNING, which price shall be full compensation for all labor, equipment and materials required for performing the work as herein specified.

CONCRETE FOUNDATION FOR TYPE "M" BASE MOUNTED TRAFFIC SIGNAL CONTROLLER

Description. The Contractor shall install a concrete foundation for a base mounted traffic signal controller cabinet, as shown on City of Chicago Drawing Number 854.

The foundation will have a minimum depth of at least one meter (1m) below grade and shall have large radius conduit elbows in quantity, size and type shown. The elbow ends above ground shall be capped with standard conduit bushings. The Contractor shall furnish anchor bolts, hardware, conduit elbows, and all other material shown on the foundation construction drawing. Ready mix concrete shall be furnished in accordance with latest revision of City of Chicago Standard Specification "READY-MIXED CONCRETE". Ground rods shall be in accordance with City of Chicago Specification 1465.

Basis of Payment. Unit price shall include cost of all material and labor required to install this foundation, as per applicable construction plans and these Detail Specifications. The conduit elbows shall be considered as part of the foundation and will not be paid for as a separate item or as part of the conduit laterals leading to the foundation. All necessary excavation and restoration of parkway to the original condition shall be included in the unit price. This work will be paid for at the contract unit price of each for CONCRETE FOUNDATION FOR TYPE "M" BASE MOUNTED TRAFFIC SIGNAL CONTROLLER CABINET.

CONCRETE FOUNDATION, 600MM DIAMETER

Description. The foundation shall be 600 mm in diameter; with a 375 mm bolt circle and 31.25 mm diameter anchor rods.

General. Every foundation shall be installed at the location designated and in the manner herein specified or in special cases as specifically directed. From time to time, it may be required to locate foundations at places other than shown on drawings furnished this Contractor. The Commissioner reserves the right to make such relocations as he may deem necessary or required, and when directed to do so, this Contractor shall locate foundations as indicated by the Commissioner.

Concrete Foundations In Solid Fill. Foundations constructed in solid fill shall conform to drawing number 818. Top surface of these foundations shall be at an elevation of fifty millimeters (50 mm) above grade or as required by the Engineer. Care shall be taken to install a level foundation and to ensure adequate anchor rod projections for double-nut installation. The foundations shall be centered back from the face of the curb in accordance with dimensions shown on construction plans. Foundation raceways shall consist of large radius conduit elbow(s) in quantity size and type specified on the construction plans. The elbow ends above ground shall be capped with standard conduit bushings. The Contractor shall furnish anchor rods, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation shall be as noted on construction plans.

Foundation Anchor Rods. Anchor Rods shall be fabricated from steel meeting the requirements of the latest revisions of ASTM A400, Class R-2 and have a minimum yield point of 55,000 P.S.I. Anchor rods shall be set in accordance with applicable construction plans so that when poles are mounted on the foundations, the street lighting mast arm shall be properly oriented as indicated on the construction plans. The anchor rods shall be set by means of a

metal template, which shall be submitted for approval before any foundation work is begun. The template shall hold the rods vertical, and in proper position, and shall serve as a form for the top 150mm of the periphery of the foundation. Anchor rods shall conform in all respects to City of Chicago drawing number 811.

Basis of Payment. Payment will be made for foundations installed in place, including elbows, in accordance with construction drawings, constructions plans and these Detail Specifications. All necessary excavation and restoration of pavement, sidewalk and fill to their original conditions shall be included in the unit price. This work will be paid for at the contract unit price per meter of depth for CONCRETE FOUNDATION, 600 mm DIAMETER.

CONCRETE FOUNDATION, 750 MM DIAMETER, SPECIAL PARKWAY

Description. The foundation shall have a 750 mm diameter, with a 419 mm bolt circle and 38 mm diameter anchor rods.

General. Every foundation shall be installed at the location designated and in the manner herein specified or in special cases as specifically directed. From time to time, it may be required to locate foundations at places other than shown on drawings furnished this Contractor. The Commissioner reserves the right to make such relocations as he may deem necessary or required, and when directed to do so, this Contractor shall locate foundations as indicated by the Commissioner.

Concrete Foundations In Solid Fill. Foundations constructed in solid fill shall conform to drawing number 817. Top surface of these foundations shall be at an elevation of two inches (2") above grade or as required by the Commissioner. Care shall be taken to install a level foundation and to ensure adequate anchor rods projections for double-nut installation. The foundations shall be centered back from the face of the curb in accordance with dimensions shown on construction plans. When the foundation is in a solid sidewalk area, the foundation shall be installed as shown on Drawing 828. When the foundation is centered four feet from face of curb, the top of the anchor rods shall be seven and one-eighth inches (7 1/8") above the proposed curb grade, and the concrete shall be struck off approximately three inches (3") below the curb grade to permit sidewalk construction which will envelop the top of the foundation to create a consolidated, unified structure.

Foundation raceways shall consist of large radius conduit elbow(s) in quantity size and type specified on the construction plans. The elbow ends above ground shall be capped with standard conduit bushings. The Contractor shall furnish anchor rods, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation shall be as noted on construction plans. Ready mix concrete shall be furnished in accordance with latest revision of City of Chicago Standard Specification "Ready Mix Concrete". Ground rods shall be manufactured by the Copperweld Steel Company, or an approved equal.

Foundation Anchor Rods. Anchor rods shall be fabricated from steel meeting the requirements of the latest revisions of ASTM A400, Class R-2 and have a minimum yield point of 55,000 P.S.I. Anchor rods shall be set in accordance with applicable construction plans so that when poles are mounted on the foundations, the street lighting mast arm shall be properly oriented as indicated on the construction plans. The anchor rods shall be set by means of a metal template which shall be submitted for approval before any foundation work is begun. The template shall hold the rods vertical and in proper position, and shall serve as a form for the top six inches (6") of the periphery of the foundation. Anchor rods shall conform in all respects to City of Chicago Drawing Number 806.

Basis of Payment. Unit price shall include cost of all materials and labor required to install foundations in parkway or in a vaulted walk, as per applicable construction plans and these detail specifications. All necessary excavation and restoration of parkway or vaulted walk to their original conditions shall be included in the unit price. This work will be paid for at the contract unit price per lineal foot of depth for CONCRETE FOUNDATION, 750 mm DIAMETER, SPECIAL PARKWAY.

BREAKDOWN CONTROLLER FOUNDATION, TYPE A

Description. Work under this item shall be performed in accordance with Sections 800 and 871 of IDOT's Standard Specifications for Road and Bridge Construction, Bureau of Electricity Standards and the City of Chicago Electrical Code, except as herein modified. The work shall consist of removing a concrete foundation for a pedestal mounted traffic signal or traffic controller to a level three feet below the grade, disposing of the debris off-sight in an approved manner, backfilling the excavation with screenings or other approved backfill material, and reconstructing the surface area. If the foundation is in a parkway, the parkway shall be properly restored with dirt to the existing level. If the foundation is in sidewalk, the sidewalk shall be restored under a different pay item and shall not be considered as part of this work.

Basis of Payment. This work will be paid for at the contract unit price each for BREAKDOWN CONTROLLER FOUNDATION, TYPE A, which price shall be payment in full for all labor and materials necessary to complete the work as described above.

BREAKDOWN EXISTING HANDHOLE

Description. Work under this item shall be performed in accordance with the Illinois Department of Transportation's "Standard Specifications for Road and Bridge Construction", Bureau of Electricity Standards and the City of Chicago Electrical Code, except as herein modified. This work shall consist of removing the frame and cover of an existing handhole, breaking down the handhole walls, removing large debris, and backfilling the hole with screenings or other approved material. If the handhole is in a parkway, the hole shall be filled level to the existing grade. The top six inches of fill shall be of an approved soil mixture. If the handhole is in sidewalk or in pavement, the sidewalk or pavement shall be restored under a different pay item. If the frame or cover is deemed reusable by the resident engineer, the frame and/or cover shall be delivered to the Bureau of Electricity at a location identified by the resident engineer. Any debris, including the frame and cover shall be disposed of off-sight in an approved manner.

Basis Of Payment. This work shall be paid for at the contract unit price per each for BREAKDOWN EXISTING HANDHOLE, which price shall be payment in full for all labor and materials necessary to complete the work as described.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Description. This work shall consist of removing all the existing traffic signal equipment at the intersections listed on the plans.

Materials. The traffic control items, except for traffic signal cable, are to be removed and remain the property of the City of Chicago. The Contractor shall deliver the obsolete traffic signal equipment to the City of Chicago Yard at 4100 South Cicero Avenue, Chicago, Illinois.

Twenty-four hour advance notice is necessary before delivery. The traffic signal cable shall be removed and become the property of the Contractor and shall be disposed of by him, outside the right-of-way, at his sole expense.

Method Of Measurement. The Contractor shall provide three (3) copies of a list of equipment that is to remain the property of the City, 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. The Contractor shall be responsible for the condition of the traffic control equipment from the time of removal until its acceptance by a receipt drawn by the City indicating that the items have been returned in good condition.

Basis Of Payment. This work will be paid for at the contract lump sum price for REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT. This price shall be payment in full for removing the equipment and disposing of it as required. The salvage value of the cable retained by the Contractor shall be reflected in this contract lump sum price.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION

Scope. The contractor shall maintain the existing traffic signal system at each intersection in this contract, as described in the Special Provision “Operation of Traffic Signals”, which is a section of this specification. The maintenance shall commence at a time after contract award that is mutually agreed upon by the contractor, the City, and the State. Existing traffic signals shall be used as temporary traffic signals during the construction period. The provision and use of temporary aerial cable, traffic controllers, traffic heads, and poles shall be the responsibility of the contractor and shall be incidental to this pay item. Maintenance shall continue in force until the new signals are accepted by the City. If signal installation is not completed and accepted within the time allotted for the project, the signals must be maintained by the contractor at no additional cost to the State or the City.

A properly operating traffic signal system shall be maintained by the contractor at each intersection in the contract until such date, as the new traffic signal system shall be accepted for operation and maintenance by the City. The acceptance conditions are noted in the Special Provision “Traffic Signal Turn On”, which is a section of this specification, and which date shall constitute the cut-off date for maintenance of signals at a specified intersection.

Maintenance Procedure. The contractor shall follow the procedures as specified in Section 850, Maintenance of Existing Traffic Signal Installation, and Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation.

Basis of Payment. This work will be paid for at the contract unit price per week per location.

SPECIAL PROVISION FOR OPERATION OF TRAFFIC SIGNALS

Existing traffic control signal installations and/or any electrical facilities at certain intersections included in this contract may be altered or reconstructed totally or partially as part of the work of this contract. The contractor is hereby advised that all traffic control equipment, presently installed at these locations, is the property of the City of Chicago.

The contractor is further advised that the existing traffic signals must remain in operation during all construction stages except for the most essential down time. Any shutdown of the installation, for a period to exceed fifteen minutes, must have prior approval of the City. Such approval will generally only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Any other traffic signal shutdown, either for periods in excess of one hour or outside of the 10:00 a.m. to 3:00 p.m. weekday period must have prior approval of the City.

The contractor, prior to the commencement of his work, shall notify the State of his intent to perform his work. Upon request from the contractor, the City will locate any City-owned electrical facilities within the project limits. This shall in no way relieve the contractor of liability with regards to any damage caused by his construction.

Any known or suspected damage to the electrical facility shall be reported immediately to the State. The contractor will be held responsible for the repair, if, in the opinion of the State, such damage was caused by the contractor. The State, at its own discretion, may call upon the City to make any necessary repairs, at the contractor's expense.

SPECIAL PROVISION FOR TRAFFIC SIGNAL TURN ON

The intent of this provision is to prescribe a procedure wherein a contractor may obtain formal approval of a traffic signal installation at a given intersection, and a release from maintenance responsibility for the new materials installed, in order to be permitted to disconnect and remove any old traffic signal equipment and/or temporary traffic signal equipment.

When the roadway is open to traffic 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 State and the City, a minimum of three working days prior to the time of the requested inspection. Upon demonstration that the signals are operating correctly and all work is completed in accordance with the contract and to the satisfaction of the Engineer, the City Bureau of Electricity will then allow the signals to be placed in continuous operation. The City will assume the maintenance upon successful completion of this inspection.

STREET NAME SIGNS

Description. This item shall consist of furnishing, fabricating, and installing a street name sign as indicated on the plans. The plans shall indicate the location of the sign and the sign legend.

The sign panel and associated hardware shall meet the specifications of Section 720 - SIGN PANELS AND APPURTENANCES of the Illinois Department of Transportation's Standard Specifications for Road and Bridge Construction. The signs shall meet the requirements as to size, mounting hardware, and mounting location per City of Chicago Department of Transportation standard drawings "Pole and Mast Arm Mounted Street Name Signs" and "Monotube D3-2 Sign Installation Details".

Basis of Payment. This work will be paid for at the contract unit price per each STREET NAME SIGNS, and shall include all necessary hardware and labor to erect the sign.

REMOVE EXISTING TRAFFIC SIGNAL FOUNDATION

Description. Work under this item shall be performed in accordance with Sections 800 and 871 of IDOT's Standard Specifications for Road and Bridge Construction, Bureau of Electricity Standards and the City of Chicago Electrical Code, except as herein modified. The work shall consist of removing a concrete foundation for a traffic signal pole to a level three feet below the grade, disposing of the debris off-sight in an approved manner, backfilling the excavation with screenings or other approved backfill material, and reconstructing the surface area. If the foundation is in a parkway, the parkway shall be properly restored with dirt to the existing level. If the foundation is in sidewalk, the sidewalk shall be restored under a different pay item and shall not be considered as part of this work.

Basis of Payment. This work will be paid for at the contract unit price each for REMOVE EXISTING TRAFFIC SIGNAL FOUNDATION, which price shall be payment in full for all labor and materials necessary to complete the work as described above.

HEAVY DUTY HANDHOLE

Description. Electrical handhole, 915 mm diameter with 610 mm frame and lid.

Type. The handhole shall be a cast in place concrete structure, or of precast reinforced concrete, complete with cast iron frame and cover, and conforming in detail with Drawing Number 866 except that the number of conduit openings shall be as shown on construction plans.

Location. Each handhole shall be installed at the location specified on the drawings or at other locations as directed by the Commissioner.

Installing Handhole. Each handhole shall be set or constructed on a foundation of loose stone not less than eight inches (8") deep. The frame casting shall be accurately set on a full bed of mortar to the finished elevation so that no subsequent adjustment will be necessary. Mortar shall be mixed in a proportion of one (1) part of cement to three (3) parts sand by volume or dry materials. After entering laterals have been installed in place in the handhole, the openings in the wall shall be plugged in an approved manner flush with the inner surface.

Materials. This contractor shall furnish all materials for a complete installation.

Basis of Payment. The necessary excavation, backfilling and restoration of parkway and pavement shall be made in accordance with foregoing specifications, and the cost thereof shall be included in the unit price bid each for installing HEAVY DUTY HANDHOLE. No additional payment will be allowed for restoring parkway or removal and restoration of sidewalk or pavement. This work will be paid for at the contract unit price each for electrical handhole installed complete.

ELECTRICAL MANHOLE, 1 M X 1.2 M X 1.2 M

Description. This work shall consist of furnishing and installing an electrical manhole, 1 m x 1.2 m x 1.2 m with 600 mm frame and lid.

Type. The manhole shall be a cast-in-place or precast concrete structure complete with cast iron frame and cover, conforming to City of Chicago drawings numbered 730 and 872 except that number and size of conduit openings shall be as shown on the construction plans.

Location. Each manhole shall be installed in paved sidewalk or parkway or in earth parkway, at location specified on the construction plans or at other locations as directed by the Engineer.

Installing Original Manholes: Each manhole shall be set or constructed to conform with City of Chicago drawings numbered 730 and 872, except that the number and size of conduit openings shall be in accordance with construction plans. The frame casting shall be accurately set on a full bed of mortar to the finished elevation so that no subsequent adjustment will be necessary. Mortar shall be mixed in a proportion of one (1) part cement to three (3) parts sand by volume of dry materials. After entering laterals have been installed in place in the manhole, the openings in the wall shall be plugged in an approved manner flush with the inner surface.

Materials. The contractor shall furnish all materials, equipment and labor for a complete installation in accordance with detail specifications, construction drawings and construction plans.

Basis of Payment. This work shall be paid at the contract unit price each for ELECTRICAL MANHOLE, 1 m x 1.2 m x 1.2 m, which shall be payment in full for all work performed including all necessary excavation, backfilling and restoration of parkway and pavement in accordance with the foregoing specifications. No additional payment will be allowed for restoring parkway or removal and restoration of sidewalk or pavement.

PVC CONDUIT EMBEDDED IN STRUCTURE 50 MM (SCHEDULE #80)
GALVANIZED STEEL CONDUIT PUSHED 75 MM
GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 100 MM
PVC CONDUIT IN TRENCH 100 MM (SCHEDULE #80)
PVC CONDUIT IN TRENCH 75 MM (SCHEDULE #80)
PVC CONDUIT IN TRENCH 50 MM (SCHEDULE #80)

Description. This work shall consist of furnishing and installing a conduit lateral of the type and size specified.

Materials. Galvanized rigid steel conduit shall conform to the requirements of the City of Chicago Standard Specifications for RIGID STEEL CONDUIT, ZINC COATED, which is made part of these Detail Construction Specifications.

Polyvinyl chloride (PVC) conduit shall conform to the requirements of National Electrical Manufacturers Association Standard, Publication Number TC2 for EPC-40.

Definition of Laterals. A lateral shall mean a conduit raceway extending from one sub-surface location to another sub-surface location, and in every case intended to encase electric circuit cable under paved surfaces, or in unpaved parkway, street or alley, where specifically designated.

Locations. Laterals shall be installed at the locations shown on the construction plans. Laterals shall be installed in the shortest practicable line between points of termination, or under adverse conditions, as directed by the Commissioner. Laterals not shown on the drawing, but necessary to be installed will be paid for at the unit price bid for laterals as additional units of construction.

Installation Requirements. Galvanized rigid steel conduit may be installed in a trench, pushed underground, or attached to a structure. PVC conduit shall normally be installed in a trench or attached to a structure. The Contractor shall exercise care in installing the conduit to ensure that it is smooth, free from sharp bends or kinks, and has the minimum practicable number of bends. Crushed or deformed conduit will not be accepted. All conduit and fittings shall have the burrs and rough places smoothed, and all conduit runs shall be cleaned and swabbed before installation of electric cables. The excavation for pushing conduit shall be located at least 600 mm from the edge of pavement. All underground conduits shall have a minimum depth of 750 mm below grade.

When multiple laterals in a common trench are required, no more than three (3) 900 mm or smaller conduit laterals shall be laid on a single, horizontal level. Four or more conduit laterals shall be installed on two (2) levels in accordance with instructions of the Commissioner.

Conduit laterals attached to a structure shall be flush to the structure where possible. Clamps or hangers shall be used at a maximum interval of 1.5 m to hold the conduit rigidly in place. Expansion couplings shall be used at locations where the conduit crosses expansion joints in the structure.

Conduit laterals installed under vaulted walks shall be securely attached to the retaining wall by means of galvanized clamps and clamp backs held in place by anchor bolts. Laterals shall be fastened as close to the underside of the sidewalk as possible, and securing clamps installed every 1.5 m. Laterals shall be continuous through party walls.

Threaded fittings and bends of the same material as conduit shall be furnished and installed as required. Threadless couplings may be used only for splicing existing conduit. All conduit splices, where required, shall be considered incidental to the contract.

Method of Measurement. The length paid for shall be the number of meter of conduit installed and accepted, measured in place. The length for measurement shall be the distance horizontally between changes in the direction of the conduit plus the conduit vertically attached to structures.

Basis of Payment. This work will be paid for at the contract unit price per meter for CONDUIT of the type and size as specified, which price shall be payment in full for furnishing and installing the conduit and fittings complete. Trench and backfill will be paid for separately. No additional payment will be allowed for pushing under pavements or jackholes for conduit laterals.

Concrete Foundation for Type "M" Base Mounted Traffic Signal Controller

Description. The Contractor shall install a concrete foundation for a base mounted traffic signal controller cabinet, as shown on City of Chicago Drawing Number 854.

The foundation will have a minimum depth of at least one meter (1m) below grade and shall have large radius conduit elbows in quantity, size and type shown. The elbow ends above ground shall be capped with standard conduit bushings. The Contractor shall furnish anchor bolts, hardware, conduit elbows, and all other material shown on the foundation construction drawing. Ready mix concrete shall be furnished in accordance with latest revision of City of Chicago Standard Specification "READY-MIXED CONCRETE". Ground rods shall be in accordance with City of Chicago Specification 1465.

Basis of Payment. Unit price shall include cost of all material and labor required to install this foundation, as per applicable construction plans and these Detail Specifications. The conduit elbows shall be considered as part of the foundation and will not be paid for as a separate item or as part of the conduit laterals leading to the foundation. All necessary excavation and restoration of parkway to the original condition shall be included in the unit price. This work will be paid for at the contract unit price of each for CONCRETE FOUNDATION FOR TYPE "M" BASE MOUNTED TRAFFIC SIGNAL CONTROLLER CABINET.

CONCRETE FOUNDATION, 500 MM DIAMETER

Description. The foundation shall be 500 mm diameter; with a 330 mm bolt circle and 19 mm diameter anchor rods.

General. The foundations will support a post for mounting a traffic signal post. The number, size and type of conduit elbow(s) and the direction of entering the foundation shall be in accordance with construction plans.

Concrete Foundations in Solid Fill. Foundations constructed in solid fill shall conform to drawing number 709. Top surface of these foundations shall be at an elevation of three and one-third inches (85 mm) above grade or as required by the Commissioner. Care shall be taken to install a level foundation and to ensure adequate anchor rods projections for double-nut installation. The foundations shall be centered back from the face of the curb in accordance with dimensions shown on construction plans. When the foundation is in a solid sidewalk area, the foundation shall be installed as shown on Drawing 828. When the foundation is centered four feet from face of curb, the top of the anchor rods shall be seven and one-eighth inches (181 mm) above the proposed curb grade, and the concrete shall be struck off approximately three inches (76 mm) below the curb grade to permit sidewalk construction which will envelop the top of the foundation to create a consolidated, unified structure.

Foundation raceways shall consist of large radius conduit elbow(s) in quantity size and type specified on the construction plans. The elbow ends above ground shall be capped with standard conduit bushings. The Contractor shall furnish anchor rods, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation shall be as noted on construction plans. Ready mix concrete shall be furnished in accordance with latest revision of City of Chicago Standard Specification “Ready Mixed Concrete”. Ground Rods shall be manufactured by the Copperweld Steel Company, or an approved equal.

Foundation Anchor Rods. Anchor Rods shall be fabricated from steel meeting the requirements of the latest revisions of ASTM A400, Class R-2 and have a minimum yield point of 50,000 P.S.I. The anchor rods shall be set by means of a metal template that shall be submitted for approval before any foundation work is begun. The template shall hold the rods vertical, and in proper position, and shall serve as a form for the top six (6) inches of the periphery of the foundation.

Basis of Payment. Payment will be made for foundations installed in place including an elbow in accordance with construction drawings, construction plans and these Detail Specifications. All necessary excavation and restoration of pavement, sidewalk and fill to its original condition shall be included in the unit price. This work will be paid for at the contract unit price per lineal foot of depth for CONCRETE FOUNDATION, 500 mm DIAMETER.

Concrete Foundation, 600 mm Diameter

Description. The foundation shall be 600 mm in diameter; with a 375 mm bolt circle and 31.25 mm diameter anchor rods.

General. Every foundation shall be installed at the location designated and in the manner herein specified or in special cases as specifically directed. From time to time, it may be required to locate foundations at places other than shown on drawings furnished this Contractor. The Commissioner reserves the right to make such relocations as he may deem necessary or required, and when directed to do so, this Contractor shall locate foundations as indicated by the Commissioner.

Concrete Foundations In Solid Fill. Foundations constructed in solid fill shall conform to drawing number 818. Top surface of these foundations shall be at an elevation of fifty millimeters (50 mm) above grade or as required by the Engineer. Care shall be taken to install a level foundation and to ensure adequate anchor rod projections for double-nut installation. The foundations shall be centered back from the face of the curb in accordance with dimensions shown on construction plans. Foundation raceways shall consist of large radius conduit elbow(s) in quantity size and type specified on the construction plans. The elbow ends above ground shall be capped with standard conduit bushings. The Contractor shall furnish anchor rods, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation shall be as noted on construction plans.

Foundation Anchor Rods. Anchor Rods shall be fabricated from steel meeting the requirements of the latest revisions of ASTM A400, Class R-2 and have a minimum yield point of 55,000 P.S.I. Anchor rods shall be set in accordance with applicable construction plans so that when poles are mounted on the foundations, the street lighting mast arm shall be properly oriented as indicated on the construction plans. The anchor rods shall be set by means of a metal template, which shall be submitted for approval before any foundation work is begun. The template shall hold the rods vertical, and in proper position, and shall serve as a form for the top 150mm of the periphery of the foundation. Anchor rods shall conform in all respects to City of Chicago drawing number 811.

Basis of Payment. Payment will be made for foundations installed in place, including elbows, in accordance with construction drawings, constructions plans and these Detail Specifications. All necessary excavation and restoration of pavement, sidewalk and fill to their original conditions shall be included in the unit price. This work will be paid for at the contract unit price per meter of depth for CONCRETE FOUNDATION, 600 mm DIAMETER.

Concrete Foundation, 750 mm Diameter, Special Parkway

Description. The foundation shall have a 750 mm diameter, with a 420 mm bolt circle and 31 mm diameter anchor rods.

General. Every foundation shall be installed at the location designated and in the manner herein specified or in special cases as specifically directed. From time to time, it may be required to locate foundations at places other than shown on drawings furnished this Contractor. The Commissioner reserves the right to make such relocations as he may deem necessary or required, and when directed to do so, this Contractor shall locate foundations as indicated by the Commissioner.

Concrete Foundations In Solid Fill. Foundations constructed in solid fill shall conform to drawing number 817. Top surface of these foundations shall be at an elevation of fifty millimeters (2") above grade or as required by the Commissioner. Care shall be taken to install a level foundation and to ensure adequate anchor rods projections for double-nut installation. The foundations shall be centered back from the face of the curb in accordance with dimensions shown on construction plans. When the foundation is in a solid sidewalk area, the foundation shall be installed as shown on Drawing 828. When the foundation is centered four feet from face of curb, the top of the anchor rods shall be seven and one-eighth inches (7 1/8") above the proposed curb grade, and the concrete shall be struck off approximately three inches (3") below the curb grade to permit sidewalk construction which will envelop the top of the foundation to create a consolidated, unified structure.

Foundation raceways shall consist of large radius conduit elbow(s) in quantity size and type specified on the construction plans. The elbow ends above ground shall be capped with standard conduit bushings. The Contractor shall furnish anchor rods, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation shall be as noted on construction plans. Ready mix concrete shall be furnished in accordance with latest revision of City of Chicago Standard Specification "Ready Mix Concrete". Ground rods shall be manufactured by the Copperweld Steel Company, or an approved equal.

Foundation Anchor Rods. Anchor rods shall be fabricated from steel meeting the requirements of the latest revisions of ASTM A400, Class R-2 and have a minimum yield point of 55,000 P.S.I. Anchor rods shall be set in accordance with applicable construction plans so that when poles are mounted on the foundations, the street lighting mast arm shall be properly oriented as indicated on the construction plans. The anchor rods shall be set by means of a metal template that shall be submitted for approval before any foundation work is begun. The template shall hold the rods vertical and in proper position, and shall serve as a form for the top six inches (6") of the periphery of the foundation. Anchor rods shall conform in all respects to City of Chicago Drawing Number 806.

Basis of Payment. Unit price shall include cost of all materials and labor required to install foundations in parkway or in a vaulted walk, as per applicable construction plans and these detail specifications. All necessary excavation and restoration of parkway or vaulted walk to their original conditions shall be included in the unit price. This work will be paid for at the contract unit price per lineal foot of depth for CONCRETE FOUNDATION 750 mm DIAMETER, SPECIAL PARKWAY

POLE, STEEL, ANCHOR BASE 292 MM DIAMETER, 7 GAUGE, 9.9 M, INSTALL ONLY

Description: This item shall consist of installing and setting plumb a steel anchor base pole to which equipment may be attached for the extension of the City street light, fire alarm, and traffic signal systems.

Installation: The pole shall be installed on the concrete foundation designed for the particular pole usage as indicated on the plans and as illustrated on Drawing Number 837 and Drawing Number 828 using double-nut construction. To obtain adequate ventilation for rust prevention the bottom of the pole base shall be set elevated above the concrete foundation. On the side away from the curb, this elevation shall be a distance of two and three-eighths inches (2 3/8") above the calculated sidewalk grade or above the level of a finished foundation per Drawing 816 or 818. In an installation made under the conditions required by Drawing 828, the top of the

lower washer on one rear anchor rod shall be set at three and five-eighths inches (3 5/8") below the top of the anchor rod, and the pole shall be installed using this washer as the controlling elevation. Any exposed portions of anchor rods extending above the nuts that interfere with the installation of the bolt covers shall be cut off with a saw to provide the necessary clearance. The excess shall not be burned off. The pole shall be set secure and plumb using the nuts and washer provided with the anchor bolts per Specification 1394 with all appurtenances attached for the final plumb check. The bolt covers, handhole cover, and pole cap shall be securely attached.

Painting: The pole and mast arm shall be delivered completely finished with a factory applied powder coat paint system. The contractor shall utilize non-abrasive slinging materials and shall otherwise exercise due care in erecting the pole and mast arm to minimize any possible damage to the finish. When necessary, the contractor shall utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Basis of Payment: This work will be paid for at the contract unit price each for POLE, STEEL, ANCHOR BASE 292 mm DIAMETER, 7 GAUGE, 9.9 m, INSTALL ONLY which shall be payment in full for furnishing and installing the pole complete in place. Light standard foundations and anchor rods shall not be included in this pay item but shall be paid for separately.

POLE STEEL, ANCHOR BASE, 381 MM, 7 GAUGE, 10.5 M, INSTALL ONLY

Description: This item shall consist of installing and setting plumb a steel anchor base pole to which equipment may be attached for the extension of the City street light, fire alarm, and traffic signal systems.

Installation: The pole shall be installed on the concrete foundation designed for the particular pole usage as indicated on the plans and as illustrated on Drawing Number 837 and Drawing Number 828 using double-nut construction. To obtain adequate ventilation for rust prevention the bottom of the pole base shall be set elevated above the concrete foundation. On the side away from the curb, this elevation shall be a distance of two and three-eighths inches (2 3/8") above the calculated sidewalk grade or above the level of a finished foundation per Drawing 816, 817 or 818. In an installation made under the conditions required by Drawing 828, the top of the lower washer on one rear anchor rod shall be set at three and five-eighths inches (3 5/8") below the top of the anchor rod, and the pole shall be installed using this washer as the controlling elevation. Any exposed portions of anchor rods extending above the nuts that interfere with the installation of the bolt covers shall be cut off with a saw to provide the necessary clearance. The excess shall not be burned off. The pole shall be set secure and plumb using the nuts and washer provided with the anchor bolts per Specification 1467 with all appurtenances attached for the final plumb check. The bolt covers, handhole cover, and pole cap shall be securely attached.

Painting: The pole and mast arm shall be delivered completely finished with a factory applied powder coat paint system. The contractor shall utilize non-abrasive slinging materials and shall otherwise exercise due care in erecting the pole and mast arm to minimize any possible damage to the finish. When necessary, the contractor shall utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Basis of Payment: This work will be paid for at the contract unit price each for POLE STEEL, ANCHOR BASE, 381 mm, 7 GAUGE, 10.5 m, which shall be payment in full for furnishing and installing the pole complete in place. Light standard foundations and anchor rods shall not be included in this pay item but shall be paid for separately.

POLE STEEL, ANCHOR BASE, 250 MM DIAMETER, 3 GAUGE, 10.5 M
POLE STEEL, ANCHOR BASE, 318 MM DIAMETER, 3 GAUGE, 10.5 M

Description. This item shall consist of furnishing and installing and setting plumb a steel anchor base pole to which equipment may be attached for the extension of the City street light, fire alarm, and traffic signal systems.

Material. The material of the pole shall meet the requirements of City of Chicago Specification 1418 for the 250 mm (10") diameter and Specification 1419 for the 318 mm (12 ½") diameter pole.

Installation. The pole shall be installed on the concrete foundation designed for the particular pole usage as indicated on the plans and as illustrated on City of Chicago Drawing Number 837 and Drawing Number 828 using double-nut construction. To obtain adequate ventilation for rust prevention the bottom of the pole base shall be set elevated above the concrete foundation. On the side away from the curb, this elevation shall be a distance of 60 mm (2 3/8") above the calculated sidewalk grade or above the level of a finished foundation per Drawing 816, 817 or 818. In an installation made under the conditions required by Drawing 828, the top of the lower washer on one rear anchor rod shall be set at 90 mm (3 5/8") below the top of the anchor rod, and the pole shall be installed using this washer as the controlling elevation. Any exposed portions of anchor rods extending above the nuts, which interfere with the installation of the bolt covers, shall be cut off with a saw to provide the necessary clearance. The excess shall not be burned off. The pole shall be set secure and plumb using the nuts and washer provided with the anchor bolts per Specification 1467 with all appurtenances attached for the final plumb check. The bolt covers, handhole cover, and pole cap shall be securely attached.

Painting. The pole and mast arm shall be delivered completely finished with a factory applied powder coat paint system. The contractor shall utilize non-abrasive slinging materials and shall otherwise exercise due care in erecting the pole and mast arm to minimize any possible damage to the finish. When necessary, the contractor shall utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Basis of Payment. This work will be paid for at the contract unit price each for POLE STEEL, ANCHOR BASE, 250 mm (10") DIAMETER, 3 GAUGE, 10.5 m, POLE STEEL, ANCHOR BASE, 318 mm (12 ½") DIAMETER, 3 GAUGE, 10.5 m, which shall be payment in full for furnishing and installing the pole complete in place. Light standard foundations and anchor rods shall not be included in this pay item but shall be paid for separately.

MAST ARM, STEEL STREET LIGHTING, 3.66 M, INSTALL ONLY

Description. This item shall consist of installing a steel pipe mast arm of a specified length to support a street light luminaire, or other apparatus as required, as is shown on Drawing Numbers 661, 654, 839, 840, and 834 when used for a traffic signal application.

Installation. The mast arm shall be installed on either a mast arm support on a City street light pole, or on an acceptable mast arm bracket and clamp assembly, designed to accept the City two-bolt mast arm attachment, which can be securely attached to a City street light pole.

The mast arm shall be secured to the support, or supports, using the screws provided as per Specification 1436. When the installation using a mast arm bracket is called for with an underground distribution system, an one-inch (1") diameter hole for cable entrance shall be drilled into the pole in the proper orientation with the hole in the mast arm mounting bracket.

Touch-Up Painting. The contractor is responsible for touching-up all marred, scraped and chipped areas of the mast arm in accordance with the mast arm suppliers instruction. Additional payment will not be made for touch-up painting. Paint, brushes and related equipment shall be furnished by the contractor.

Basis of Payment. This work shall be paid for at the contract unit price each for MAST ARM, STEEL STREET LIGHTING, 3.66 m, INSTALL ONLY, which shall be payment in full for furnishing and installing the mast arm complete in place.

LUMINAIRE, STREET LIGHTING HIGH PRESSURE SODIUM VAPOR, 400 WATT, 240 VOLT, INSTALL ONLY

Description. This item shall consist of installing a 400 watt street lighting luminaire, complete with internal ballast, electronic starting component, and 400 watt high pressure sodium vapor lamp or, a 310 watt street lighting luminaire complete with internal ballast, electronic starting component and 310 watt high pressure sodium vapor lamp, or a 150 watt street lighting luminaire complete with internal ballast, electronic starting component and 150 watt high pressure sodium vapor lamp, on a street light mast arm attached to a street light pole, and connecting the unit to either an underground cable distribution system or an aerial wire distribution system at the location shown on the plans.

Installation. The installation of the 400-watt luminaire and the 150-watt luminaire shall be identical in procedure and type of materials.

The luminaire shall be securely installed on a mast arm in the manner shown on Drawing 846 for the 400-watt unit, Drawing 847 for the 310-watt unit, and Drawing 848 for the 150-watt unit. The vertical axis of the luminaire shall be in a vertical plane, and the longitudinal axis shall be leveled as specified in shop drawings supplied by the manufacturer to produce the desired distribution pattern with the lamp socket secured in the required position for that distribution. For the 400-watt and the 310-watt luminaire, the lampholder shall be positioned to produce a Type III medium distribution, and for the 150 watt luminaire the lampholder shall be positioned to produce a "Modified Type I" distribution with 2-way control.

For an aerial distribution system, the primary wiring to the ballast shall consist of 2 1/C #12 AWG wires, with 150 degree C. irradiated polyefin insulation, connected to the terminal board "line" terminals. They shall extend through the mast arm and exit from the mast arm through the grommet in the hole provided for this purpose, and extend further forming a drip loop and connect with aerial circuit wires as shown on Drawing B. Connection to the aerial circuit wires shall be made with a split bolt type pressure connector for a No. 6 solid copper wire and the connection so formed shall be wrapped with two layers of an approved electrical tape. A cartridge type fuse, type KTK, rated at 10 amperes shall be installed in each of the fuse holders.

The fuse shall be a ten (10) ampere, KTK-10, midget fuse for use with the 400-watt high pressure sodium luminaire.

Inspection and Testing. All splices, tapes and grounding connections shall be inspected by the Commissioner's authorized representative before wires are permanently trained in the light pole.

Current, insulation resistance, and voltage readings shall be taken and tabulated by the Contractor for each circuit. These readings are to be witnessed by the Commissioner's authorized representative. Any indication of grounds, open, or crossed conductors shall be thoroughly investigated and remedied before acceptance of the installation. Line voltage shall be taken at any in-line fused location, within the pole designated by the Commissioner's authorized representative. Locations and voltage shall be tabulated as directed. Three (3) copies of the tabulated voltage insulation resistance, and current readings shall be submitted to the Commissioner's authorized representative. Maximum voltage drop shall not exceed 10% of nominal source voltage. The insulation resistance shall not be less than 2 Megohms, when tested to ground with 500 volts A.C.

The Contractor shall submit the manufacturer's certified test reports on all materials used on this project. Any material deemed defective shall be removed and disposed of by the Contractor at his sole cost.

After the lighting installation has been completed and satisfactory current and voltage readings recorded, a field test shall be made to insure that all lighting and control equipment are in proper operating condition. This field test shall be witnessed by the Commissioner.

The Contractor shall furnish special test devices, tools and miscellaneous items that shall be required for the testing of cables and control equipment, all as herein specified.

Basis of Payment. This work will be paid for at the contract unit price each for LUMINAIRE, STREET LIGHTING HIGH PRESSURE SODIUM VAPOR 400 WATT, 240 VOLT, INSTALL ONLY which shall be payment in full for furnishing, installing, connecting and testing the unit complete in place.

SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, 3-SECTION, BRACKET MOUNTED
SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, 4-SECTION, BRACKET MOUNTED

Description. This item shall consist of furnishing and installing a traffic signal head or combination of heads on a street light pole, a traffic signal pole, or a traffic signal post as shown on the plans, as specified herein, or as directed by the Engineer. Specific installations and configurations are shown on City of Chicago Drawing Numbers 834 and 835, entitled "Standard Traffic Signal Mounting Details".

The type of installation shall be as indicated on the plans. The number of signal faces, the number of signal sections in each signal face, any dual-indication sections, and the method of mounting shall be as indicated in the plans and in the standard drawings.

Each signal face shall be pointed in the direction of the approaching traffic that it is to control and shall be aimed to have maximum effectiveness for an approaching driver located at a distance from the stop line equal to the normal distance traversed while stopping.

During construction and until the installation is placed in operation, all signal faces shall be hooded. The hooding material shall be securely fastened so it will not be disturbed by normal inclement weather or wind.

Head, Signal Materials. The traffic signal head construction shall meet the requirements of City of Chicago Specification 1425 for a "Traffic Signal: Twelve-Inch, Three or Single Section, One-Way," for a non-programmed signal.

Installation Requirements. The signals shall be mounted using pole mounting brackets, Leitelt Brothers Number LB-ULB-1 or equivalent, banded to the pole with two strips of 3/4" stainless steel banding single wrapped, one at the top and one at the bottom of the brackets, each secured with a stainless steel banding clip. The mounting configuration connecting the signals to the mounting bracket shall consist of sections of 1 ½" steel conduit of precise lengths, as indicated on the standard drawing, to create the designated structure, connected with cross fittings per Standard Drawing 741, Leitelt Brothers Number LB-ULB5X, A, B, or C, or equivalent, as required.

When the signals are to be mounted on a square pole of flat surface, the bracket used will be number LB-ULB-1F or equivalent, bolted to the flat pole or surface using a 3/8" drive stud where permissible or using a 3/8" stud in a tapped hole.

The bottom mounting bracket shall be accurately located to cover an opening 1" in diameter, for cable entrance, drilled into the pole or standard at a calculated height to position the bottom signal face at a standard height of 10 feet, or a height indicated on the plans. The opening shall be reamed or filed to remove all sharp edges or burrs, which might damage cable during installation, or through vibration when the signals are in operation.

Cable. The Contractor shall provide and install a length of 8/C #18 AWG, as per City of Chicago Specification 1475, flexible electrical cord, medium duty, of sufficient length to extend without strain or stress from the terminal strip in the "Green" section of the signal head to the terminal strip in the junction box mounted on the pole. The number of conductors in the cord, and the color coding of the conductors, shall be sufficient to match the requirements of the signal head being installed, and shall be connected in accordance with Specification 1425. Both ends of the cable length shall be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned. The cord shall be attached to the terminal block in the junction box in accordance with the terminal strip connector schematic, Drawing Number 12268-A.

The service cable from the signal heads shall enter the pole through the bottom ULB-1 mounting bracket and enter the long sweep elbow to terminate by attachment to the terminal strip in the junction box in accordance with connector schematic, Bureau of Electricity Drawing Number 12268-A

Lamp Requirements. The contractor shall supply and install one incandescent lamp for each signal face. The lamp shall have a nominal 1,500 lumen rating at 133 watts with an average rated life of not less than 8000 hours, and a 3-inch light center length.
Painting. The signal head housings, the pole mounting brackets, and the crosses shall be factory painted the color specified in the plans.

Basis Of Payment. This work will be paid for at the contract unit price for each SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, 3-SECTION, BRACKET MOUNTED and SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, 4-SECTION, BRACKET MOUNTED which price shall be payment in full for furnishing and installing the signal head complete.

SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, 3-SECTION, MAST ARM MOUNTED
SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, 4-SECTION, MAST ARM MOUNTED

Description. This item shall consist of furnishing and installing a traffic signal head on a traffic signal monotube mast arm, as shown on the plans, as specified herein, or as directed by the Engineer. Specific installations and configurations are shown on City of Chicago Drawing 834 entitled "Standard Traffic Signal Mounting Details" approved by the Bureau of Electricity and the Illinois Department of Transportation for installation on Federal-Aid Highway Projects and on Illinois Department of Transportation Projects.

The type specified shall indicate the number of signal faces, the number of signal sections in each face, and the method of mounting. The size of the lenses shall be indicated on the plans.

Each signal face shall be pointed in the direction of the approaching traffic that it is to control and shall be aimed to have maximum effectiveness for an approaching driver at a distance from the stop equal line to the normal distance traversed while stopping. The optically programmed signal face shall be veiled in accordance with the visibility requirements at the direction of the Engineer.

During construction, and until the installation is placed in operation, all signal faces shall be hooded. The hooding material shall be securely fastened so it will not be disturbed by normal inclement weather or wind.

Head, Signal Materials. The traffic signal head construction shall meet the requirements of City of Chicago Specification 1425 for a “Traffic Signal: Twelve-Inch, Three or Single Section; One-Way,” for a non-programmed signal.

Installation Requirements. The signal shall be mounted on the mast arm using an "Astro-Brac" mounting device at the position on the mast arm as indicated on the drawing in the manner shown on City of Chicago Drawing 834.

The non-programmed signals shall be mounted using a bracket meeting the requirements of City of Chicago Specification 1463, and the bracket shall be banded to the mast arm with the 5/8" banding as shown on Drawing Number 834.

The bracket shall be banded to the mast arm with 5/8" banding and located over a hole drilled into the mast arm for the installation of cable. The hole shall be reamed or filed to remove any sharp edges to burrs, which might damage cable during installation, or through vibration when the signals are in operation.

Cable. The contractor shall provide and install a length of 8/C #18 flexible electrical cord, as per City of Chicago Specification 1472, of sufficient length to extend without strain or stress from

the terminal strip in the "Green" section of the signal head to the terminal strip in the junction box mounted on the pole. The number of conductors in the cord, and the color coding of the conductors, shall be sufficient to match the requirements of the signal head being installed, and shall be connected in accordance with Detail Requirements, paragraph 3 (o), "Wiring", of Specification 1425, for the "Traffic Signal Twelve-Inch Three or Single-Section, One-Way". Both ends of the cable length shall be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned. The service cable from the signal heads shall enter the traffic signal mast arm through the hole from the mounting bracket, whence it shall continue and enter the pole through the hole for mast arm wiring, then extend downward through the pole to enter the long sweep elbow to terminate by attachment to the terminal strip in the junction box in accordance with the terminal strip connector schematic, Bureau of Electricity Drawing Number 12268-A.

Lamp Requirements. The contractor shall supply and install one incandescent lamp for each signal face of a non-optically programmed signal. The lamp shall emit approximately 1500 lumens at 133 watts, have an average rated life of not less than 8000 hours, and have a 3 inch light center length.

Painting. The signal head housings, pole mounting brackets and crosses are painted by the manufacturer with green, baked on, enamel. When the signals are mounted on the pole, the mounting hardware is painted as part of the pole, which will be painted with either green of gray paint as specified on the plans, or as directed by the Engineer. The housing of the signal heads shall not be painted with the pole paint.

Basis of Payment. This work will be paid for at the contract unit price each for SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, 3-SECTION, MAST ARM MOUNTED and SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, 4-SECTION, MAST ARM MOUNTED of the type specified which price shall be payment in full for furnishing and installing the signal head complete.

PEDESTRIAN SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, BRACKET MOUNTED
PEDESTRIAN SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 2-FACE, BRACKET MOUNTED

Description. This item shall consist of furnishing and installing a pedestrian signal on a street light pole, a traffic signal pole or a traffic signal post as shown on the plans, as specified herein, or as directed by the Engineer. The signal may be installed as a single unit on a pole or in combination with other pedestrian signals or with traffic signals of various types and sizes. Specific installations and configurations are shown on City of Chicago Drawing Numbers 834 and 835 entitled "Standard Traffic Signal Mounting Details" approved by the Bureau of Electricity and the Illinois Department of Transportation for installation on Federal-Aid Highway Projects and on Illinois Department of Transportation Projects.
The method of mounting and the size of the lenses shall be indicated on the plans. Each signal face shall be pointed in the direction of the marked cross-walk area for the pedestrians it is intended to control.

During construction and until the installation is placed in operation, all signal faces shall be hooded. The hooding material shall be securely fastened so it will not be disturbed by normal inclement weather or wind

Signal Materials. The pedestrian signal head materials shall be consistent with the requirements of Bureau of Electricity Specification 1448. All housing units shall be made of aluminum.

Installation Requirements. The signal shall be mounted using pole mounting brackets Leitelt Brothers number LB-ULB-1, banded to the pole with two strips of 3/4" stainless steel banding, single wrapped, one at the top and one at the bottom of the bracket, each secured with a stainless steel banding clip. The mounting configuration connecting the signals to the mounting bracket shall consist of sections of 1-1/2" steel conduit of precise lengths as indicated on the standard drawing to create the designated structure, connected with cross fittings per Standard Drawing 741, Leitelt Brothers number LB-ULB5XA, A, B, or C as required.

The bottom mounting bracket shall be accurately located to cover a hole 1" in diameter for cable entrance drilled into the pole or standard at a height calculated to position the bottom signal face at a standard height of 10 feet, or a height indicated on the plans. The hole shall be reamed or filed to remove all sharp edges or burrs, which might damage cable during installation, or through vibration when the signals are in operation.

When the pedestrian signal is attached below a traffic signal head, the separate opening for cable may be omitted to eliminate additional weakening of the pole and the pedestrian signal cord shall be installed using the same opening as the traffic signal cord.

Cable. The Contractor shall provide and install a length of 8/C #18 AWG flexible electric cord, per City of Chicago Specification 1472, of sufficient length to extend without strain or stress from the terminal strip in the "WALK" section of the signal head to the terminal strip in the junction box mounted on the pole. The number of conductors in the cord, and the color coding of the conductors, shall be sufficient to match the requirements of the signal head being installed, and shall be so connected in accordance with Detail Requirements, paragraph 3 (e) "Wiring for Pedestrian Traffic Control Signals". Both ends of the cable shall be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned. The cord shall be attached to the terminal block in the junction box in accordance with the terminal strip connector schematic, Bureau of Electricity Drawing Number 12268-A

The service cord from the signal heads shall enter the pole through the bottom ULB-1 mounting bracket and enter the long sweep elbow to terminate by attachment to the terminal strip in accordance with the terminal strip connector schematic, Bureau of Electricity Drawing Number 12268-A.

Lamp Requirements. The contractor shall furnish and install an incandescent lamp for each face of the signal to be installed. The lamp shall be a traffic signal lamp, 120 volt, 116 watts, 2 7/16" light center length with rated life of 8000 hours.

Painting. The signal head housings, the pole mounting brackets, and the crosses shall be painted by the manufacturer with green, baked on, enamel. When the signals are already mounted on the pole, the mounting hardware is painted as part of the pole, which will be painted with either green or gray paint as specified on the plans or as directed by the engineer. The housing of the signal heads shall not be painted with the pole paint.

Basis of Payment. This work will be paid for at the contract unit price each for PEDESTRIAN SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 1-FACE, BRACKET MOUNTED and PEDESTRIAN SIGNAL HEAD, POLYCARBONATE WITH LED LENS, 2-FACE, BRACKET MOUNTED, of the type specified, which price shall be payment in full for furnishing and installing the signal head complete.

JUNCTION BOX, POLE OR POST MOUNTED

Description. This item shall consist of furnishing and installing a Junction Box on each traffic signal post, traffic signal pole, or street light pole on which a signal head is mounted, as shown on the plans, specified herein, or directed by the Engineer's authorized representative. The junction box, 16" high, 6" Wide and 4" deep shall be installed with appurtenances as shown on Standard Drawing 834 and as described herein.

Materials And Assembly. The Junction Box shall conform to the requirements of City of Chicago Specification Number 1407, Detail Specification for a Junction Box, and shall be mounted above and attached by four (4) #10-24x3/4" stainless steel screws, to a long sweep elbow, Leitelt Brothers Company Item Number LB-16-64-A-2. A stainless steel, sign mounting, banding bracket, Drawing Number 11984, shall be attached to the center of the back of the box with a 5/16" x 1" stainless steel machine screw. The box shall contain a 20 conductor terminal strip, Marathon Special Products Corporation Catalog Number 36002, securely fastened to an Aluminum Terminal Block "Z" Bracket, Leitelt Brother Company Item Number LB-16-6-4B, mounted with two Number 8-24 x " stainless steel machine screws in tapped holes in the mounting bosses, and located 3/4 inches from the right side facing the open box.

Installation Requirements. The box and elbow shall be mounted on the side of the pole away from the roadway. The center of the box shall be located approximately fifty-eight inches (58") above the adjacent sidewalk. The long sweep elbow shall be properly positioned over a hole 1" in diameter drilled in the pole approximately 48" above the sidewalk, for the installation of the cable. The hole shall be reamed or filed to remove all sharp edges or burrs, which might damage cable during installation, or through vibration when the signals are in operation. The box and elbows shall be banded to the pole with three (3) 3/4" stainless steel bands, one through the banding bracket and one each at the top and bottom of the elbow.

Basis of Payment. This work will be paid for at the contract unit price each for a JUNCTION BOX, POLE OR POST MOUNTED, which price shall be payment in full for furnishing and installing the junction box complete with its component parts and appurtenances. Connection of cables and wires to the terminal strip will not be part of the cost of the junction box but will be considered part of the installation of the underground cable and the installation of signal heads.

FIBER OPTIC SIGN, BRACKET MOUNTED (SYMBOLIC)
FIBER OPTIC SIGN, MAST ARM MOUNTED (SYMBOLIC)

Description. This item shall consist of furnishing and installing a fiber optic blank out sign for indicating left turn or right turn prohibitions at the locations specified on the plans.

Materials. The fiber optic blank out signs shall be manufactured by either National Sign & Signal Company, Fiber Fabrications, Inc. or an approved equal.

The fiber optic blank out sign shall provide the correct symbol for “NO LEFT TURN” or “NO RIGHT TURN” indicated in accordance with the requirements of the “Manual on Uniform Traffic Control Devices.” The sign face shall be 600 mm (24 inches) by 600 mm (24 inches). The glass fiber bundles shall be arranged to provide a discernible message in the event of a failure by one of light source. No symbol shall be seen under any ambient light condition when not illuminated.

Basis of Payment. This work will be paid for at the contract unit price each for FIBER OPTIC SIGN, BRACKET MOUNTED (SYMBOLIC) or FIBER OPTIC SIGN, MAST ARM MOUNTED (SYMBOLIC), which price shall be payment in full for furnishing and installing the fiber optic sign complete with its component parts and appurtenances.

SIGN, MESSAGE, ELECTRICALLY ILLUMINATED, BRACKET MOUNTED

Description. This item shall consist of furnishing and installing a single faced, permanently illuminated, incandescent traffic signal bracket mounted on a street light or traffic signal pole, or on a traffic post at the location shown on the plans or as authorized by the Commissioner. The sign may be installed as a single unit or in combination with traffic or pedestrian signals. Specific installations and configurations are shown on Standard Drawings 834 and 835.

Material. The material of the sign shall be the equivalent of a unit made by Bell and Gustus Inc. (#3069) or Winko-Matic Signal Company (P.I. 2430).

Case. Formed from 3003H14 sheet aluminum at least .100” thick with 2” corner radius into enclosure 24” wide x 30” high. All welded filler arc. Aluminum treated as per Military Spec. 5541. One coat of zinc chromate primer followed by two coats of non-yellowing baking enamel inside and two coats of finish color outside as designated by the Department of Streets and Sanitation. Baking temperature 350 °F.

Cases to be furnished with 1 ½” hubs, top and bottom. Face shall be fabricated of lexan with messages as herein indicated and held in place by formed aluminum channel. The message may be one of four statements, “NO LEFT TURN”, “NO RIGHT TURN”, “NO TURNS”, or “DO NOT ENTER” as indicated on the plans by the letters “NLT”, “NRT”, “NT”, or “DNE” respectively. All nuts and bolts to be 18-8 stainless steel.

WARRANTY: The contractor shall warrant the Traffic Signal Signs to meet the requirements of this specification and shall warrant all equipment, components, parts and appurtenances against defective design, material, and workmanship for a period of one (1) year from date of acceptance. In the event of defects and/or failure during this period, the contractor shall repair or replace such defects and/or failures at no expense to the City. This warranty shall be evidenced by a letter or certificate of warranty submitted to the City at the time final delivery is made.

Each sign case shall be modified by the installation of a NEMA Standard Receptacle for a Photo-cell on the top of the sign case, and the installation of a photo cell meeting the requirements of Specification 1439 for a photo cell. The photocell socket shall be connected using #12 AWG 90 °C wire into the line side of the service to provide photoelectric control over all the electric lamps in the sign.

INSTALLATION: Each sign shall be faced in the direction of the traffic it is intended to control. During construction and until the installation is placed in operation, the sign face shall be hooded. The hooding material shall be securely fastened so it will not be disturbed by normal inclement weather or wind. The sign shall be mounted using pole mounting brackets Leitelt Brother Number LB-ULB-1, banded to the pole with two strips of ¾" stainless steel banding wrapped, one at the top and one at the bottom of the brackets, each secured with a stainless steel banding clip. The mounting configuration connecting the sign to the mounting bracket shall consist of sections of 1 ½" steel conduit of precise lengths, as indicated on the standard drawing, to create the designated structure, connected with cross fittings per Standard Drawing 741, Leitelt Brothers Number LB-ULB5X, A, B, or C, as required.

When the sign is to be mounted on a square pole or flat surface, the bracket used will be number LB-ULB-1F, bolted to the flat pole or surface using a 3/8" drive stud where permissible or using a 3/8" stud in a tapped hole.

The bottom mounting bracket shall be accurately located to cover an opening 1" in diameter, for cable entrance, drilled into the pole or standard at a calculated height to position the bottom sign face at a standard height of fourteen feet and eight inches (14'-8"), or a height indicated on the plans. The opening shall be reamed or filed to remove all sharp edges or burrs that might damage cable during installation, or through vibration when the sign is in operation.

CABLE: The Contractor shall provide and install a length of flexible electrical cord, medium duty, type SO, two-conductor, number 12 A.W.G., stranded copper, color coded, rubber insulated, neoprene jacketed, of sufficient length to extend without strain or stress from the sign head to the terminal strip in the junction box mounted on the pole. Both ends of the cable length shall be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned.

The service cable from the sign shall enter the pole through the bottom ULB-1 mounting bracket and enter the long sweep elbow to terminate by attachment to the terminal strip in the junction box in accordance with connector schematic, Bureau of Electricity Drawing Number 12268-A.

LAMP REQUIREMENTS: The contractor shall supply and install one 25 watt, 120-volt incandescent lamp for each of the eight sockets in the sign.

PAINTING: The sign housing, the pole mounting bracket, and the crosses are painted by the manufacturer with baked on enamel. When the sign is already mounted on the pole, the mounting hardware is painted as part of the pole, which will be painted with either green or gray paint as specified on the plans, or a directed by the Commissioner. The housing of the sign shall not be painted with the pole paint.

BASIS OF PAYMENT: This work will be paid for at the contract unit price for each SIGN, MESSAGE, ELECTRICALLY ILLUMINATED, BRACKET MOUNTED of the type specified, which price shall be payment in full for furnishing and installing the sign complete.

MAST ARM, STEEL, MONOTUBE, 6.1 M (20')
MAST ARM, STEEL, MONOTUBE, 7.9 M (26')
MAST ARM, STEEL, MONOTUBE, 10.7 M (35')
MAST ARM, STEEL, MONOTUBE, 12.2 M (40')

Description. This item shall consist of furnishing and installing a steel, monotube, mast arm for the purpose of supporting traffic signals, and/or illuminated or painted signs, or other types of

related equipment on an anchor-base pole at the locations shown on the plans, as specified herein, or as directed by the Engineer. The length of the mast arm and the angular orientation of the arm relative to the centerline of the roadway shall be as indicated on the plans.

A mast arm shall be installed only on a 3-gauge pole, and the length of the mast arm shall govern the minimum base diameter of the pole on which the arm is to be installed, in accordance with the following chart:

MAST ARM LENGTH		POLE BASE DIA. INCHES	POLE GAUGE
FEET	GAUGE		
16	7	10	3
20	7	10	3
26	7	10	3
30	7	11	3
35	7	12 ½	3
40	7	12 ½	3

Material. The material of the mast arm shall meet the requirements of the mast arm depicted on City of Chicago Drawing Number 99 for 16, 20, 26, 30, 35 and 40-foot long traffic signal mast arms.

Installation Requirements. The mast arm shall be mounted on the pole at the height specified on City of Chicago Drawing 834, or at a different height only if specified on the plans. A one-inch (1") diameter opening for the installation of cable shall be field drilled in the pole in line with the orientation of the mast arm.

The hole shall be reamed or filed to remove all sharp edges or burrs, which might damage cable during installation, or through vibration when the signals are in operation. A neoprene grommet shall be inserted into the finished hole prior to the installation of cable.

Two holes shall be field drilled in the pole at 180 degrees relative to the orientation of the pole for installation of locator shear pins, provided with the back plate, to prevent rotation of the mast arm. These holes shall be drilled after the mast arm is in place in order that the position of the holes shall match the location of the locator bushings attached to the back half of the clamp.

All appurtenant signals and/or electric signs, indicators, or other electronic equipment must be attached in the correct relative position to the mast arm, with the service cord in place, prepared to be installed on the pole, prior to the attachment of the mast arm to the pole. The installation of the cord in the pole shall be coordinated with the attachment of the mast arm to the pole. The clamp bolts shall be tightened securely so that there is no slippage of the mast arm either upward or downward to exert a vertical force on the shear pins. The end cap shall be secured in place with the attachment screws provided.

Painting. The pole and mast arm shall be delivered completely finished with a factory applied powder coat paint system. The contractor shall utilize non-abrasive slinging materials and shall

otherwise exercise due care in erecting the pole and mast arm to minimize any possible damage to the finish. When necessary, the contractor shall utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Basis of Payment. This work shall be paid for at the Contract unit price for each MAST ARM, STEEL, MONOTUBE, 20 FOOT, MAST ARM, STEEL, MONOTUBE, 26 FOOT, MAST ARM, STEEL, MONOTUBE, 35 FOOT or MAST ARM, STEEL, MONOTUBE, 40 FOOT and shall be payment in full for furnishing and installing a steel monotube traffic signal mast arm in place. Attachment of signals, signs, equipment or the cost of the attachments shall not be a part of this pay item, but shall be paid for at their separate unit cost prices detailed elsewhere in these specifications.

TRAFFIC SIGNAL POST, ALUMINUM, 4.6 M

Description. This item shall consist of furnishing and installing an aluminum post, for supporting a traffic signal, upon a concrete foundation, at the location shown on the plans, as specified herein, or as directed by the Commissioner. The post installation itself shall be consistent in construction to the post shown on Drawing Number 526 for the installation of a post for a traffic signal.

Materials. The material of the post shall meet the requirements for the item shown on Drawing Number 526 for a Base, Traffic Signal Post, Aluminum, with Handhole. The pole cap catalog item number LB5-101 be Leitelt Brothers Company, fits over the top of the post and is secured by 3 5/16" - 18 x ¾" hexhead stainless steel set screws.

Installation Requirements. The post shall be mounted on the foundation as shown on the assembly drawing, Drawing Number 11881, with handhole facing away from the curb. The foundation specification requires a level, smooth, top surface on the foundation. The nuts on the foundation shall be tightened to secure the post to the foundation such that there is no space separating the post from the foundation, there shall be no vertical or horizontal movement of the installation, the post shall be plumb and the use of shims will not be permitted.

Any post which is cracked or broken during installation by over tightening of the nuts on the anchor bolts will not be accepted and shall be replaced by the contractor at the contractor's expense.

The height of the post shall be as indicated on the plans. The post shall not be painted.

Basis of Payment. This work will be paid for at the contract unit price each for a TRAFFIC SIGNAL POST, ALUMINUM 15 FT., which shall be payment in full for furnishing and installing the post complete in place.

ELECTRIC CABLE IN CONDUIT NO. 4 2/C
ELECTRIC CABLE IN CONDUIT NO. 12 19/C
ELECTRIC CABLE IN CONDUIT NO. 12 7/C
ELECTRIC CABLE IN CONDUIT, 14 2/C, TWISTED, SHIELDED

Description. This work shall consist of furnishing and installing electric cable of the type, size and number of conductors as specified on the plans. The cable shall be rated 600 volts and comply with the following requirements.

Traffic Signals Cable. All cable shall conform to the requirements of City of Chicago Specification number 1470, Detail Specification for Traffic Signal Cable.

Installation of Cable. All cable shall be installed in conduit, as indicated on the plans, with care to prevent damage to the insulation or cable. Suitable devices shall be used in pulling the cable, and only approved lubricants shall be used. All cables installed in conduit will be from the power source to the traffic signal controller, from the traffic controller to the City traffic signal junction box, or from junction box to junction box. Cables that terminate in a traffic signal controller or traffic signal junction box shall extend two inches (2") above the bottom of the box, or cabinet, and the following procedure shall be followed:

a. Controllers:

1. Remove thirty-six inches (36") of neoprene jacket.

2. Wrap vinyl electrical tape on two inches (2") of the neoprene jacket and two inches (2") on the exposed conductors.

3. Remove one inch (1") of insulation and scrape copper conductor.

4. Train cables neatly along the base and back of cabinet.

5. Connect conductors to proper terminal lugs.

b. Traffic Signal Junction Box:

1. Remove twenty-four inches (600 mm) of neoprene jacket.

2. Wrap vinyl electrical tape on two inches (2") of neoprene jacket and two inches (2") on the exposed conductors.

3. Remove one inch (1") of insulation and scrape copper conductor.

4. Train cables neatly along the side and back of the box.

5. Connect all conductors to terminal strip.

Slack Cable. The length of cable slack shall be provided in accordance with the following schedule:

LOCATION	LENGTH OF SLACK CABLE (FEET)
BASE OF CONTROLLER POST	1
DETECTOR, JUNCTION BOX	1
BASE OF TRAFFIC SIGNAL POST OR TRAFFIC SIGNAL POLE	2
CITY HANDHOLE	6
CITY MANHOLE	12
ComEd MANHOLE	25

Cable Splices. Cable splices shall be made ONLY for magnetic detector leads; detectors loops or interconnect cable (7/C) that will be indicated on the plans. Detailed Splicing procedures for Detector Leads, Detector Loops, is described in (T418). For splicing interconnect cable (7/C) the following procedure shall be followed:

a. Remove all outer cable coverings, leaving four inches (4") of insulated wire exposed.
b. Remove insulation for about one inch (1") and scrape copper conductor.
c. The conductors may be connected either by twisting together and soldering or by the use of pressure type, solderless connectors.
d. Waterproof the point where conductors emerge from covered cable by wrapping end of outer covering between and around conductors with rubber or vinyl electrical tape.
e. Wrap each conductor separately with rubber or vinyl electrical tape, starting about two inches (2") from the ends of the wires and working back to about two inches (2") beyond the end of the outer covering.
f. Wrap two layers of rubber or vinyl electrical tape around each conductor. Apply 2 layers of friction tape over the rubber tape, if used. Squeeze each layer with fingers.
g. Warm all exposed tape slightly and press tape into a solid mass around each conductor.
h. Paint entire surface of splice with insulating paint.

Method of Measurement. The length of measurement shall be the distance horizontally measured between changes in direction, including slack cable. All vertical cables will not be measured for payment. Lengths of slack cable required will be paid for at the contract unit price per meter for "Traffic Signal Electrical Cable, in Conduit".

Basis of Payment. This work will be paid for at the contract unit price per meter for ELECTRIC CABLE IN CONDUIT NO. 4 2/C, ELECTRIC CABLE IN CONDUIT NO. 12 19/C, ELECTRIC CABLE IN CONDUIT NO. 12 7/C and ELECTRIC CABLE IN CONDUIT 14 2/C, TWISTED, SHIELDED of the type, size, and number of conductors specified. This price shall be payment in full for furnishing, installing, connecting, splicing, and testing of cable, and shall include all labor, materials, equipment, tools, and incidentals necessary to complete the work, as specified herein, and as shown on the plans.

ELECTRIC CABLE IN CONDUIT, TRIPLEX 2-1/C NO. 6, 1/C NO. 8

Description. This work shall consist of furnishing and installing electric cable that is triplexed. The cable shall be rated at 600 volts and shall consist of two number 6 conductors and one number 8 conductor. The cable will be installed in conduit underground.

Material. The cable shall meet all requirements of Material Specification 1440 of the Bureau of Electricity, City of Chicago.

Construction Method. All cables shall be installed with care to prevent damage to the cable. Any defects found in the cable shall be reported to the resident engineer. Damaged cable shall be replaced.

The cable shall be pulled into the conduit with a minimum of dragging on the ground or pavement. This shall be accomplished by means of reels mounted on jacks or other suitable devices located for unreeling cable directly into duct. Lubricants shall be used to facilitate installation if deemed necessary by the contractor. Bends in the cable shall conform to the recommended minimum radius as outlined in the National Electric Code.

Cable passing through manholes shall be trained and racked around the sides of the manhole into a permanent position. If racks are non-existent or in poor condition, the contractor shall install racks. The material shall be approved by the resident engineer. Any material and labor involved in training and racking the cable shall be considered incidental to the cost of this pay item.

Where cable runs continue from manhole to manhole without tapping within a light pole, they shall be continuous without splices unless authorized by the resident engineer.

The cable installation shall be color coded so that each lead of all circuits may be easily identified and lighting units connected to the proper leg as indicated on the plans. The equipment grounding conductor (NO. 8) shall be color coded green.

All wire or cable in the distribution panels and control cabinets shall be properly trained and have sufficient slack provided for any rearrangement of equipment or future additions.

There shall be at least two feet of slack in a street light pole base or street light controller base. A handhole shall have at least five feet of slack and a manhole at least ten feet of slack.

Method of Measurement. The length of triplex cable furnished and installed will be measured as the length of conduit plus three feet for cable entering and leaving a light pole or street light control cabinet, plus any slack in manholes or handholes.

Basis of Payment. This work shall be paid for at the contract unit price per meter for ELECTRIC CABLE IN CONDUIT, TRIPLEX, 2-1/C NO. 6, 1-1/C NO. 8. The price shall be payment in full for furnishing, installing, and testing the cable, and shall include all material, labor, and incidentals necessary to complete the work as per the contract plans

SOLID STATE FULL-ACTUATED CONTROLLER, 4-PHASE DIGITAL TIMING WITH SOLID STATE TIME BASE COORDINATOR IN BASE MOUNTED CABINET

Description. This work shall consist of furnishing and installing a pretimed controller of the type specified.

Materials. Material shall meet the requirements of Sections 1 through 17, Specification Number 1396.

Installation Requirements. The pretimed controller shall be enclosed in a housing and installed in a completely wired cabinet. The model and serial numbers of the controller shall be affixed on the front of the housing and readily visible.

Electric cable inside the controller cabinet shall be neatly trained along the base of the cabinet. Each conductor used shall be connected individually to the proper terminal, and the spare conductors shall be insulated and bound into a neat bundle. Each cable shall be marked with

suitable identification and recorded on a copy of the plans for the intersection and submitted to the Commissioner. The pretimed controller shall provide the sequence of operation shown on the plans. Signal indications for each direction shall be wired to a separate circuit whether or not the signal plan call for a split movement. Final offset timing of time base coordinator shall be set in the field by City personnel. All conduit entrances into the controller cabinet shall be sealed with a pliable waterproof material.

Basis of Payment. This work will be paid for at the contract unit price each for SOLID STATE FULL-ACTUATED CONTROLLER, 4-PHASE DIGITAL TIMING WITH SOLID STATE TIME BASE COORDINATOR IN BASE MOUNTED CABINET, which price shall be payment in full for furnishing and installing the controller complete with the necessary connections for proper operation.

BREAKDOWN EXISTING HANDHOLE

Description. Work under this item shall be performed in accordance with the Illinois Department of Transportation's "Standard Specifications for Road and Bridge Construction", Bureau of Electricity Standards and the City of Chicago Electrical Code, except as herein modified. This work shall consist of removing the frame and cover of an existing handhole, breaking down the handhole walls, removing large debris, and backfilling the hole with screenings or other approved material. If the handhole is in a parkway, the hole shall be filled level to the existing grade. The top six inches of fill shall be of an approved soil mixture. If the handhole is in sidewalk or in pavement, the sidewalk or pavement shall be restored under a different pay item. If the frame or cover is deemed reusable by the resident engineer, the frame and/or cover shall be delivered to the Bureau of Electricity at a location identified by the resident engineer. Any debris, including the frame and cover shall be disposed of off-sight in an approved manner.

Basis Of Payment. This work shall be paid for at the contract unit price per each for BREAKDOWN EXISTING HANDHOLE, which price shall be payment in full for all labor and materials necessary to complete the work as described.

REMOVE EXISTING STREET LIGHTING EQUIPMENT

Description. This work shall consist of removing existing street lighting units at various locations shown on the plans.

Materials. Street lighting poles (anchor base or embedded), base ballast housing, mast arms, luminaires, controllers and secondary racks are to be removed and remain the property of the City of Chicago. Embedded poles shall be removed by means other than burning where possible. The Contractor shall deliver the above obsolete street lighting equipment to the City of Chicago Yard at 4100 South Cicero Avenue, Chicago, Illinois. Twenty-four hours advance notice is necessary before delivery. Street lighting cable shall be removed as indicated on the plans, and become the property of the Contractor to be disposed of by him, outside the right of way, at his sole expense.

Method of Measurement. The Contractor shall provide three (3) copies of a list of equipment that is to remain the property of the City, 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. The Contractor shall be responsible for the condition of the street lighting equipment from the time of removal until the acceptance of a receipt drawn by the City indicating that the items have been returned in good condition.

Basis of Payment. This work will be paid for at the contract lump sum price for REMOVE EXISTING STREET LIGHTING EQUIPMENT at the various locations shown on the plans. This price shall be payment in full for removing the equipment and disposing of it as required. The salvage value of the cable retained by the Contractor shall be reflected in this contract lump sum price.

REMOVE EXISTING STREET LIGHTING FOUNDATION

Description. Work under this item shall be performed in accordance with Sections 800 and 871 of IDOT's Standard Specifications for Road and Bridge Construction, Bureau of Electricity Standards and the City of Chicago Electrical Code, except as herein modified. The work shall consist of removing a concrete foundation for a street light pole to a level three feet below the grade, disposing of the debris off-sight in an approved manner, backfilling the excavation with screenings or other approved backfill material, and reconstructing the surface area. If the foundation is in a parkway, the parkway shall be properly restored with dirt to the existing level. If the foundation is in sidewalk, the sidewalk shall be restored under a different pay item and shall not be considered as part of this work.

Basis of Payment. This work will be paid for at the contract unit price each for REMOVE EXISTING STREET LIGHTING FOUNDATION, which price shall be payment in full for all labor and materials necessary to complete the work as described above.

INDUCTION LOOP DETECTOR AMPLIFIER

Description. This work shall consist of furnishing and installing an induction loop detector amplifier.

Materials. An induction detector amplifier shall comply with the requirements of NEMA Standards for Traffic Control Systems, TS1-1983, Part II and the following requirements:

a. The induction loop detector amplifier shall be of digital design and shall be capable of detecting vehicles at speeds from 2 to 80 mph.

b. Each channel shall have three or more levels of sensitivity control and shall be of sufficient sensitivity to detect the smallest licensable motor vehicle, including motorbikes.

c. Each channel shall have three modes of operation - delay, extensions, and normal. The delay feature shall be inoperative during the green interval for the approach of which the detector is located.

d. The induction loop detector amplifier shall provide a self-tuning method for accommodating the range of sensor loop/lead-in inductance.

e. The induction loop detector amplifier shall use a relay for output interfacing, so in failure condition the amplifier will register a continuous call to the signal controller.

Installation Requirements. Unless otherwise specified, the induction loop detector amplifier shall be installed inside a traffic signal controller cabinet.

Basis of Payment. This work will be paid for at the contract unit price each for INDUCTION LOOP DETECTOR AMPLIFIER, which price shall be payment in full for furnishing and installing the vehicle detector amplifier complete, with necessary connections and adjustments for proper operations. Some manufacturers' detector amplifiers are designed with more than one complete detection channel in each unit. In that case, each complete detection channel will be considered as a detector amplifier.

DETECTOR LOOP

Description. This work shall consist of furnishing and installing a detector loop in the pavement. The size of the loop and the number of turns shall be as shown on the plans or as recommended by the manufacturer of the related induction loop detector amplifier.

Materials. The materials of the detector loop shall meet the following requirements:

a. Wire. The wire shall normally be No. 14 AWG, Type THWN of THHN, with stranded copper conductor.

b. Sealer. The sealer shall be a polyurethane or a two-component, theromosetting, epoxy or polyester resin. The mixture shall comply with the following requirements:

1. Polyurethane. The material shall be of a composition that, within its stated shelf life, cures only in the presence of moisture. It shall be suitable for use with both bituminous and concrete pavements and shall be capable of being driven over immediately upon application without stringing.

   A cured 25 mil free film of the material, bent 180 degrees over a ½ inch mandrel at -40 degree F., shall exhibit no cracking. A 40-mil film cured at 77-degree F. and 50% relative humidity shall be dry to the touch within 24 hours and completely dry within 30 hours. The cured material shall be highly resistant to oils, gasoline, anti-freeze solutions, brake fluids, and road salt.

   The cured material shall have the following properties:

Hardness	65-85
Tensile Strength	500 psi minimum
Elongation	400 percent minimum

2. Two component epoxy or polyester resin. The material shall be flexible, waterproof, and resistant to salts, oil, gasoline, acids and alkalis.

It shall provide a compressive yield strength adequate to withstand heavy

The mixture shall have the following properties:

Pot Line at 77 °F	13-minute minimum
Cure Time at 77 °F	4 hours maximum
Shore D. Harness	28 minimum
Tensile Strength	350-psi minimum
Elongation	15 percent minimum

Installation Requirements. The detector loop shall be installed in a sawed slot in accordance with the details shown on the plans. The sawed slot in pavement shall be clean, dry, and have a smooth bottom. Diagonal saw cuts or drilled holes shall be made at all corners to prevent sharp bends of the wire.

Before pouring the sealer, electronic instruments shall be used to test the resistance, inductance, and Quality Factor of the loop and lead-in circuit. The resistance shall be a minimum of 10 megohms above ground under any conditions of weather or moisture. The loop and lead-in circuit shall have an inductance between 50 and 700 microhenries. The Quality Factor (Q) shall be greater than 5.0. The Contractor shall provide the necessary instruments and do all the testing in the presence of the Commissioner.

Retainers shall be added to the sawed slot to prevent the loop wires from “floating” during the pouring of the loop sealant. These retainers can be made of 1-inch pieces of vinyl plastic tubing bent in half to form the retainer.

Basis of Payment. This work will be paid for at the contract unit price per meter of DETECTOR LOOP measured along the sawed slot in the pavement containing the loop and lead-in, rather than the actual length of the wire in the slot, which price shall be payment in full for furnishing, installing and testing the detector loop complete in place.

SPECIAL PROVISION FOR DETECTOR LOOP

The installation of detector loop shall meet the requirements of Section T41801, except as revised with this SPECIAL PROVISION.

The sawcut shall be ¼” wide and a minimum of to 2” deep depending upon the type of roadway surface.

The sawcut shall be continuous from edge of detector loop to and through one side of the bronze detector junction box whose cover and gasket shall be removed before cutting.

After the wire and retainers are installed, the saw cut through the side of the bronze junction box shall be plugged with a pliable putty to prevent the entrance of the liquid epoxy loop sealer.

The only splicing method for this item will be with marine type heat shrinkable tubing, and the following procedures shall be followed:

1. Remove all outer cable coverings leaving 4 inches of insulated wire exposed.

2. Remove insulation for 1 inch and scrape copper conductors.

3. Insert the cable into two irradiated polyolefin heat shrinkable tubes. The conductors shall then be connected by twisting together and soldering. Rosin core solder must be used for soldering the connectors. The tubes shall completely cover the soldered connection and the insulation 1 inch beyond all exposed copper wire on either end of the connection.

4. Shrink the tubes, one at a time, over the soldered wires and insulation to form a watertight covering, using a propane torch or other heat source.

Basis of Payment. This work will be paid for at the contract unit price per meter of DETECTOR LOOP measured along the sawed slot in the pavement containing the loop and lead in, rather than the actual length of the wire in the slot, which price shall be payment in full for furnishing, installing, splicing and testing the Detector Loop complete in place.

BREAKDOWN CONTROLLER FOUNDATION, TYPE A

Description. Work under this item shall be performed in accordance with Sections 800 and 871 of IDOT's Standard Specifications for Road and Bridge Construction, Bureau of Electricity Standards and the City of Chicago Electrical Code, except as herein modified. The work shall consist of removing a concrete foundation for a pedestal mounted traffic controller or street lighting controller to a level three feet below the grade, disposing of the debris off-sight in an approved manner, backfilling the excavation with screenings or other approved backfill material, and reconstructing the surface area. If the foundation is in a parkway, the parkway shall be properly restored with dirt to the existing level. If the foundation is in sidewalk, the sidewalk shall be restored under a different pay item and shall not be considered as part of this work.

Basis of Payment. This work will be paid for at the contract unit price each for BREAKDOWN CONTROLLER FOUNDATION, TYPE A, which price shall be payment in full for all labor and materials necessary to complete the work as described above.

CONCRETE FOUNDATION FOR BASE MOUNTED STREET LIGHT CONTROLLER

General. The Contractor shall install a concrete foundation for a base mounted street light controller cabinet, as shown on City of Chicago Drawing Number 876.

The foundation will have a minimum depth of at least fifty inches (50") below grade and shall have large radius conduit elbows in quantity, size and type shown. The elbow ends above ground shall be capped with standard conduit bushings. The Contractor shall furnish anchor bolts, hardware, conduit elbows, and all other material shown on the foundation construction drawing. Ready mix concrete shall be furnished in accordance with latest revision of City of Chicago Standard Specification "READY-MIXED CONCRETE". Ground rods shall be in accordance with Specification 1465. Anchor Rods shall be in accordance with Specification 1467.

Basis of Payment. Unit price shall include cost of all material and labor required to install this foundation, as per applicable construction plans and these Detail Specifications. The conduit elbows shall be considered as part of the foundation and will not be paid for as a separate item

or as part of the conduit laterals leading to the foundation. All necessary excavation and restoration of parkway to the original condition shall be included in the unit price. This work will be paid for at the contract unit price of each for CONCRETE FOUNDATION FOR BASE MOUNTED STREET LIGHT CONTROLLER.

CONTROLLER, STREET LIGHTING, BASE MOUNTED, 1 PHASE, 100 AMP

Description. This work shall consist of furnishing and installing an aluminum cabinet to be mounted on a ballast housing base, and containing various electro-mechanical devices to automatically control energizing and de-energizing of street lighting circuits, and to provide protection for the equipment so controlled.

The voltage specified shall be equated to the service capability of the Commonwealth Edison Company at the given location and the number of circuits to be serviced shall be as required by the plans.

Material and Assembly. The aluminum controller cabinet shall be a Hennessy Co. 3B cabinet or approved equal.

The electro-mechanical devices within the cabinet shall be attached to a 3/8 inch thick phenolic, linen base, bakelite panel as per Drawing Number 833, drilled to accommodate the various devices with allowable clearances, and secured in the cabinet with four - 5/16” - 18 NC x 7/8” stainless steel machine screws.

The circuit breakers, single-pole, two-pole, or three-pole shall meet the requirements of Specification 1428. The mechanically held, remote control contactor, shall be an Automatic Switch Company per Bulletin 920 - Catalog Numbers 920210061, 920220061, 920310061 and 920320061 located as per Drawings 862, 883, or 884.

Installation. The controller shall be wired as shown on Drawings 862. The drawing corresponding to the desired controller shall be indicated on the plans for a change in ampere capacity of service voltage supply. For a 200 ampere controller the main circuit breaker and the contactor shall each have a 200 ampere rating, and the branch circuit breakers shall be as indicated on the plans. For a three phase service, a three pole main circuit breaker and three pole contactor of the corresponding ampere rating shall be installed and the branch circuit breaker ampere ratings shall be as indicated on the plans.

The cabinet shall be installed on a ballast housing base, 20 inches in height secured to a concrete foundation shown on Drawing 876 or 880 at the location indicated on the plans.

The installation of feeder cables and branch circuit cables shall be performed in a neat and workmanlike manner with all cable trained around the cabinet, secured to the proper terminals and identified either by tagging of the cables, or by identification of the branch breakers, all as part of the controller installation and not as a separate pay item.

The lighting circuit shall be placed in operation as soon as practicable with the Contractor or IDOT being charged for the energy until the circuits are accepted by the City of Chicago, Bureau of Electricity.

Basis of Payment. This work will be charged for at the contract unit price each for a CONTROLLER, STREET LIGHTING, BASE MOUNTED, 1 PHASE, 100 AMP, which shall be payment in full for furnishing and installing the controller complete in place.

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Description. This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans.

Inspection of Controller and Cabinet. The Illinois Department of Transportation reserves the right to request any controller and cabinet to be tested at the equipment supplier facilities prior to field installation, at no extra cost to this contract. All railroad interconnected (including temporary railroad interconnect) controllers and cabinets shall be newly constructed, built, tested and approved by the controller equipment vendor, in the vendor's IDOT 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.

Construction Requirements. Starting January 1, 1998 only an approved equipment vendor or a certified IMSA Level 11 electrician will be allowed to assemble the temporary traffic signal cabinet. Only an approved equipment vendor shall assemble and-test a temporary railroad traffic signal cabinet. A representative of the approved control equipment vendor shall be present at the temporary traffic signal turn-on inspection.

Only controllers supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS1 or TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications with regards to internal time base coordination and preemption.

All traffic signal sections and pedestrian signal sections shall be 300 mm (12 inches). The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. The Contractor shall furnish enough cable slack to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.

The existing system interconnect is to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be incidental to the item Temporary Traffic Signal Installation.

All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 Hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be incidental to the item Temporary Traffic Signal Installation.

All 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.

Vehicular detection shall be installed as shown on the plans, or as directed by the Engineer.

The energy charges for the operation of the traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.

All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with current software installed.

When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the contract or any portion thereof. Maintenance responsibility of the existing signals shall be incidental to the item Temporary Traffic Signal Installation(s). In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this contract, the Contractor shall request that the Resident Engineer contact the City of Chicago for an inspection of the installation(s).

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (Rl-1-36) at each approach of the intersection as a temporary means of regulating traffic. At approaches where a yellow flashing indication is necessary, as directed by the Engineer, stop signs will not be required. The Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

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

Traffic signal equipment which is lost or not returned to the City of Chicago for any reason shall be replaced with new equipment meeting the requirements of these Specifications.

The Contractor shall respond to all emergency calls from the City or Municipality within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the State. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the City's Electrical Maintenance Contractor perform the maintenance work required. The City'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.

Basis of Payment. This work shall be paid for at the contract unit price for TEMPORARY TRAFFIC SIGNAL INSTALLATION. The price of which shall include all costs for the modifications required for traffic staging and changes in signal phasing as required in the contract plans.

SPECIFICATION 1357
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
MARCH 1, 1973

LAMP: 400 WATT, HIGH PRESSURE SODIUM TYPE LU 400/BD

SUBJECT

1. This specification states the requirements for the 400 watt high pressure sodium lamp, base down to horizontal burning, for street lighting service.

PHYSICAL REQUIREMENTS

2. The lamp shall conform to the following physical characteristics:

Base Designation	Mogul
Bulb Designation	E-18
Bulb Material	Lead borosilicate glass
Bulb finish	Clear
Bulb diameter	2.25"
Maximum Overall Length	9.75"
Light Center Length	5.75"
Arc Length	3.42"
Maximum bulb temperature	400^0 C.
Maximum base temperature	210^0 C.
Arc Tube Material	Polycrystalline Aluminum Oxide

ELECTRICAL REQUIREMENTS

3. The lamp shall conform to the following electrical characteristics:

Nominal Lamp Watts	400
Nominal Lamp Volts (RMS)	100
Nominal Lamp Current (RMS)	4.7 amps.
Max. Current Crest Factor	1.8
Max. Starting Current	7 amps.
Ballast Open Circuit Volts (Min.)	195

Starting Characteristics:

Pulse Peak Voltage (Min.)	2,500
Pulse Peak Voltage (Max.)	4,000
Pulse Width at 90^0 Peak (min.)	1 micro-sec.
Pulse per second (Min.)	50
Pulse Peak Current (Min.)	0.2 amps.

PERFORMANCE REQUIREMENTS

4. The lamp shall conform to the following performance characteristics:

Initial Lumens	47,000
Percent Mean Lumens	90
Rated Life	
10 hour Duty Cycle	15,000 hours
Continuous Burning	20,000 hours
Apparent Color Temperature	$2{,}100^0$ K
C.I.E. Chromaticity	x=.512 y=.420
Warm-up time	3-4 minutes
Restart time	1 minute

GUARANTEE

5. The supplier will be required to replace with new rated life lamps, without cost to the City, on an adjusted life basis, the unrealized portion of the lamp life of all lamps failing to operate satisfactorily for the specified 15,000 hour rated life.

   Any lamps failing to operate for at least 500 hours shall be replaced with a new, operable, rated life lamp without charge to the City.

SPECIFICATION 1375
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
MARCH 31, 1977

BASE: BALLAST HOUSING, NO. 7 U.S. STANDARD GAUGE STEEL

SUBJECT

1. This specification states the requirements for ballast housing base assemblies to be installed on concrete foundations and to serve as bases for anchor base type steel poles with mast arms attached supporting street lighting luminaires.

GENERAL REQUIREMENTS

2. (a) Specifications. The base assemblies shall conform in detail to the requirements herein stated, to the Federal specification, specifications of the Society of Automotive Engineers, and to the specifications of the American Society for Testing and Materials, of which the latest published revisions shall govern.
   (b) Acceptance. Base Assemblies not conforming to this specification will not be accepted.

   (c) Drawings. The drawing mentioned herein is a drawing of the Department of Streets and Sanitation. It is an integral part of this specification cooperating to state necessary requirements.

   (d) Shop Drawing. One complete set of shop drawings of base assembly intended to be furnished shall be submitted upon request of the Purchasing Agent.

DETAIL REQUIREMENTS

3. (a) Drawing. The base assembly shall conform in detail to the design and dimensions shown on Drawing No. 785, dated March 25, 1977.

   (b) Material. The steel used in the fabrication of the base assemblies shall conform to ASTM A-606 Type 4 for the sides and door and to ASTM A-36 for the top, bottom and anchor plates.

   (c) Thickness. The sides and door shall be No. 7 U.S. Standard Gauge; the top, bottom and Anchor Plates shall be ¾" plate.

   (d) Door. The door shall be drilled top and bottom for, and furnished with, four (4) 1/4-20NC x ¾" button head stainless steel tamper resistant bolts for fastening top and bottom of door to base as shown on drawing No. 785. Ten (10) wrenches or drivers to fit the door bolts shall be furnished with each fifty (50) base housings.

   (e) Hardware. The bolts, nuts, lock washers and anchor plates shall conform to drawing. Four (4) galvanized hex head machine bolts, four (4) galvanized hex nuts, four (4) galvanized lock washers, and two (2) ¾" thick steel anchor plates shall be furnished with each base assembly. The anchor plates shall be shipped bolted to the top of the ballast housing assembly using the hardware enumerated above.

(f) Welding. Every welded joint shall be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society as indicated on the drawings. Each bidder shall submit with his proposal a drawing showing the sizes and types of welds, the type of electrode and the welding methods he proposes to use in fabricating the base assembly.

(g) Sandblasting. The door and ballast housing shall be thoroughly sand blasted to remove all scale, oil or slag prior to painting.

(h) Dating. The top of the ballast housing base shall be stamped or engraved with the year of manufacture in numerals not less than ½" in height.

(i) Painting. A coat of Penetrol shall be applied on the inside weld of the base. The complete base assembly, inside and outside, is to be given a coat of iron oxide zinc chromate primer meeting the requirements of Federal Specification TT-P-636B.

TESTING

4. (a) Chemical Composition. Certified reports from the steel manufacturer shall be furnished to the city upon request of the Purchasing Agent.

(b) Test Specimens. Shall conform to the requirements of ASTM Specifications A-36 and A-606 Type 4.

(c) Strength Tests. One test specimen of the metal in each 50 base assemblies or less shall be tested for tensile strength and elongation, in accordance with ASTM Standards.

(d) Welding Tests. One percent (1%) of the longitudinal and circumferential welds of the base assembly shall be inspected for penetration and soundness of the welds by the magnetic particle inspection method or by radiography. If the magnetic inspection process is used, the dry method with direct current shall be employed. All transverse welds shall be magnetized by the "prod" (Circular magnetization) method. Longitudinal welds may be magnetized by either circular or longitudinal magnetization.

(e) Certificate. One certified copy of the test data sheet shall be furnished to the City before delivery of the bases.

PACKING

5. When packed for transportation and delivery as per par. # (e), the base assemblies shall be thoroughly blocked or otherwise protected to prevent damage to painted surfaces.

INSPECTION

6. An inspector representing the City shall have free entry at all times, while the work on the contract is being performed, to all parts of the manufacture of these base assemblies. The manufacturer shall afford the inspector, without charge, all reasonable facilities to satisfy him that the base assemblies are being furnished in accord with this specification. The final inspection shall be made at the facilities of the manufacturer.

THIS SPECIFICATION SHALL NOT BE ALTERED

SPECIFICATION 1382
DEPARTMENT OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
CITY OF CHICAGO
OCTOBER 12, 1978
REVISED MAY 10, 1979

LUMINAIRE: WITH INTEGRAL BALLAST FOR 400 WATT, HIGH PRESSURE SODIUM LAMP; I.E.S. TYPE II/TYPE III DISTRIBUTION

SUBJECT

1. This specification states the requirements for a street lighting luminaire, with integral ballast and electronic starter, to provide base-down to horizontal burning of 50,000 lumen, 400 watt, Type LU400 high pressure sodium lamp.

GENERAL

2. (a) Information Required. Each bidder shall submit with his proposal the following information relative to the luminaires he proposes to furnish:

    1. Outline drawing.
    2. Complete description and weight.
    3. Candlepower distribution curve showing the light distribution in the 70 degree cone and in a vertical plane through the maximum beam.
    4. Isolux curves for the various socket positions.
    5. Utilization efficiency charts.
    6. Luminaire efficiency.
    7. Projected area in square feet.
    8. Manufacturer's name and catalogue designation of the luminaire.

    (b) Sample. One completely assembled luminaire, with built-in ballast, of the manufacturer intended to be furnished, shall be submitted upon request of the Purchasing Agent and within seventy-two (72) hours of such request.

    (c) Assembly. Each luminaire shall be delivered completely assembled, wired, and ready for installation; with or without the lamp, as indicated in the order. It shall consist of aluminum housing, aluminum reflector, glass refractor, refractor holder, lamp holder assembly, terminal board-fuse block, ballast-door panel, ballast components, gaskets, slip fitter, and all necessary hardware.

    (d) Warranty. The contractor shall warrant the performance and construction of these luminaires to meet the requirements of this specification, and shall warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of one (1) year after the luminaire has been placed in service. This shall be interpreted particularly to mean compatible performance of ballast with lamps of various manufacture, failure of any ballast component, loss of reflectivity of reflecting surface, and discolorations or fogging of the refractor impairing the transmission of light. Any

luminaire or part thereof, not performing as required, or developing defects within this period shall be replaced by the contractor without expense to the City.

CONSTRUCTION

3. (a) Weight and Area. The net weight of this luminaire with ballast shall be not more than 60 pounds. The projected area shall not exceed 3.1 square feet.

(b) Housing. The housing shall be a precision molded aluminum die casting. The wall thickness shall be substantial and adequate to withstand the strains likely to be imposed on the housing when installed and in service.

(c) Slip Fitter. The slip fitter shall be suitable for attachment over the end of a two (2) inch steel pipe with an approved means of clamping it firmly in place, and shall provide a built-in pipe-stop. It may be integral with, or may be attached to, the housing. The slip fitter shall be designed to permit adjustment of not less than three (3) degrees above and below the axis of the mounting bracket. The slip fitter shall contain an approved shield around the pipe entrance to block entry of birds.

(d) Lamp Holder Assembly. The lamp holder shall be fully adjustable to accurately position the lamp. It shall be a mogul, porcelain enclosed socket having lamp grips, and shall be high quality commercial product, subject to approval.

The socket support bracket shall provide both horizontal and vertical adjustments to achieve a broad range of light distribution patterns. Each adjustment position shall be clearly marked, and the socket must be positively secured in each position. The lamp holder and its bracket shall be assembled in the optical system, in a manner which provides a completely sealed, moisture and dust tight optical system.

(e) Reflector. The reflector shall be made of aluminum and polished to a highly specular “Alzak process” finish with suitable means for attachment to the housing. It shall be of such design as to give proper re-direction of the light striking it with minimum reflection through the outer bulb of the lamp and shall distribute the reflected light uniformly over the refractor surface.

(f) Refractor. The refractor shall be pressed crystal clear, heat-resistant, boro-silicate glass, well annealed, homogeneous, and free from imperfections and striations. It shall contain prisms pressed on the inside surface and where necessary on the outside surface, and shall be optically designed to redirect by reflection and refraction the light from the lamp to produce vertical and lateral light distribution patterns conforming substantially with both I.E.S. Type II and Type III light distributions. For diffusion of the light and good appearance, a pattern of continuous and adjoined flutes or configurations shall be pressed on the outside surface. In the event the refractor can fit into its holder in two (2) positions, the refractor shall be clearly embossed with the designations “street side” and “house side” to insure proper orientation.

(g) Refractor Holder. The refractor holder shall be hinged to the luminaire housing and shall open approximately 90 degrees to allow servicing of lamp and reflector.

The refractor shall be securely held in the refractor holder. In the closed position the refractor holder shall cause the refractor to seat against the reflector gasket. The refractor holder shall permit simple removal and replacement of the refractor without the use of tools. The hinge shall prevent the refractor holder from disengaging and dropping in case it should swing open.

(h) Latch. An approved latch shall be provided for latching the refractor holder to the housing. The latch shall be located opposite a suitable hinge, and in conjunction with the hinge shall compress the gasket between the reflector and refractor. The latch shall be a firm-gripping, easy opening, single action, positive latching type.

(i) Ballast Door-Panel. The ballast components shall be completely assembled and mounted on a die-cast aluminum door-panel. The door-panel shall be hinged to the luminaire housing, suitable latched and fastened at the closing end; and it shall be rapidly and simply removable. The hinge and fastening devices shall be captive parts, which will not become disengaged from the door panel.

(j) Gaskets. Wherever necessary, in order to make a completely dustproof optical assembly, gaskets of silicone rubber or other specifically approved material shall be provided. The reflector gasket shall fit around and over the flange of the reflector.

(k) Hardware. All machine screws, locknuts, pins and set screws necessary to make a firm assembly, and for its secure attachment to the mast arm, shall be furnished in place. All hardware shall be of stainless steel, copper silicon alloy or other non-corrosive metal, and where necessary shall be suitably plated to prevent electrolytic action by contact with aluminum.

(l) Fiberglass Tubing. Two lengths of fiberglass tubing with silicone varnish coating meeting requirements of National Electrical Manufacturers' Association insulation classification HC-2, Size 2 (0.263" I.D.), shall be provided to permit proper thermal insulation of conductors ("LINE" leads) within the luminaire. They shall be sufficiently long to extend from the terminal block to a point 6 inches beyond the end of the slip fitter.

(m) Terminal Board-Fuse Block. A terminal board of molded phenolic plastic of the barrier type shall be mounted within the housing in a readily accessible location. It shall provide all terminals needed to completely prewire all luminaire components. The terminal board shall either incorporate a barrier isolated section with fuse clips to take two "small-dimension" (13/32" x 1½") cartridge fuses, or a separate barrier protected fuse block shall be provided therefore. The fuses are not required to be furnished with this luminaire. The fuse block shall be wired to the appropriate terminals. The terminal board-fuse block shall have plated copper or plated brass, clamp-type pressure terminals of an approved type for "line" connections, to accommodate wire sizes from #12 to #8 A.W.G. The terminals for connection of internal components shall either be the screw-clamp or quick disconnect type.

(n) Filter. The optical system shall contain a charcoal "breathing" filter, of adequate size to provide effective filtering of particulate and gaseous contaminants.

(o) Finish. The luminaire shall have a light gray enamel finish baked on. Surface texture and paint quality shall be subject to approval. Color shall be Munsell No. 5BG 7.0/0.4 (designated A.S.A. No. 70).

BALLAST

4. (a) General. The integral ballast shall be a voltage tapped, high power factor, linear type, low loss reactor. It shall be designed to furnish proper electrical characteristics for starting and operating a 400 watt high pressure sodium lamp at temperatures as low as minus 40°F. The ballast winding shall be adequately impregnated and treated for protection against the entrance of moisture, insulated with Class G insulation, and able to withstand the NEMA standard dielectric test. The ballast shall include an electronic starting component.

(b) Lamp Operation. The ballast shall provide positive lamp ignition at an input voltage of 191 volts. It shall operate the lamp over a range of input voltage from 191 to 220 volts without damage to the ballast for the 208 volts tap connection and 220 to 254 volts for the 240 volt tap connection. It shall provide lamp operation within lamp specifications for rated lamp life at input voltage between 198 volts and 218 volts for the 208 volt tap connection and between 228 volts and 252 volts for the 240 volt tap connection.

(c) Rating. The ballast shall have properly coded wire leads for taps at rated input voltage of either 208 or 240 volts at 60 cycles, which shall drive a nominal 100 volt lamp at 400 watts. The design range of input voltage for this ballast shall be from +6% to -8% of the nominal voltage.

(d) Lamp Current. The ballast shall supply approximately 4.7 amperes to a 400 watt, 100 volt high pressure sodium lamp during operation, and not more than 7.0 amperes at starting.

(e) Power Factor. The power factor of the ballast over the design range of input voltages specified above shall not be less than 90%.

(f) Line Current. With nominal input voltage applied, the input current under starting, short circuit or open circuit condition, shall not exceed 4.7 amperes rms.

(g) Lamp Wattage. The ballast shall deliver 400 watts to a nominal 100 volt lamp when operating at the nominal input voltage. Wattage input to the nominal lamp shall not vary more than a total of 37% over the input voltage design range of 191 volts to 254 volts with the supply connected to the proper ballast tap.

(h) Ballast Loss. Wattage loss of the ballast shall not exceed 43 watts when delivering 400 watts to a nominal lamp at the nominal input voltage of 208 or 240 volts.

(i) Electronic Starter. The starter component shall be comprised of solid state devices capable of withstanding ambient temperatures of 100 °C. The starter shall provide timed pulsing with sufficient follow-thru current to completely ionize and start all lamps. Minimum amplitude of the pulse shall be 2,500 volts, with a width of one (1) microsecond at 2,250 volts, and shall be applied within 20 electrical degrees of the peak of the open circuit voltage wave with a repetition rate of once each half cycle of the 60 cycle wave. The lamp peak pulse current

shall be a minimum of 0.5 amps. Proper ignition shall be provided over a range of input voltage from 191 to 254 volts. The started component shall be field replaceable and completely interchangeable with no adjustment necessary for proper operation. The starter component shall have push-on type electrical terminations, which shall provide good electrical and mechanical integrity with ease of replacement. The starter circuit board shall be treated in an approved manner to provide a water and contaminant resistant coating.

(j) Crest Factor. Maximum crest factor shall be no greater than 1.65 over the input voltage range of 191 to 254 volts for a nominal vertical burning lamp.

(k) Mounting. The ballast components shall be mounted and fastened on the luminaire ballast door panel in a manner such that the components will remain secure and capable of withstanding the vibrations and shocks likely to occur when installed and in service. These components shall be readily removable for replacement.

(l) Wiring. The lamp holder and ballast components shall be completely wired, with connections made to a terminal board that must be suitable for both copper or aluminum supply conductors to provide the 208/240 volts tap connections. The reactor and capacitor leads shall not be smaller than #16 gauge conductors. These shall be insulated with an approved 125^{o}C insulation. All leads shall be coded in an approved manner for proper identification. A complete wiring diagram shall be displayed at an easy to read location on the interior of the luminaire.

(m) Capacitor. The capacitor shall be a non-PCB, a-c power type. The capacitor shall be coated with a moisture resisting paint, or shall be fabricated of non-corrosive material.

(n) Ballast. The ballast shall be tapped linear reactor device incorporating a molded polyester-glass bobbin structure having a precision wound, insulated, magnetic wire coil with bobbin mounted push-on type electrical terminations. These terminations shall provide good electrical and mechanical integrity as well as easy ballast replacement. The ballast shall be treated in an approved manner to provide electrical and mechanical protection.

(o) Wiring Connection. The ballast panel wiring shall be “plug” connected to lamp and line leads for easy disconnect in removing the ballast.

PACKAGING

5. (a) Packing. Each luminaire assembly shall be packed in a suitable carton so secure that it shall not be damaged in shipment and handling.

(b) Marking. Each carton containing a luminaire shall be clearly marked on the outside in letters not less than three-eighths (3/8”) inch tall with the legend: “LUMINAIRE W/BALLAST, HP-SODIUM, IES TYPE II/TYPE III”, the appropriate City Commodity Code Number, the name of the manufacturer, and the contract number under which the luminaire is furnished.

THIS SPECIFICATION SHALL NOT BE ALTERED

SPECIFICATION 1385
DEPARTMENT OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
CITY OF CHICAGO
MARCH 14, 1980

PEDESTAL BASE: ALUMINUM WITH HANDHOLE FOR TRAFFIC SIGNALS AND CONTROLLERS

SUBJECT

1. The specification states the requirements of an aluminum pedestal base with handhole and door for supporting an electric traffic signal or controller.

GENERAL

2. (a) Specifications. The pedestal base shall conform to the requirements herein stated, to the Specifications and Methods of test of the American Society for Testing and Materials cited by ASTM Designation Number, of which the most recently published revisions shall govern, and to the requirements of the American Welding Society.

(b) Acceptance. Pedestal bases not conforming to this specification will not be accepted.

(c) Drawing. The drawing mentioned herein is a drawing of the Department of Streets and Sanitation. It is an integral part of this specification cooperating to state the necessary requirements.

(d) Workmanship. All pedestal bases shall be free of casting flaws and shall have neat, smooth exterior surfaces. All holes shall be accurately located and drilled. The bottom surface of base shall be ground smooth.

DETAIL REQUIREMENTS

3. (a) Design. The pedestal base shall conform to the design shown on Drawing Number 526.

(b) Base. The base shall be cast of aluminum alloy B443/F of ASTM B26 with minimum wall 9/32 inch thick. The handhole opening shall have a recessed lip on its sides and bottom such that with the door in place the exterior surface of the door is flush with the exterior surface of the base. The door shall have the same curvature as the base. The door shall be locked in place by means of two fingers located on its top edge which bear against the inside surface of the base, and a stainless steel Allen head locking screw which bolts to the base. The locking screw shall be protected by an inverted "U" shaped drip-edge raised approximately 1/4" and encircling its seat.

(c) Pedestal. The pedestal shall be aluminum-alloy extruded round tube conforming to the requirements of ASTM-B221, alloy 6063-T6. The aluminum pedestal shall be flash anodized in accordance with Aluminum Association designation C22A21 or Alcoa designation 202-R1. Its outside diameter shall be 5.563 inches; its wall shall be not less than 0.187 inch thick, and its length shall be as required to furnish the overall height specified in the order. The round tube shall be inserted not less than two and one-half (2.5) inches into the base and welded with four (4) butt welds each not less than one (1) inch long on the inside and a continuous seam weld around the outside. Aluminum alloy pipe in lieu of aluminum alloy tube is acceptable.

(d) Welding. The welds shall be made by the inert gas metal welding process. Filler wire shall conform to chemical composition requirements of the American Welding Society.

(e) Painting. The base shall be properly cleaned and given one (1) coat of zinc chromate primer containing one and one-half percent (1-1/2%) iron oxide and both the pedestal and base shall be given one (1) coat of enamel. The color of the enamel shall be green No. 14110 of Federal Standard No. 595. The primer and enamel shall be of approved grade and quality.

(f) Packing. The paint shall be thoroughly dry before the pedestal base is packaged or blocked for shipment. The pedestal base shall be suitably packed or blocked to prevent damage during shipment and handling.

SPECIFICATION 1407
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
MARCH 15, 1995

POLE MOUNTED CAST ALUMINUM BOXES FOR TRAFFIC SIGNALS AND FIRE ALARM TERMINALS

SCOPE

This specification states the requirements for pole mounted, cast aluminum junction boxes to be used as enclosures for traffic signal and fire alarm multiple cable terminals.

GENERAL

(a) Specifications: The junction boxes shall conform in detail to the requirements herein stated, to the Federal Standard cited by number, and to the Specifications and Methods of Test of the American Society for Testing Materials cited by ASTM Designation Number, of which the most recently published revisions shall govern.

(b) Drawings: The drawing mentioned herein is a drawing of the Department of Streets and Sanitation, Bureau of Electricity, and shall be interpreted as part of these specifications.

(c) Acceptance: Junction boxes not conforming to this specification will not be accepted.

(d) Sample: One complete junction box of the manufacture intended to be furnished shall be submitted within fourteen (14) business days after request by the Department of Streets and Sanitation, Bureau of Electricity. If the bidder supplying the sample is awarded a contract, the referenced sample shall be credited as part of the order if it meets all requirements of this specification.

(e) Workmanship: All junction boxes shall be free of casting flaws and shall have neat, smooth exterior surfaces. All holes shall be accurately located and drilled to ensure interchangeability of all components.

DESIGN

(a) Drawing. The junction box shall conform in detail to the dimensions and requirements shown on drawing number 832.

(b) Material. The body door and plate shall be castings of non-heat treated aluminum silicon alloy conforming to ANSI alloy 443.0 of ASTM B26.

DETAIL REQUIREMENTS

(a) Assembly. Each junction box shall consist of the body, door with its gasket, flat plate with its gasket, terminal block mounting bracket and bottom gasket with its stainless steel hardware furnished as described below, all completely assembled, painted and ready for installation.

(b) Body. The body shall be cast as shown in drawing number 832. The top and bottom sides of the box where flat plates, or other fittings, will be attached, shall be identically cast, machined flat, and drilled and tapped in accordance with dimensions shown. All fittings which fit on the top side must fit on the bottom side.

(c) Door. The door shall be cast as shown in drawing number 832. The door shall be hinged at the left with stainless steel hinge pins and shall open not less than 180 degrees to permit complete access to interior of the junction box. Two stainless steel Allen head machine screws, undercut and held captive, shall hold the door closed and maintain positive pressure against a sponge neoprene gasket cemented in place completely around the door jamb. The door shall be finished and painted prior to cementing the gasket into its groove in the door.

(d) End Plate. A flat end plate shall be furnished with each body casting. The plate shall be drilled to align with tapped holes in the body casting and have a flush match with the periphery of the top and bottom body casting pads. The plate shall have a properly fitted gasket and be held in place by four (4) stainless steel machine screws.

(e) Mounting Bracket. A terminal block mounting bracket, as shown on drawing number 832, shall be furnished and installed in each junction box. The bracket shall be cast from ANSI alloy 443.0 per ASTM B26.

(f) Gaskets. The gasketing between the body and the door shall be of sponge neoprene and shall be cemented in place after painting of the door. A cork gasket, 1/8 inch thick, shall be used between the end plate and the body of the junction box on the top end and held in place by four (4) stainless steel screws. An identical cork gasket and four (4) stainless steel screws shall be placed in a 6" x 4" metal fold kraft envelope, 32 sub., and placed within the box before shipping. This gasket with its screws will be used with the fitting used on the bottom end of the box.

(g) Hardware. The hinge pins and all screws required for assembly of this junction box shall be of stainless steel.

(h) Painting. The exterior surfaces of the junction box shall be properly cleaned and given one (1) coat of zinc chromate primer containing ten percent (10%) iron oxide and one (1) coat of green enamel. The color of the enamel shall be green number 14110 of Federal Standard number 595. The primer and enamel shall be of an approved grade and quality.

(i) Packing. After the paint is throughly dry, and the junction boxes have been assembled, they shall be suitably packed to prevent damage to painted surfaces

during shipping and handling. All shipments shall be fastened to, and shipped on, 48" x 48" hardwood, 4 way, non-returnable pallets. Total height shall not exceed 64" and total weight shall not exceed 2,000 pounds.

INSPECTION

An inspector representing the City of Chicago shall have free access, at all times while work on these junction boxes is being performed, to all parts of the manufacturer=s work which are concerned with their manufacture. The manufacturer shall afford the inspector, without charge, all reasonable facilities to satisfy him that the junction boxes are being furnished in accordance with this specification. The final inspection shall be made at the point of delivery. Any junction boxes rejected shall be removed and disposed of by the Contractor at his sole expense.

THIS SPECIFICATION SHALL NOT BE ALTERED.

SPECIFICATION 1423
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO

TRAFFIC SIGNAL MAST ARMS
DETAIL SPECIFICATIONS

ARM

The traffic signal mast arm shall be a tapered, truss-type, aluminum arm with lengths and mounting clamp diameters as shown in Table I. There shall be thirty inches (30") between the center lines of the upper and lower mounting brackets. The ends of the mast arms shall be designed to accept a standard 2" I.D. mast arm plumbizer. Arms shall be similar in design to Pfaff and Kendall VT series, Hapco Design Nos. B-59440, B-59441 and B-59442, or Union Metal Mfg. Co. Design Nos. 50130-Y28, 50130-Y29 and 50130-Y30.

LOAD REQUIREMENTS

The load requirements for the mast arms to be furnished under this specification are as follows:

Fifteen Foot (15') Mast ArmOne 3-section 12" traffic signal at the end of the arm, rifidly mounted with an elevator plumbizer.

Twenty and Twenty-Five Food (20' & 25') Mast Arms:One 4-section 12" traffic signal at the end of the arm, rigidly mounted with an elevator plumbizer, and a 3-section 12" traffic signal rigidly mounted at the midpoint of the arm.

The above requirements are for traffic signals without back plates.

CLAMP

The mast arm clamp shall be either an extrusion or a casting of aluminum. The extrusion shall utilize the aluminum alloy 6005--T5 as per the chmical composition and mechanical properties shouns in ASTM B221-74, or latest revision thereof. the cast aluminum clamp shall be fabricated from Alloy 356-T6 per ASTM B-26-75. any equivalent alloy recommended shall be approved by the Commissioner of Streets and Sanitation or his duly authorized representative.

PACKING

All mast arms hsall be shipped with the back clamp and hardware assembled on the mast arm. Assembly and packing shall be in such a manner that no damage shall be sustained by any of the assembled parts.

TABLE I

I.D. OF MOUNTING CLAMP

LENGTH OF ARM	UPPER	LOWER	QUANTITY
15'	5-1/2"	5-7/8"	20
15'	6-5/16	6-11/16"	30
20'	5-1/2"	5-7/8"	60
20'	6-5/16	6-11/16"	100
25'	5-1/2"	5-7/8"	80
25'	6-5/16"	6-11/16"	180

SPECIFICATION 1425
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
FEBRUARY 8, 1989

TRAFFIC SIGNAL: TWELVE-INCH
THREE OR SINGLE-SECTION, ONE-WAY

SUBJECT

1. This specification states the requirements for one-way, twelve-inch, three-section and single-section, adjustable electric traffic signals for use in the traffic control system of the City of Chicago.

GENERAL REQUIREMENTS

2. (a) Specifications. The traffic signals shall conform in detail to the requirements stated herein, to the Specifications and methods of Tests of the American Society for Testing and Materials cited by ASTM Designation Number, to Federal Standard Number 595 where and as cited, to the Technical Report No. 1 of the Institute of Transportation Engineers entitled "Adjustable Face Traffic Control Signal Head Standards" where and as cited and hereinafter referred to as the ITE Standard, in which the most recently published revisions shall govern.

(b) Inspection. The signals shall be subject to inspection at the discretion of the Commissioner. Final inspection shall be made at point of delivery. Any signal rejected shall be removed and disposed of by the contractor at his sole cost.

(c) Sample. One complete signal, fully assembled and wired, of the manufacture proposed to be furnished shall be submitted within seventy-two (72) hours upon request of the Commissioner. The sample shall be delivered to: Engineer of Electricity, Bureau of Electricity, 2451 South Ashland Avenue, Chicago, Illinois 60608.

(d) Drawing. The drawing mentioned herein is a drawing of the Department of Streets and Sanitation, Bureau of Electricity, and shall be construed as part of this specification cooperating to state necessary requirements.

(e) Warranty. The contractor shall warrant the signals to meet the requirements of this specification, and shall warrant all equipment, components, parts and appurtenances against defective design, material and workmanship for a period of one (1) year from date of acceptance. In the event defects and failures become apparent during this period, the Contractor shall repair or replace such defects and failures at no expense to the City. This warranty shall be evidenced by a letter or certificate of warranty submitted to the City at the time final delivery is made.

DETAIL REQUIREMENTS

3. (a) Design. The traffic signals shall be designed and constructed to permit sections to be assembled together, one above the other, forming a weatherproof and dust-tight unit. The housing of each section shall be a one piece die casting with integrally cast top, bottom and sides. Individual signal sections shall be fastened together by bolts and clamping rings.

(b) Assembly. A traffic signal section shall be comprised of, but not limited to, the housing, hinged door, visor, lens, reflector, lampholder and all necessary gaskets and hardware. The three section, one-way, traffic signal shall be comprised of three (3) single (1) sections assembled together, containing an internally mounted terminal block. Arrow indications shall be shipped as single sections.

(c) Height. The overall height of an assembled traffic signal shall be forty-two (42) inches plus or minus one (1) inch for a three-section signal.

(d) Mounting. The traffic signal shall be designed for mounting with standard traffic signal brackets using 1-1/2 inch pipe size fittings.

(e) Positioning Device. Each traffic signal shall have a serrated-ring positioning device either integrally cast or indexed to the housing by means of mating bosses and recesses. When integrally cast, one (1) positioning lock ring as shown on Drawing 11793-A shall be provided with each traffic signal; otherwise two (2) lock rings shall be furnished with each signal.

(f) Casting Alloy. The housing body and door shall be die cast of corrosion resistant aluminum alloy per ASTM B85, Alloy S12A, with full 12% silicon.

(g) Housing. The signal housing shall be sectional; one section for each optical unit. The sections shall mate properly to form a neat, straight unit. Two (2) hinge lugs on the left side and two (2) latch screw lugs centered on the right side, as viewed from the front of the signal, shall be cast integrally on each housing section.

(h) Door. The door shall be a one piece aluminum alloy die casting. Two (2) hinge lugs on the left side and two (2) sets of latch screw jaws centered on the right side, as viewed from the front of the signal, shall be integrally cast with the housing door. The door shall be hinged to the housing with two (2) 18-8 type 304 stainless steel 1/4 inch hinge pins, drive fitted. Two (2) stainless steel latch screws and wing nut and washer assemblies on the latch side of the housing body shall provide for opening and closing the door without the use of tools, or the door may be secured by two (2) cam-type lever catches. The door shall have four (4) holes drilled and tapped for stainless steel machine screws to secure the visor.

(i) Visor Each traffic signal shall have a visor for each signal indication (section). The visor shall be the tunnel type, nine and one-quarter inches (9-1/4") long, fabricated of sheet aluminum not less than No. 18 U.S. Gauge. The visor shall fit tightly against the door and not permit any light leakage between the door and visor. All hardware necessary for, but not limited to, attachment of visor shall be of stainless steel.

(j) Optical Unit. The optical unit consists of the lens, reflector and lamp holder. The optical unit and visor shall be designed as a whole so as to eliminate the return of outside rays entering the unit from above the horizontal (known as sun phantom). The optical unit shall be designed and assembled so that no light can escape from one indication to another.

(k) Lenses. The red, yellow and green or polycarbonate lenses shall be round with a nominal twelve (12) inch diameter and shall conform to all requirements set forth under the heading "Traffic Signal Lenses" in the ITE standard. The green or yellow arrow lens shall be round with a nominal twelve (12) inch (12") diameter and the outside surface shall be covered, except for the arrow, with a dull or dark grey opaque material of a thickness sufficient to totally hide the light from a 2000-lumen lamp placed behind it operating at rated voltage. The opaque material shall be hard and durable and shall be bonded such that it will not peel or flake when subject to the heat of a signal lamp or when the lens is washed. The shape and size of the arrow shall be of an approved design with a minimum stroke of fifteen-sixteenths (15/16") inch. The arrow shall appear uniformly illuminated when viewed from angles usually encountered in service, whatever may be the angular position of the lens in the signal section. The color of the lenses shall match the colors of samples available for inspection at 2401 South Ashland Avenue, Chicago, Illinois. The lenses shall be mounted in an endless accordion type gasket completely encompassing the edge of the lens and providing a cushion and positive seal between the lens and housing door. The gasketed lens shall be secured to the housing door by four (4) corrosion resistant clips and machine screws, such as brass, stainless steel, or an approved equal.

(l) Lens Placement. Placement of the colored lenses in the three (3) section signal shall be red, yellow and green, top to bottom.

(m) Reflector. The reflector shall be fabricated of high-purity, clad-type aluminum sheet formed to a parabolic shape and cut to fit in a circular cast aluminum, hinged frame for rigid mounting within the housing. The circular rim of the reflector shall be mounted in such a way as to seal the internal optical system by being compressed against the lens gasket when the signal door is closed. The reflecting surface shall be an "ALZAK" class SI specular finish having a minimum reflectivity of eighty-two (82) percent and a protective oxide coating of 7.5 milligrams per square inch, minimum. The reflectivity shall be determined with a Taylor-Baugartner Reflectometer, and the weight of the protective oxide coating by the method of test outlined in ASTM B 137. The reflecting

surface shall be tested for proper sealing by applying one (1) drop of a water solution (1 gram per 50 cc) of Anthraquinone Violet R at a room temperature. After five (5) minutes, the dye shall be washed from the surface with running water. No stain shall remain after the surface is lightly rubbed with a soft cloth wet with mild soap and water, and rinsed with water. The reflector shall have an opening in the back to accommodate the lamp holder.

(n) Lamp Holder. The lamp holder shall have a heat, moisture and weatherproof molded phenolic housing designed to accommodate a standard 133 watt, 3 inch light center length, incandescent lamp. The lamp holder shall be so designed that it can be readily rotated and positively positioned to provide proper lamp filament orientation and focus. The inner brass shell, or ferrule, of the lamp holder shall have a grip to prevent the lamp from working loose due to vibration. A gasket shall be furnished at the junction of the lamp holder and the reflector.

(o) Wiring. Each lamp holder shall be furnished with two (2) leads color coded as follows:

White	Common
Red	Red Lens Section
Yellow	Yellow Lens Section
Green	Green Lens Section
Green with Black Tracer	Green Arrow Lens Section
Yellow with Black Tracer	Yellow Arrow Lens Section

The lead shall be type TEW No. 18 AWG stranded copper wire with 2/64 inch thick, 600 volt, 105 degree centigrade rated, thermo-plastic insulation meeting MIL-W-76A specifications. The lead shall connect to the terminal strip without being spliced. The ends of the lamp leads shall be stripped of one-half inch (2") of insulation and tinned.

(p) Terminal Strip. A six-terminal, 12-point, barrier type terminal strip with a solid base and pressure plate type connectors (Marathon Special Products Corporation Catalog No. TB-305-SP, or equal) shall be securely attached at both ends to the housing body inside the "Green" section.

(q) Cable. One, eleven foot (11') length of flexible electric cord, medium duty, type SO, 5-conductor No. 16 AWG stranded copper, color coded rubber insulated, neoprene jacketed, shall be furnished with each three-section signal. Both ends of each cable length shall be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned.

(r)\ Gaskets. Wherever necessary to make a completely dustproof, moistureproof and weatherproof assembly of the housing and optical system, approved type gaskets of neoprene or silicone rubber shall be provided.

(s) Finish. All interior and exterior surfaces of the housing, door, and visor shall be either prime coated with a high quality infrared oven baked paint per Federal Specifications TT-P-636, or treated with a high quality chromated aluminum oxide coating process (Bonderite 721, or equal) per MIL-C-5541 specifications. All exterior surfaces, except visors, shall be finish coated with a high quality infrared oven baked enamel per Federal Specification TT-E-489 and green color No. 14110 of Federal Standard No. 595. The finish coat for the visor interior and exterior surfaces shall be an alkyd urea black synthetic baking enamel, urea zero (0) gloss-reflectance, meeting MIL-E-5557 specifications for heat resisting glyceryl phthalate enamel, type 4, instrument black. Stainless steel hardware shall not be painted.

(t) Hardware. All hardware such as screws, nuts, bolts, washers, etc. shall be stainless steel and machine thread type, except where noted otherwise.

PACKAGING

4. (a) Packing. Each traffic signal assembly shall be packed in a suitable carton so secured that the signal shall not be damaged during shipment, handling or storage.

(b) Marking. Each carton containing a traffic signal shall be clearly marked on the outside in letters not less than three-eighths (3/8) inch tall with the legend: "Traffic Signal, Adjustable, Twelve-Inch, One-Way, Three Section or Single Section," as required, the name of the manufacturer, the pertinent Contract Number and the appropriate City Commodity Code Number.

SPECIFICATION 1428
DEPARTMENT OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
CITY OF CHICAGO
SEPTEMBER 11, 1989

THERMAL MAGNETIC CIRCUIT BREAKER

SUBJECT

1. This specification covers the requirements for thermal-magnetic circuit breakers capable of providing complete over-current protection for street lighting branch-load and service circuits.

GENERAL REQUIREMENTS

2. (a) Sample. One complete circuit breaker of each type and size, and of the manufacture intended to be furnished shall be submitted upon request of the Commissioner within forty-eight (48) hours after the bid opening date. If the contractor supplying the sample(s) delivered is awarded the contract, the sample(s) shall be credited as part of the order. The sample(s) shall be delivered to the General Superintendent of Construction, Bureau of Electricity, 2451 South Ashland Avenue, Chicago, Illinois 60608.

(b) U.L. Approval. Circuit breakers furnished under this specification shall be listed and approved by Underwriter's Laboratories, Inc.

(c) Applicable Specifications. Where reference is made to applicable requirements of Underwriter's Laboratories, Inc., Bulletin #489, entitled "Standard for Branch Circuit and Service Circuit Breakers," hereinafter cited as the U.L. Standards, the most recently published revision shall govern.

(d) Assembly. Each circuit breaker shall have the thermal-magnetic trip installed, calibrated and sealed within its insulated housing.

(e) Instructions. Complete installation instructions, details on wiring, and information on operation shall be furnished with each circuit breaker, except as otherwise indicated.

(f) Packing. Each circuit breaker shall be packed in a suitable manner so that it will not be damaged in shipping or handling.

TYPES AND SIZES

3. Circuit breakers furnished under this specification shall consist of the following types and sizes:

(a) EHD Frame Circuit Breakers. For use on A-C Systems with a 100-ampere frame; minimum interrupting rating of 18,000 R.M.S. symmetrical amperes at 240 volts A.C.

1. Single pole, 240 or 480 volts A.C., ampere rating from 15 to 100.

2. Double pole, 240 or 480 volts A.C., ampere rating from 15 to 100.

(b) FDB Frame Circuit Breakers. For use on A-C Systems with a 150 ampere frame; minimum interrupting capacity of 18,000 R.M.S. symmetrical amperes at 240 volts A-C.

(1) Double pole, 240, 480 or 600 volts A-C, ampere rating from 15 to 150.

(2) Triple pole, 240, 480 or 600 volts A-C, ampere rating from 15 to 150.

(c) JDB Frame Circuit Breakers. For use on A-C Systems with a 250 ampere frame; minimum interrupting current of 65,000 R.M.S. symmetrical amperes at 240 volts A-C.

(1) Double pole, 240, 480 or 600 volts A-C, ampere ratings from 70 to 250.

(2) Triple pole, 240, 480 or 600 volts A-C, ampere ratings from 70 to 250.

DESIGN AND CONSTRUCTION

4. Circuit breakers furnished under this specification shall include the following design and construction features: (1) molded insulating housing, (2) thermal-magnetic trip mechanism, (3) silver alloy contacts, (4) corrosion-resistant internal parts, (5) trip-free, indicating handle, and (6) pressure-type terminals.

DETAIL REQUIREMENTS

5. (a) Thermal-Magnetic Trip Mechanism. The breaker shall be activated on current overload by means of a thermal-magnetic trip mechanism. This mechanism shall be non-adjustable, non-interchangeable, and factory calibrated and sealed.

Instantaneous tripping as controlled by the magnetic trip setting, and time delay tripping accomplished by thermal action shall be in accordance with the manufacturer's published characteristic curves for these breakers or with calibration requirements of the U. L. Standards, as applicable.

(b) Contact Mechanism. The contacts shall be spring loaded and provide a quick-make, quick-break non-teasing action. The contact mechanism shall be such that the breaker will trip open even if the handle is held or locked in the ON position.

(c) Calibration. Rating and performance of these breakers shall be based on calibration at an ambient temperature of 40^{o} C. (104^{o}F.).

5. (d) Rated Current. Each breaker shall be capable of carrying 100% rated current continuously in its calibrated ambient temperature without tripping and without exceeding the temperature limits specified in the U. L. Standards.

(e) Contacts. The contacts shall be made of a non-welding silver alloy or equivalent, subject to approval.

(f) Internal Parts. All internal parts of these circuit breakers shall be corrosion resistant material.

(g) Terminals. Solderless, pressure type terminals of copper construction shall be provided for both line and load connections.

(h) Handle Indication. The handle shall indicate clearly whether the circuit breaker is on the ON, OFF, or TRIPPED position.

(i) Mounting. Breakers furnished under this specification shall have drilled and counter bored holes for front mounting which shall conform to spacings shown on Department of Streets and Sanitation Drawings numbered 677, 678 and 865.

(j) Test Requirements. These breakers shall be capable of meeting the following sequence of test requirements as specified in the U. L. Standards.

(1) Endurance test.

(2) Calibration test at 200% and 125% of rated current.

(3) Short circuit tests

(4) Calibration test at 500% rated current.

(5) Dielectric strength test.

GUARANTEE

6. Circuit breakers furnished under this specification shall be guaranteed against defects in materials or workmanship for a period of one year after installation. During this period, should a failure occur, repair or replacement shall be made without cost to the City.

THIS SPECIFICATION SHALL NOT BE ALTERED

SPECIFICATION 1440
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
JANUARY 10, 1991

CABLE: SINGLE-CONDUCTOR, COPPER 600 VOLT ETHYLENE PROPYLENE INSULATION AND A HYPALON JACKET

SUBJECT

1. This specification states the requirements for cables intended to be used as conductors in 120/240 VAC, 60 cycle, single phase, street lighting circuits. The cables will either be installed in underground ducts or directly buried.

GENERAL

2. (a) SPECIFICATIONS. The cable shall conform in detail to the requirements herein stated, and to the applicable portions of the latest revisions of the specifications and methods of test of the following agencies:

   (1) ICEA Specification S-68-516
   (2) IEEE Standard 383-1974
   (3) ANSI-ASTM Standard E662-79
   (4) ASTM Standard D-470-81
   (5) U.L. 44
   (6) U.L. 854

   (b) ACCEPTANCE. Cable not in accordance with this specification will not be accepted.

   (c) REELS. The cable shall be shipped on non-returnable reels. Reels shall be packaged with cardboard or other suitable material to prevent damage during shipping.

   (d) WARRANTY. The manufacturer shall warrant the cable to be first class material throughout. In lieu of other claims against them, if the cables are installed within twelve (12) months of date of shipment, the manufacturer shall replace any cable failing during normal and proper use within two years of date of installation. All replacements under this warranty shall be made free of charge F.O.B. delivery point of the original contract. Lengths of cable having been replaced shall become the property of, and shall be returned to, the manufacturer F.O.B., City of Chicago.

CONSTRUCTION

3. This cable shall consist of a round copper conductor with a tight fitting, free stripping, concentric layer of Ethylene Propylene insulation and a concentric Hypalon jacket extruded in tandem with, and bonded to, the insulation. The cable shall be rated for continuous duty at 90 degree C operating temperature, 130 degree C emergency overload temperature and 250 degree C short circuit temperature.

CONDUCTOR

4. (a) MATERIAL. The conductor shall either be soft or annealed round copper wire.

(b) SPECIFICATIONS. The conductor shall meet the requirements of ASTM B3, B8 or B258, as applicable.

(c) SIZES. The conductor size shall be as stated in the PROPOSAL and in accordance with all requirements in Table A of this specification.

(d) STRANDING The number of strands, shall be as indicted in Table A. Stranding shall meet the requirements of ASTM B8, Class B.

INSULATION

5. (a) TYPE. The insulation shall be Ethylene Propylene compound meeting the physical and electrical requirements specified herein.

(b) THICKNESS. The insulation shall be circular in cross-section, concentric to the conductor, and shall have an average thickness not less than that set forth in Table A of this specification, and a spot thickness not less than ninety percent (90%) of the average thickness.

(c) INITIAL PHYSICAL REQUIREMENTS:

1. Tensile strength, min., psi. 1,200

2. Elongation at rupture, min. % 250

(d) AIR OVEN EXPOSURE TEST. After conditioning in an air oven at 121 + 1^{o}C for 168 hours using methods of test described in ASTM-D 573:

Tensile strength, minimum percent of unaged value.....75

Elongation at rupture, minimum percent of unaged value.....75

(e) MECHANICAL WATER ABSORPTION:

1. GRAVIMETRIC METHOD. After 168 hours in water at 70+ 1^{o}C:

water absorption, maximum, milligrams per square inch…….....5.0

(f) COLD BEND TEST REQUIREMENTS. The completed cable shall pass the "Cold-Bend, Long-Time Voltage Test on Short Specimens" of ASTM D-470 except that the test temperature shall be minus (-) 25^{o}C.

(g) ELECTRICAL REQUIREMENTS

1. VOLTAGE TEST. The completed cable shall meet an A.C. and D.C. voltage test in accordance with ASTM D-470 and D-2655.

2. INSULATION RESISTANCE. The completed cable shall have an insulation resistance constant of not less than 20,000 when tested in accordance with methods shown in ASTM D-470.

JACKET

6. (a) TYPE. The jacket shall be a Hypalon (Chlorosulfonated Polyethylene) compound meeting the physical and electrical requirements specified herein.

(b) THICKNESS. The jacket shall be circular in cross-section, concentric with the insulation, shall have an average thickness not less than that set forth in Table A of this specification and a spot thickness not less than ninety percent (90%) of the average thickness.

(c) INITIAL PHYSICAL REQUIREMENTS:

1. Tensile strength minimum PSI 1800
2. Elongation at rupture, minimum percent 300

(d) AIR OVEN EXPOSURE TEST. After conditioning in an air oven at 121 + 1^{o}C for 168 hours:

1. Tensile strength, minimum percent of unaged value 75

2. Elongation at rupture, minimum percent of unaged value 60

(e) MECHANICAL WATER ABSORPTION. After 168 hours at 70 + 1^{o}C:

1. Milligrams per square inch, maximum 20

TESTING

7. (a) GENERAL. Tests shall be performed on insulation, jacket and completed cables in accordance with applicable standards as listed in these specifications. Where standards are at variance with each other or with other portions of this specification, the most stringent requirements, as determined by an engineer from the Bureau of Electricity, shall apply. All tests shall be conducted on cable produced for this order. Where cable insulation and/or jacket thickness preclude obtaining samples of sufficient size for testing, special arrangements shall be made with the engineer to obtain samples of unprocessed materials directly from the extrusion feed bins which will be separately processed and prepared for tests.

(b) NUMBER OF TESTS. Insulation and jacket tests shall be conducted on samples taken every 25,000 feet or fraction thereof of each conductor size. In no case shall samples be taken closer than 15,000 feet apart.

(c) WITNESS TESTS. Where the quantity of cable on a single purchase order is 250,000 feet or more, all insulation and jacket tests shall be witnessed by an engineer from the Bureau of Electricity. In addition to these tests, the engineer shall also witness tests on completed cables for approximately five percent (5%) of the cable. Included in these tests will be a 70,000 BTU per hour flame

test in accordance with IEEE 383. Reels to be tested will be selected at random by the engineer. The contractor shall include in his bid, the cost of travel, food and lodging for one (1) engineer. Travel for 150 miles or greater shall utilize a major airline. Lodging accommodations shall be equal to those provided at a Holiday Inn. The engineer shall be given ten (10) working day notice of all travel arrangements.

(d) TEST REPORTS. No cable may be shipped until certified copies of all factory tests, including witness tests where applicable, have been reviewed and approved by the engineer.

(e) ACCEPTANCE. Where the cable fails to conform to any of the tests specified herein, the following shall apply:

1. INSULATION OR JACKET TESTS. Samples shall be taken from each reel and shall successfully conform to all tests specified herein. Reels from which samples fail to conform, will be rejected.

2. COMPLETED CABLE (REEL) TESTS. Any reel which fails to conform to testing will be rejected. Where a reel fails during witness testing, the engineer will select five (5) additional reels to witness test.

3. Where five percent (5%) or more of the reels are rejected for any reason, the entire cable order will be rejected.

PACKAGING

8. (a) CABLE MARKING. The cable shall be identified by a permanently inscribed legend in white lettering as follows:

1/c No. (conductor size) AWG-600V-90^{o}C-EP/Hypalon

The legend shall be repeated at approximately eighteen (18) inch intervals on the outside surface of the cable parallel to the longitudinal axis of the conductor. A sequential footage marking shall be located on the opposite side from the legend.

(b) When three conductors (3/C) are specified, the smaller of the conductors shall have a green colored jacket and the three conductors shall be triplexed with a 16"-18" lay. The jacket color shall not be unduly affected by cable installation, or prolonged exposure to either direct sunlight or moisture. Where the quantity of 3/C cable exceeds 80,000 feet, witness testing as outlined in section 7(c) shall apply.

(c) REELS. The completed cable shall be delivered on sound substantial, non-returnable reels. Both ends of each length of cable shall be properly sealed against the entrance of moisture and other foreign matter by the use of clamp-on cable caps, such as the Reliable Electric Company neoprene cable cap No. 1405, or equal. The ends shall be securely fastened so as not to become loose in transit. Before shipment, all reels shall be wrapped with cardboard or other approved wrapping.

(d) FOOTAGE. Each reel shall contain the length of cable as set forth in Table A of this specification. A tolerance limit of plus or minus five percent (+5%) shall be adhered to.

(e) REEL MARKING. A metal tag shall be securely attached to each reel indicating the reel number, contract number, date of shipment, gross and tare weights, description of the cable, the total footage, and the beginning and ending sequential footage numbers. Directions for unrolling the cable shall be placed on the reel with an approved permanent marking material such as oil-based paint or a securely attached metal tag.

TABLE "A"

CONDUCTOR SIZE AWG OR MCM	STRANDING NO. OF STRANDS	INSULATION THICKNESS MILS	JACKET THICKNESS MILS	A-C TEST VOLTAGE VOLTS	REEL LENGTH FEET
8	7	45	15	5,500	2,000
6	7	45	30	5,500	2,000
4	7	45	30	5,500	2,000
2	7	45	30	5,500	1,000
0	19	55	45	7,000	1,000
00	19	55	45	7,000	1,000
000	19	55	45	7,000	1,000
0000	19	55	45	7,000	1,000
250	37	65	65	8,000	1,000

SPECIFICATION 1448
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
AUGUST 26, 1991

SIGNAL: PEDESTRIAN TRAFFIC, TWELVE INCH, WITH SYMBOLIC WALK/DON'T WALK LENSES

SUBJECT

1. This specification states the requirements for a pedestrian signal with symbolic messages on nominal twelve inch square lenses illuminated by incandescent lamps and enclosed in a two-section housing; one section shall display the symbolic "Walk" message and the other section shall display the symbolic "Don't Walk" message.

GENERAL REQUIREMENTS

2. (a) **SPECIFICATIONS.** The pedestrian signal shall conform to the requirements herein set forth, and to other Specifications cited herein, of which the most recently published revisions shall govern.

(b) **INSPECTION.** The pedestrian signal shall be subject to inspection at the discretion of the Commissioner. Final inspection shall be made at point of delivery. Any pedestrian signal rejected shall be removed and disposed of by the contractor at his sole cost.

(c) **SAMPLE.** One complete pedestrian signal, fully assembled and wired, of the manufacture intended to be furnished shall be submitted within seventy-two (72) hours after the bid opening upon the request of the Commissioner. The sample shall be delivered to the Engineer of Electricity, Department of Streets and Sanitation, Bureau of Electricity, 2451 South Ashland Avenue, Chicago, Illinois 60608.

(d) **DRAWING.** The drawing mentioned herein is a drawing of the Department of Streets and Sanitation, Bureau of Electricity, and shall be construed as part of this Specification cooperating to state necessary requirements.

(e) **SYMBOLIC MESSAGES**. Symbols for "Walk" (Man) and "Don't Walk" (Hand) shall conform in style and color to those of the "Institute of Transportation Engineers" (I.T.E.).

GENERAL REQUIREMENTS

3. (e) **WARRANTY.** The contractor shall warrant the pedestrian signals to meet the requirements of this specification and shall warrant all equipment, components, parts and appurtenances against defective design, material and workmanship for a period of three (3) years from date of acceptance. In the event defects and failures become apparent during this period, the contractor shall repair or replace such defects and failures at no expense to the City. This warranty shall be evidenced by a letter or certificate of warranty submitted to the City at the time final delivery is made.

DETAIL REQUIREMENTS

4. (a) **ASSEMBLY.** The pedestrian signal unit shall consist of two (2) signal sections attached together, one above the other. Each signal section shall be comprised of, but not limited to, a housing body, reflector, lampholder, lens, housing door, visor and miscellaneous supports, fittings, parts and electrical components, all as hereinafter specified, completely assembled and wired, fully painted and ready for installation and operation. Incandescent lamps shall not be furnished.

(b) **DESIGN.** The signal sections shall be designed and constructed to permit two sections to be attached together one above the other, or permit one section to be mounted singly. The upper section of each unit shall display the symbolic "Don't Walk" message, and the lower section shall display the symbolic "Walk" message. To provide for easy and simple installation and maintenance, all components shall be readily accessible from front of signal when housing is opened. Overall dimensions shall be approximately 28 inches high, 14 inches wide, and 9 inches deep without visor.

(c) **MATERIALS.**

(1) **CASTING ALLOY**. The housing body and door shall be die cast of corrosion resistant aluminum alloy per ASTM B85, alloy S12A, with full 12% silicon composition.

(d) **HOUSING BODY**

(1) **CAST ALUMINUM HOUSING**. The housing body of each section shall be a one piece aluminum alloy, die cast, enclosure. Two (2) hinge lugs on the left side and two (2) latch screw lugs on the right side, as viewed from the front of the signal, shall be integrally cast with the housing body. The top and bottom of the housing body shall have openings to accommodate standard 1 - 2 inch pipe brackets.

(2) **CAST ALUMINUM DOOR**. The housing door shall be a one piece, aluminum alloy, die casting. Two (2) hinge lugs on the left side, and two (2) sets of latch screw jaws on the right side, as viewed from the front of the signal, shall be integrally cast with the housing door. The housing door shall be hinged to the reflector housing with two 18-8 type 304 stainless steel 1/4 inch hinge pins, drive fitted. Stainless steel latch screw, wing nut, and washer assemblies on the latch side of the housing body shall provide for opening and closing the housing door without the use of tools. A gasket groove on the inside of the housing door shall be fitted with a weatherproof and mildew proof, aired cored, resilient neoprene gasket which, when the housing door is latched closed, shall compress against a raised bead on the housing body making a positive, weatherproof and dust-tight seal. The housing door shall have a minimum of six (6) holes drilled and tapped for stainless steel machine screws to secure the visors.

(3) **GASKETING.** A groove, or other type retaining section, shall be cast or molded along the perimeter on the inside of the door to accommodate a weatherproof and mildew proof, closed cell, resilient, neoprene or silicone rubber gasket which shall make a positive seal when compressed against the housing during closing. The gasket shall encompass the entire perimeter of the groove without any gaps or openings.

(e) **OPTICAL UNITS**. The optical unit shall consist of a lens, reflector and lamp holder. All units shall form a neat compact unit within the housing body with no light leakage between the door and the housing body, and the signal indication and the visor.

(1) **LENSES.** The lenses shall be approximately 12 inches square and display the "Don't Walk" and "Walk" symbols. The back surface of each lens shall be "frosted" in an approved manner to diffuse the light; the front surface shall be smooth. The symbols shall be screened on the lens front surface with opaque ceramic material fired to form a permanent bond that will not crack or peel.

5. (e) **OPTICAL UNITS. (Cont'd.)**

(1) **LENSES. (Cont'd.)**

The symbols shall be applied in such a manner as to provide an opaque background and illuminated legends. The symbols shall be not less than nine and one-half inches (9 2") tall with proportional width. The "Don't Walk" symbol shall be Portland Orange, low expansion glass or polycarbonate conforming to the specifications of the Institute of Transportation Engineers Technical Report Number 1 and the American Standards Association D 10.0 - 1958 UDC 656.057, where applicable. The "Walk" symbol shall be of clear, low expansion, glass or polycarbonate with the symbolic lens centered. The lenses shall be mounted in an endless neoprene gasket completely encompassing the outer, side, and top and bottom, edges of the lens providing a cushion and positive seal between the lens and housing door, and the lens and reflector. The gasketed lens shall be secured to the housing door by a minimum of four stainless steel clips and machine screws.

(2) **LAMP HOLDER**. The lamp holder shall have a heat, moisture, and weatherproof molded phenolic housing designed to accommodate all standard 100 to 116 watt traffic signal lamps with a two and seven-sixteenth (2-7/16) inch light center length. The lamp holder shall be so designed that it can be readily rotated and locked into position to provide proper lamp filament orientation and focus. The inner brass shell, or ferrule, of the lamp holder shall have a lamp grip to prevent the lamp from working loose due to vibration. A neoprene gasket shall be furnished between the flange of the lamp holder and the reflector.

(3) **REFLECTOR**. The reflector shall be fabricated of high purity, clad-type, aluminum sheet formed to a parabolic shape and cut to fit in a circular, cast aluminum, hinged frame for rigid mounting within the housing. The reflecting surface shall be an "ALZAK" class SI specular finish having a minimum reflectivity of eighty-two (82) percent and a protective oxide coating of 7.5 milligrams per square inch, minimum. The reflectivity shall be determined with a Taylor-Baumgartner Reflectometer, and the weight of the protective oxide coating by the method of test outlined in ASTM B 137. The reflecting surface shall be tested for proper sealing by applying one (1) drop of water solution (1 gram per 50 cc) of Anthraquinone Violet R at room temperature. After five minutes, the dye shall be washed from the surface with running water. No stain shall remain after the surface is lightly rubbed with a soft cloth wet with mild soap and water, and rinsed with water. The reflector shall have an opening in the back to accommodate the lamp holder.

The reflector shall be rigidly mounted within the housing by an aluminum frame which shall be hinged to allow the reflector to be turned out of, or rigidly positioned within, the housing body.

(f) **VISOR.** The visor shall be a tunnel type, 8 3/4 inches long, encompassing the top and sides of the signal face, and attached by six (6) stainless steel machine screws, two (2) each on the top and sides. The visor shall be fabricated from 3006-h16 aluminum alloy sheet not less than 0.060 inches thick. The lower outside corners of the visor shall be rounded.

(g) **WIRING.** Each lamp holder shall have two (2) leads color coded as follows:

White - Common
Red - "Don't Walk" Section
Green - "Walk" Section

The leads shall be TEW, number 18 AWG, stranded copper wire with 2/64 inch thick, 600 volt, 105 degree C, thermo-plastic insulation meeting MIL-W-76A specifications. The ends of the lamp leads shall be stripped of one-half inch (1/2") of insulation and tinned. The leads shall be splice-free and connected to one side of the terminal strip.

(h) **TERMINAL STRIP.** A four terminal, eight point, barrier type terminal strip with solid base and pressure plate type connectors, such as Marathon Special Products Corporation Catalog Number TB-304-SP, shall be securely attached at each end to the housing body inside the walk section.

(i) **CABLE.** One eleven foot (11') length of flexible electric cord, medium duty, type SO, 3-conductor No. 16 AWG stranded copper, color coded, rubber insulated, neoprene jacketed, shall be furnished with each two (2) section signal. Both ends of each cable length shall be carefully stripped of six inches (6") of jacket and one inch (1") of insulation, and each conductor properly tinned.

(j) **FINISH.** All interior and exterior surfaces of the cast housing, housing door, and visor shall be either prime coated with a high quality infrared oven baked paint per Federal Specifications TT-P-636, or treated with a high quality chromated aluminum oxide coating process (Bonderite 721 or equal) per MIL-C-5541 specifications. All exterior surfaces, except visors, shall be finish coated with a high quality infrared oven baked green per Federal Specifications TT-E-489 and green color #14110 of Federal Standard Number 595.

The finish coat for the visor interior and exterior surfaces shall be an alkyd urea black synthetic baking enamel, with zero (0) gloss-reflectance, meeting MIL-E-5557 Specifications for heat resisting glyceryl phthalate enamel, type 4, instrument black. Stainless steel hardware shall not be painted.

PACKAGING

4. (a) **PACKING.** Each pedestrian signal assembly shall be packed in a suitable carton so secured that the signal shall not be damaged during shipment, handling, or storage.

(b) **MARKING**. Each carton containing a pedestrian signal shall be clearly marked on the outside in letters not less than three-eighths inch (3/8") tall with the legend:"PEDESTRIAN SIGNAL, TWELVE-INCH, SYMBOLIC WALK-DON'T WALK," the appropriate City Commodity Code Number, the name of the manufacturer, and the pertinent contract number.

SPECIFICATION 1458
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
APRIL 28, 1992

ROUND MANHOLE FRAMES AND COVERS
24 INCH AND 30 INCH DIAMETER

SCOPE

The Contractor shall furnish and deliver F.O.B., City of Chicago, 24" and 30" Circular MANHOLE FRAMES AND COVERS all in accordance with the Standard Specifications, Drawings 872 , 874 and 10927 and Detailed Specifications.

GENERAL REQUIREMENTS

Conformance: The manhole frames and covers shall conform with every detail of the requirements herein stated and to the Specifications and Methods of Test of the American Society for Testing Materials cited by ASTM Designation Number in which the most recently published revision shall govern.

Acceptance: Frames and covers not conforming to this specification will not be accepted.

Drawings: The drawings mentioned herein are drawings of the Department of Streets and Sanitation, Bureau of Electricity, and shall be interpreted as part of these specifications. The FRAMES AND COVERS shall each conform in detail to the design shown on Drawings 872, 874 and 10927.

Weight: Each frame and cover shall weigh approximately as shown on the drawings.

Machining: The bearing surfaces of both the COVER and the FRAME shall be machine finished as indicated on the drawings.

Workmanship: The frames and covers shall be mutually interchangeable size for size, so that each lid will fit every frame neatly without jamming and with only such clearance as the drawings indicate. In addition, 24" & 30" covers shall fit existing 24" & 30" frames, as shown on drawings 872, 874 and 10927. The castings shall be neat, true to pattern and free from cracks and casting flaws. No welding of defective castings will be permitted nor shall the castings be painted.

SAMPLE

Upon request, one complete manhole frame and cover of the manufacture intended to be furnished shall be submitted within fourteen (14) business days after the bid opening date. If the Bidder supplying the samples is awarded a contract, the samples delivered shall be credited as part of the order. The samples shall be delivered to the Bureau of Electricity Storeroom, 4101 South Cicero Avenue, Chicago, Illinois.

MATERIAL

The frames and covers shall be made of Class 30 Cast Iron described in the specifications for Gray Iron Castings of ASTM A48. No plugging of defective castings will be permitted.

TESTS

Test bars of the metal used for the castings shall be made and tested for tensile and transverse strength in accordance with ASTM A48. The Metal shall be tested at the works of the manufacturer. The manufacturer shall furnish a certified copy of all test data sheets to the City prior to delivery of the castings. Where the number of castings on a single order exceeds four hundred (400), a representative from the Bureau of Electricity shall witness these tests. Frames and covers shall each be considered a separate casting for determining the requirement of witness testing.

The manufacturer shall include in his bid the cost of travel, food and lodging for one (1) representative. Travel for 150 miles or greater shall utilize a major airline. Lodging arrangements shall be equal to those provided at a Holiday Inn. The engineer shall be given ten (10) working days= notice of all travel arrangements.

SPECIFICATION 1462
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
AUGUST 7, 1992

RIGID STEEL CONDUIT
(HOT DIPPED GALVANIZED)

SCOPE

This specification describes Rigid Steel Conduit, Zinc Coated.

GENERAL REQUIREMENTS

Rigid steel conduit shall be of one grade, zinc coated by the hot-dip process. Conduit shall be furnished in 10 foot lengths, threaded on each end and with one coupling attached to one end and a protective cap at the other end.

STANDARDS

The conduit shall be listed by Underwriters Laboratories in accordance with standard U.L. - 6 and shall conform to ANSI C 80.1. In addition, conduit shall be recognized as an equipment grounding conductor as per N.E.C. article 250-91 b.

STEEL

Conduit shall be formed from steel suitable for use as an electrical raceway. It shall be structurally sound so that it will hang straight and true when supported by hangers in accordance with Chicago electrical code requirements and shall be capable of being field bent without deformation of the walls.

Conduit shall have a circular cross section sufficiently accurate to permit the cutting of threads in accordance with Table 2 and shall provide a uniform wall thickness throughout. All surfaces shall be smooth and free of injurious defects. The dimensions and weights of rigid steel conduit shall be in accordance with Table 1.

THREADING AND CHAMFERING

Each length of conduit, and each nipple, elbow and bend shall be threaded on both ends, and each end shall be chamfered to remove burrs and sharp edges.

The number of threads per inch, and the length of the threaded portion at each end of each length of conduit, nipple and elbow shall be as indicated in Table 2. The perfect thread shall be tapered for its entire length, and the taper shall be 3/4 inch per foot.

ZINC COATING

After all cutting threading and chamfering all conduit surfaces shall be thoroughly cleaned before application of zinc. The cleaning process shall leave the interior and exterior surfaces of the conduit in such a condition that the zinc will be firmly adherent and smooth.

The conduit shall be hot dipped galvanized both inside and out to provide approximately two (2) ounces of zinc per square foot. This is equivalent to 3.4 mils of zinc coating. An additional interior coating to aid in the installation of wires is desirable.

COUPLINGS

Couplings shall comply with the following requirements:

(a) The outside surface of couplings shall be protected by means of a zinc coating. The zinc content of the coating on the outside surface shall be equivalent to a minimum thickness of 0.0008 inch.

(b) Couplings shall be so made that all threads will be covered when the coupling is pulled tight on standard conduit threads.

(c) Both ends of the coupling shall be chamfered to prevent damage to the starting threads.

(d) The outside diameter, length and weight of coupling shall be as indicated in Table 3.

(e) Couplings shall be straight tapped, except that the 2 2 inch and larger sizes may be taper-tapped.

PACKING AND IDENTIFICATION

The pipe shall be delivered in bundles. Each length of conduit shall be marked with the manufacturer's name or trademark. Securely attached to each bundle at two (2) locations on the bundle shall be a weather resistant tag containing the following information:

1) conduit size
2) footage of bundle
3) gross weight of bundle
4) commodity code # as per table 4

Precaution shall be taken by the contractor in handling during shipment or delivery of conduit, and any conduit found to be damaged will not be accepted.

TEST AND INSPECTION

Conduit shall be capable of being bent cold into a quarter of a circle around a mandrel, the radius of which is four times the nominal size of the conduit, without developing cracks at any portion and without opening the weld.

The protective coatings used on the outside and inside surfaces of rigid steel conduit shall be sufficiently elastic to prevent their cracking or flaking off when a finished sample of 2 inch conduit is tested within one year after the time of manufacture, by bending it into a half of a circle around a mandrel, the radius of which is 3 2 inches.

Tests on sizes other than 2 inch may be conducted within one year after the time of manufacture. If such tests are conducted, the conduit shall be bent into a quarter of a circle around a mandrel, the radius of which is six times the nominal size of the conduit.

One of the following three test methods shall be employed for measuring the thickness or extent of the external zinc coating on conduit:

(a) Magnetic test.
(b) Dropping test.
(c) Preece test (Material which will withstand four 1-minute immersions shall be considered as meeting requirements as follows; the zinc content of the coating on the outside surface shall be equivalent to a minimum thickness of 0.0008 inch). All tests and inspections shall be made at the place of manufacture prior to shipment unless otherwise specified, and shall be so conducted as not to interfere with normal manufacturing processes.

Each length of conduit shall be examined visually both on the outside and inside to determine if the product is free from slivers, burrs, scale or other similar injurious defects (or a combination thereof), and if coverage of the coating is complete.

If any samples of rigid steel conduit tested as prescribed in this specification should fail, two additional samples shall be tested, both of which shall comply with the requirements of the specification.

All pipe which may develop any defect under tests, or which may before testing or on delivery be found defective, or not in accordance with these specifications, shall be removed by the Contractor at his own expense; and such pipe so removed by the Contractor shall be replaced by him within ten (10) days of such rejection with other pipe which shall conform to these specifications.

TABLE 1

Design Dimension and Weights of Rigid Steel Conduit

Nominal or Trade Size of Conduit (Inches)	Inside Diameter (Inches)	Outside Diameter (Inches)	Wall Thickness (Inches)	Length Without Coupling (Feet & Inches)	Minimum Weight of Ten Unit Lengths with Couplings Att. (Pounds)
2	0.622	0.840	0.109	9-11 1/4	79.00
3/4	0.824	1.050	0.113	9-11 1/4	105.0
1	1.049	1.315	0.133	9-11	153.0
1 1/4	1.380	1.660	0.140	9-11	201.0
1 2	1.610	1.900	0.145	9-11	249.0
2	2.067	2.375	0.154	9-11	334.0
2 1//2	2.469	2.875	0.203	9-10 2"	527.0
3	3.068	3.500	0.216	9-10 2"	690.0
3 2	3.548	4.000	0.226	9-10 1/4"	831.0
4	4.026	4.500	0.237	9-10 1/4"	982.0

TEST AND INSPECTION (CONTINUED)

NOTE: The applicable tolerances are:

Length: + 1/4 inch (without coupling)

Outside diameter + 1/64 inch or -1/32 inch for the 1 2 inch and smaller sizes,
± 1 percent for the 2-inch and larger sizes.

Wall thickness: - 12 2 percent

TEST AND INSPECTION (Continued)

TABLE 2

Dimensions of Threads

Nominal or Trade Size of Conduit (Inches)	Threads per Inch	Pitch Diameter at end of Thread (Inches) Tapered 3/4 Inch per foot	Length of Thread (Inches) Effective L2	Overall L4
1/2	14	0.7584	0.53	0.78
3/4	14	0.9677	0.55	0.79
1	11 1/2	1.2136	0.68	0.98
1 1/4	11 1/2	1.5571	0.71	1.01
1 1/2	11 1/2	1.7961	0.72	1.03
2	11 1/2	2.2690	0.76	1.06
2 1/2	8	2.7195	1.14	1.57
3	8	3.3406	1.20	1.63
3 1/2	8	3.8375	1.25	1.68
4	8	4.3344	1.30	1.73

NOTE: The applicable tolerances are:

Threaded Length (L_4 Col 5): Plus or minus one thread

Pitch Diameter (Col 3): Plus or minus one turn is the maximum variation permitted from the gaging face of the working thread gages. This is equivalent to plus or minus one and one half turns from basic dimensions, since a variation of plus or minus one half turn from basic dimensions is permitted in working gages.

TEST AND INSPECTION (Continued)

TABLE 3

Designed Dimensions and Weights of Couplings

Nominal or Trade Size of Conduit (INCHES)	Outside Diameter (INCHES)	Minimum Length (INCHES)	Minimum Weight (POUNDS)
1/2	1.010	1-9/16	0.115
3/4	1.250	1-5/8	0.170
1	1.525	2	0.300
1 1/4	1.869	2-1/16	0.370
1 1/2	2.155	2-1/16	0.515
2	2.650	2 1/8	0.671
2 1/2	3.250	3-1/8	1.675
3	3.870	3-1/4	2.085
3 1/2	4.500	3-3/8	2.400
4	4.875	3-1/2	2.839

TEST AND INSPECTION (CONTINUED)

TABLE 4

COMMODITY CODE NUMBERS

1/2"	285-26-14-035
3/4"	285-26-14-027
1"	285-26-14-019
1 1/4"	285-26-14-044
1 1/2"	285-26-14-053
2"	285-26-14-068
2 1/2"	285-26-14-085
3"	285-26-14-100
3 1/2"	285-26-14-117
4"	285-26-14-132

THIS SPECIFICATION SHALL NOT BE ALTERED

SPECIFICATION 1463
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
REVISED JUNE 22, 2001

TRAFFIC SIGNAL MOUNTING BRACKETS FOR MONOTUBE ARMS

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1. **SUBJECT**

This specification states the requirements for mounting brackets which will be used to secure traffic signals and illuminated signs to steel monotube mast arms.

2. **GENERAL**

(a) Specifications. The mounting brackets shall conform in detail to the requirements herein stated and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation number of which the most recently published revision shall govern.

(b) Acceptance. Mounting brackets not conforming to these specifications will not be accepted.

(c) Sample. One complete mounting bracket shall be submitted within fourteen (14) business days upon request of the Commissioner. It shall be delivered to the Engineer of Electricity, 2451 South Ashland Avenue, Chicago, Illinois 60608.

(d) Experience. The manufacturer shall demonstrate a knowledge of past production of the monotube arms herein described, as demonstrated by a submittal list of comparable projects.

3. **DESIGN**

(a) General. The mounting bracket shall be designed such that no portion of the bracket is put into tension when it is attached to either the mast arm or to the signal support tube. All materials shall be corrosion resistant and designed to be structurally sound.

(b) Hardware. All components of the mounting brackets shall be held firmly in place with stainless steel hardware.

(c) Adjustments. Bracket shall allow for mounting and adjustment of signal faces in any direction desired on a fixed mast arm. Adjustments shall be made using standard hand tools. Neither mounting nor adjusting the bracket shall require the use of a torque wrench.

(d) Signal Mounting. Mounting hardware shall be available for use with standard two, three and five signal head configurations; for use with 3M optically programmed signal heads; and with signs.

(e) Warranty. Bracket shall have a minimum three (3) year warranty. The warranty shall cover the material and workmanship. Any structural flaws or inability to maintain alignment shall be deemed a failure and result in the warranty being invoked.

(f) Wiring. Bracket design shall allow for ease of installation of components and wiring. All wiring troughs and nipples shall provide smooth, burr-free surfaces and adequate space for facile movement of nominal 2" diameter cable between the mast arm and the signal face.

(g) Banding. Where banding is used to attach the mounting bracket to the mast arm, the banding shall be 3/4" x 42" stainless steel.

(h) Castings. Where castings are used for the brackets, they shall be smooth and free of defects.

4. **TESTING**

(a) General. One Percent (1%) of the traffic signal mounting brackets in each order shall be tested for rigidity and structural integrity.

(b) Re-testing. If any mounting bracket fails any portion of the test, an additional three percent (3%) of the brackets shall be tested. If an additional bracket fails, the entire lot shall be rejected.

(c) Witness Tests. All tests shall be witnessed by a representative of the Bureau of Electricity. The contractor shall include in his bid, the cost of travel, food and lodging for one (1) representative. Travel for 150 miles or greater shall utilize a major airline. Lodging accommodations shall be equal to those provided at a Holiday Inn. The representative shall be given ten (10) working days notice of all travel arrangements.

(d) Tests.

1. With five (5), twelve inch (12") signal head sections attached to the bracket, the assembly shall be mounted to a suitable and proper supporting structure.
2. Using a calibrated dynamometer, a one hundred pound force shall be applied for sixty seconds at the center of the bracket in the horizontal plane. At the completion of the test, there shall be no movement of the assembly or deterioration of the bracket or appurtenant hardware.

3. Using a calibrated dynamometer, a one hundred pound force shall be applied to the top signal head section for sixty seconds in a direction which will pull the head away from the mounting post in the mounting post plane. During this time period, the mounting bracket castings shall be struck ten times with an eight once flat head hammer at the point(s) which

appear to be most vulnerable to stress. At the completion of the test, no movement of the assembly shall have been observed and there shall be no cracking of the castings or deterioration of the appurtenant hardware.

4. The above test shall be repeated except that the force shall be applied in a plane which is perpendicular to the mounting post plane.

5. **INSPECTION**

An inspector representing the City shall have free entry at all times while the work on the contract is being performed, to all parts of the manufacturer=s works which shall concern the manufacture of these mounting brackets. The manufacturer shall afford the inspector, without charge, all reasonable facilities to satisfy him that the mounting brackets are being furnished in accord with this specification. The final inspection shall be made at point of delivery. Any mounting brackets rejected as defective shall be removed and disposed of by the contractor at his sole cost.

THIS SPECIFICATION SHALL NOT BE ALTERED

SPECIFICATION 1465
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
REVISED AUGUST 28, 1995

GROUND RODS

1. **SUBJECT**

This specification states requirements for ground rods to be used for ground connections in street lighting, traffic signal, fire alarm, and miscellaneous electrical circuits.

2. **GENERAL**

(a) Ground Rods shall be copper clad, steel rods suitable for driving into the ground without deformation of the rod or scoring, separation or other deterioration of the copper cladding.

3. **DESIGN**

(a) Ground rods shall be made of mild steel core suitable for driving into the earth without deformation.

(b) A heavy, uniform covering of electrolytic copper shall be metallically bonded to the steel core to provide a corrosion resistant, inseparable bond between the steel core and the copper overlay.

(c) The rod shall be processed to work harden the copper providing a scar resistant surface.

(d) The finished rod shall be of uniform cross-section; straight, and free of nicks, cuts or protuberances.

(e) The rod shall be pointed at one end and chamfered at the other end.

(f) All ground rods shall be three-quarter inches (3/4") in diameter. The length shall be as specified elsewhere. The length of the rod shall be clearly and permanently marked near the top of the rod (chamfered end).

(g) All ground rods shall conform to U.L. 467 and shall be listed as such.

All ground rods shall be supplied with a Blackburn G6 clamp, or equivalent.

4. **ACCEPTANCE**

(a) The contractor shall furnish one sample of the ground rod proposed to be furnished within fourteen business days from receipt of notice. The approved sample shall be the standard, in all respects, to which all ground rods furnished shall conform. The accepted ground rod will be credited as part of the order.

(b) The sample ground rod shall be delivered to the Engineer of Electricity, 2451 S. Ashland Avenue, Chicago, Illinois 60608.

(c) Ground rods not accepted shall be removed at the sole expense of the contractor.

THIS SPECIFICATION SHALL NOT BE ALTERED

SPECIFICATION 1467
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
MAY 12, 1993

ROD: ANCHOR, STEEL, WITH HARDWARE

SUBJECT

1. This Specification states the requirements for steel anchor rods with hardware for the street light pole foundations.

GENERAL

2. (a) Specifications. The anchor rods shall conform in detail to the requirements herein stated, and to the specifications of the American Society for Testing and Materials cited by ASTM Designation Number, of which the most recently published revision shall govern.

   (b) Drawing. The drawings mentioned herein are issued by the Department of Streets and Sanitation, and are an integral part of this specification.

ANCHOR ROD

3. (a) Fabrication. Each anchor rod shall be fabricated in conformity with City of Chicago drawings numbered 806, 811, 830 and 844.

   (b) Material. The rods shall be fabricated from cold rolled carbon steel bar meeting the requirements of ASTM Specification A-36, except that the Specification shall be modified to provide a minimum yield point of 55,000 psi (379 MPa).

   (c) Thread. The straight end of each rod shall be threaded as shown on City of Chicago drawing for that size rod, and shall be American Standard, National Coarse.

HARDWARE

4. Hardware furnished with the anchor rod shall be as shown on the applicable drawing. It shall include two (2) hexagonal nuts, American Standard Regular, two (2)

   flat washers, type B, series W, and one (1) lock washer, steel, helical spring. The nuts shall have a Class 2 or 3 fit.

FINISH

5. (a) Galvanizing. The threaded end of each rod shall be hot dipped galvanized for the distance shown on the applicable drawing. The thickness of the

galvanized coating shall not be less than 0.0021 inches. Each hexagonal nut and washer shall be galvanized to the minimum thickness required by ASTM A-153, Class C, or ASTM B-454, Class 50. After galvanization, each anchor rod and nut shall have a mating fit equivalent to the American Standard Class 2 or 3 fit for nuts and bolts.

(b) Rust Inhibitor. With the hardware in place on the end of the bolt, the galvanized portion of the bolt shall be coated with heavy No-Ox-Id or equal rust inhibiting greasy compound.

TESTS

6. At the discretion of the Commissioner, anchor rods and hardware furnished under this specification shall be subject to testing to determine compliance with the materials physical requirements.

INSPECTION

7. Final inspection shall be made at point of delivery. Any anchor rods and hardware rejected shall be removed by the Contractor at his sole expense.

THIS SPECIFICATION SHALL NOT BE ALTERED

SPECIFICATION 1475
BUREAU OF ELECTRICITY
DEPARTMENT OF STREETS AND SANITATION
CITY OF CHICAGO
MARCH 15, 1995

CORD: EIGHT CONDUCTOR NO. 16AWG., 600 VOLT
125 DEGREE C EPR INSULATION AND 105 DEGREE C JACKET

SUBJECT

1. This specification states the requirements for an eight (8) conductor number 16AWG, electrical cable, to be installed in conduit and used to electrically energize traffic signal faces at street intersections within the City of Chicago.

SCOPE

2. This specification sets forth construction details and test requirements of the cable to be furnished. The cable shall be flame retardant, have low acid gas content, good resistance to oil, moisture and mechanical abuse, and exhibit excellent heat aging and electrical characteristics.

GENERAL

3. (a) SPECIFICATIONS. The cable shall conform in detail to the requirements herein stated, and to the Specifications and Methods of Test of the American Society for Testing and Materials cited by ASTM Designation Number, the Underwriters Laboratories, Inc. Standard or Style number and any other recognized Standardization group=s specifications referred to by the appropriate designation, of which the most recently published revision shall govern.

(b) ACCEPTANCE. Cable not conforming to this specification will not be accepted.

(c) WARRANTY. The manufacturer shall warrant the cable to be first class material throughout. In addition to any other claims against them, if the cable is installed within six months of date of shipment, the manufacturer shall replace any cable failing during normal and proper use within two years of date of installation. All replacements under this warranty shall be made free of charge F.O.B. delivery point of the original contract. Lengths of cable having been replaced shall become the property of, and shall be returned to, the manufacturer F.O.B., City of Chicago.

CABLE

4. (a) CONSTRUCTION. This cable shall consist of stranded, coated, conductors each concentrically encased with a "free stripping," ethylene propylene rubber insulation. Suitable fillers shall be used to produce an

essentially round cross-section. The insulated conductors and the fillers shall be cabled with a suitable left-hand lay as close together as is consistent with forming a core of minimum diameter. A Mylar tape shall be wrapped over the conductor assembly, and a jacket applied overall.

(b) OUTER DIAMETER**.** The maximum allowable outer diameter shall be one-half (0.50) inch.

(c) SEALING. Both ends of each length of cable shall be thoroughly sealed to prevent the entrance of moisture or other foreign matter.

MARKING

5. (a) CONDUCTORS. Identification shall be provided by colors in accordance with I.M.S.A. Standards.

(b) JACKET The outer jacket shall be marked as follows: "8/C 16 AWG 600V 125 degrees C CPE" name of manufacturer and date of manufacture. The height of letters shall not be less than 1/8 inch in height and the message shall repeat at approximately two (2) foot intervals. A sequential footage marking shall be located on the opposite side of the jacket. All marking shall be perfectly legible with permanent white ink.

CONDUCTOR

6. (a) MATERIALS. Round, Soft or annealed, stranded copper wire in accordance with ASTM B-3 and B-8, and coated in accordance with ASTM B33 (tin coated) or ASTM B-189 (lead or lead-alloy coated), shall be furnished.

(b) SIZE. The stranded conductor shall consist of stranded wires twisted with an appropriate lay to form a No. 16 AWG conductor with an approximate diameter of 0.048 inches.

INSULATION

7. (a) TYPE. The insulation shall be an easily strippable ethylene propylene rubber compound meeting or exceeding the requirements of ICEA S-68-516 and the additional requirements of this specification.

(b) RATING. The insulation shall be rated for continuous duty at 125 degrees C in accordance with U.L. AWM Style 3400.

(c) THICKNESS. The insulated conductor shall be circular in cross-section, concentric to the conductor, with a nominal insulation thickness of 0.031 inches (2/64") and a minimum spot thickness of 90% of the nominal thickness.

(d) INITIAL PHYSICAL REQUIREMENTS:

1. Tensile strength, min., PSI 1,600

2. Elongation at rupture, min. % 250

(e) AIR OVEN EXPOSURE TEST. After conditioning in an air oven at 158 ± 1 degree C for 168 hours using methods of test described in ASTM-D 573:

Tensile strength, minimum percent
of unaged value 85

Elongation at rupture, minimum
Percent of unaged value 65

(f) MECHANICAL WATER ABSORPTION:

1. GRAVIMETRIC METHOD. After 168 hours in water at 70± 1 degree C:

Water absorption, maximum, milligrams per
square inch 5.0

(g) COLD BEND TEST REQUIREMENTS. The completed cable shall pass the "Cold-Bend," Long-Time Voltage Test on Short Specimens of ASTM D-470 except that the test temperature shall be minus (-) 25 degrees C.

(h) ELECTRICAL REQUIREMENTS:

1. Voltage Test. The completed cable shall meet an A.C. and D.C. voltage test in accordance with ASTM D-470 and D-2655.

2. Insulation Resistance. The completed cable shall have an insulation resistance constant of not less than 20,000 when tested in accordance with methods shown in ASTM D-470.

(i) FLEXIBILITY TESTS. A sample length of insulated conductor shall be formed in a loose coil, placed in a circulating air oven, and aged for 168 hours at 158 degrees C ± 1 degree C. The sample shall then be allowed to cool to room temperature for one (1) hour and tightly wrapped around a 3X metal mandrel. The sample shall show no cracks and shall pass the same voltage test specified for the "Cold-Bend Test."

JACKET

8. (a) TYPE The jacket shall be a thermosetting chlorinated polyethylene (CPE) compound meeting the physical and electrical requirements specified herein. In lieu of CPE, the contractor may supply a chlorosulfonated polyethylene (hypalon) compound meeting these requirements.

(b) RATING. The jacket shall be rated for continuous duty at 105 degrees C.

(c) THICKNESS. The jacket shall be circular in cross-section, concentric with the insulation, shall have an average thickness not less than 45 mils and a spot thickness not less than ninety percent (90%) of the average thickness.

(d) INITIAL PHYSICAL REQUIREMENTS:

1.	Tensile strength minimum PSI	1800
2.	Elongation at rupture, minimum percent	300

(e) AIR OVEN EXPOSURE TEST. After conditioning in an air oven at 121 ± 1 degree C for 168 hours for hypalon or 136 ± 1degree C for CPE:

1.	Tensile strength, minimum percent of unused value	75
2.	Elongation at rupture, minimum percent of unaged valued	55

(f) MECHANICAL WATER ABSORPTION. After 168 hours at 70 ± 1 degree C:

1.	Milligrams per square inch, maximum	20

TESTING

(a) GENERAL. Tests shall be performed on insulation, jacket and completed cables in accordance with applicable standards as listed in this specification. Where standards are at variance with each other or with other portions of this specification, the most stringent requirements, as determined by an engineer from the Bureau of Electricity shall apply.

All tests shall be conducted on cable produced for this order. Where cable insulation and/or jacket thickness preclude obtaining samples of sufficient size for testing, special arrangements shall be made with the engineer to obtain samples of unprocessed materials directly from the extrusion feed bins which will be separately processed and prepared for tests.

(b) NUMBER OF TESTS. Insulation and jacket tests shall be conducted on samples taken every 25,000 feet or fraction thereof of each conductor size. In no case shall samples be taken closer than 15,000 feet apart.

(c) WITNESS TESTS. Where the quantity of cable on a single purchase order is 100,000 feet or more, all insulation and jacket tests shall be witnessed by an engineer from the Bureau of Electricity. In addition to these tests, the engineer shall also witness tests on completed cables for

approximately five percent (5%) of the cable. Reels to be tested will be selected at random by the engineer. The contractor shall include in his bid, the cost of travel, food and lodging for one (1) engineer. Travel for 150 miles or greater shall utilize a major airline. Lodging accommodations shall be equal to those provided at a Holiday, Inn. The engineer shall be given ten (10) working days notice of all travel arrangements.

(d) TEST REPORTS. No cable shall be shipped until certified copies of all factory tests, including witness tests where applicable, have been reviewed and approved by the engineer.

(e) ACCEPTANCE. Where the cable fails to conform to any of the tests specified herein, the following shall apply:

1. Insulation or Jacket Tests.. Samples shall be taken from each reel and shall successfully conform to all tests specified herein. Reels from which samples fail to conform, will be rejected.

2. Completed Cable (Reel) Tests. Any reel which fails to conform to testing will be rejected. Where a reel fails during witness testing, the engineer will select five (5) additional reels to witness test.

3. Where five percent (5%) or more of the reels are rejected for any reason, the entire cable order will be rejected.

PACKAGING

11. (a) REELS. The completed cord shall be delivered on sound, substantial reels. The ends of the cable shall be securely fastened so that they will not become loose during shipment and handling.

(b) FOOTAGE. The number of feet per reel shall be five hundred (500) feet plus or minus ten percent (±10%).

(c) MARKING. A metal tag, or an approved indelible marking material such as alkyd enamel paint, shall be used to mark the reel. The marking information shall include, but not be limited to, the following: reel number, contract number, a description of the cord, and the footage of that particular reel.

GENERAL ELECTRICAL REQUIREMENTS
Effective: January 1, 1997

Add the following to Article 801.05(a) of the Standard Specifications:

"Maintenance Preconstruction Inspection:

General. Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall request a maintenance 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 preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date. The maintenance 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 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 WLL BE MADE AFTER MAINTENANCE IS TRANSFERRED, UNLESS IT IS AT THE CONTRACTOR'S EXPENSE.

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

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

Add the following to Article 801.08(a) of the Standard Specifications:

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

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.

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

Add the following to Article 801.13 of the Standard Specifications:

"Lighting Operation and Maintenance Responsibility. The scope of work shall include the assumption of responsibility for the continuing operation of existing, temporary or other lighting systems and all appurtenances affected by the work as may be specified elsewhere herein. 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 Contractors responsibility to visit the site to confirm and ascertain the exact extent of the electrical equipment and systems to be maintained. Where there is existing lighting within the project limits, prior to the start of activities at the site, the Contractor must schedule a formal transfer of maintenance via the Engineer, however failure to do so does not relieve the Contractor of the maintenance responsibility specified herein and such failure obligates the Contractor to correct deficiencies in the existing system at his own expense.

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 lighting systems which may be affected by the work for which maintenance has been transferred to the Contractor and all newly constructed lighting systems under this contract, until final acceptance or as otherwise determined by the Engineer.

Except as specified herein, 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 lighting units (including sign and navigational lighting), cable runs and lighting controls.

Electrical System Damage Response. The Contractor shall respond to damage calls for all system components being maintained and/or installed by the Contractor, existing and proposed, including, but not limited to pole knockdowns, circuit outages, more than 3 luminaires on a circuit, 3 successive luminaires, and controller outages within one hour after notification and provide immediate corrective action. The Contractor shall also

repair other outages within 5 days. The Contractor shall maintain in stock a sufficient amount of material and equipment to provide temporary and permanent repairs. Any damage to the lighting system from any cause whatsoever shall be repaired or replaced in kind with equipment in the same condition before the incident or with new equipment provided by the Contractor at no additional cost to the contract, all as approved by the Engineer. If the Contractor fails to respond so as to produce immediate corrective action within the specified time frames, or fails to complete repairs in a timely manner the Engineer may direct other forces, such as the District 1 Electrical Maintenance Contractor, to perform the work. Charges incurred shall be direct billed to the Contractor. The State shall retain all rights to pursue claims against third parties in all situations regardless of who is maintaining the system. The Contractor shall also provide the State with all accident and damage reports from any incidents.

Weekly Night time Patrols. 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.

Contractor's Responsibility. Existing lighting systems which may be affected by the work shall include, as a minimum, all existing lighting units within the project limits and these units may be temporarily isolated by means of in-line waterproof fuse holders as approved by the Engineer. When a controller is to be replaced or modified under the contract work, or where otherwise indicated, the controller and all systems connected to it shall be included in the Contractor's responsibility for proper operation of lighting systems. The contract drawings may 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.

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

Add the following to Section 801 of the Standard Specifications:

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

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

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

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

Lighting Unit Identification. Each pole, light tower and underpass light shall be labeled as indicated in the plans to correspond to actual circuiting, and as designated by the Engineer. They shall be installed by the Contractor on each lighting unit pole shaft and on the underpass walls, or piers, as shown in the details. Median-mounted poles shall have two sets of identification labeling oriented to allow visibility from travel in either direction. Lighting Controllers shall also be identified by means identification decals as described herein. Identification shall be in place prior to placing the equipment in service. Identification of weathering steel poles shall be made by application of letters and numerals as specified herein to an appropriately sized 3.175 mm (1/8-inch) thick stainless steel plate, which shall be banded to the pole with two stainless steel bands. Identification of painted poles shall be made by application of letters and numerals as specified herein via an adhesive approved by the paint manufacturer for the application. Identification of luminaries, which are not pole mounted, such as underpass luminaires, shall be done using identification brackets. In general, the brackets shall be mounted adjacent to and within one foot of their respective luminaires. The brackets shall be fabricated from 3.175 mm (one-eighth (1/8)) inch aluminum alloy sheet according to the dimensions shown on the plans. The bracket shall be bent so as to present the luminaire identification numbers at a sixty (60) degree angle to the wall. The bracket shall be attached to concrete walls with three (3) 6.35 mm (114 inch), self drilling, snap-off type galvanized steel concrete anchors set flush with the wall, or power driven fasteners approved by the Engineer. The brackets shall be offset from the wall with 12.7 mm (1/2") aluminum bushings. The structural steel shall not be drilled to attach the brackets. The luminaire identification numbers shall be applied to the bracket using the method described for identification applied to poles."

LAMPS
Effective: January 1, 1997

Revise Article 1085.07(a)(1) of the Standard Specifications to read:

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

STAINLESS STEEL JUNCTION BOX
Effective: January 1, 1997

Revise the second sentence of the seventh paragraph of Article 1085.17 of the Standard Specifications to read:

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

CABLE INSULATION
Effective: January 1, 1997

Add the following to Article 1085.26(a)(1) of the Standard Specifications:

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

Add the following to Article 1085.26(b) of the Standard Specifications:

"Cable sized No. 2 AWG and smaller shall be UL listed Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG shall be UL listed Type RHH/RHW/USE."

Revise the third table of Article 1085.26(b) of the Standard Specifications to read:

Average EPR & Jacket Insulation Thickness for Conductors Larger Than No. 2 AWG

Conductor Size AWG	Average EPR Thickness	Average Jacket Thickness
No. 10 thru No. 4/0	1.4 mm (55 mils)	1.1 mm (45 mils)
250 MCM thru 500 MCM	1.6 mm (65 mils)	1.6 mm (65 mils)

LUMINAIRES

Effective: January 1, 1997

Add the following to Article 1085.35(a)(3) of the Standard Specifications:

"The reflector, the refractor or lens, and the entire optical assembly shall not develop any discoloration over then normal life span of the luminaires An extended warranty over and above the normal warranty, shall be furnished by the manufacturer pertaining to the above said discoloration. The extended warranty shall be furnished in writing guaranteeing replacement, including cost of labor and shipment, free of charge to this contract and to the Owner, of any optical assembly, or any component parts thereof, which, as determined by the Engineer, would develop aforesaid discoloration. The extended warranty shall accompany submittal information."

Add the following to Article 1085.35(a)(4)a of the Standard Specifications:

"The ballast shall be a high power factor, low-loss, auto regulator type ballast."

Delete Article 1085.35(a)(4)b High Pressure Sodium Reactor ballast of the Standard Specifications.

Revise Article 1085.35(a)(4)c of the Standard Specifications to read:

"High Pressure Sodium Regulator. That ballast shall be a high power factor, constant wattage auto-regulator, lead type (CWA). The ballast shall be designed to furnish proper electrical characteristics for starting and operating a high pressure sodium vapor lamp of the specified rating at ambient temperatures of -29º C to 40º C. The ballast windings shall be adequately impregnated and treated for protection against the entrance of moisture, insulated with Class H insulation, and able to withstand the NEMA standard dielectric test. The ballast shall include an electronic starting assembly.

The starter assembly shall be comprised of solid state devices capable of withstanding ambient temperatures of 85º C the starter shall provide timed pulsing with sufficient

follow-through current to completely ionize and start all lamps. Minimum amplitude of the pulse shall be 2,500 volts, with a width of one (1) microsecond at 2,250 volts, and shall be applied within 20 electrical degrees of the peak of the open circuit voltage wave with a repetition rate as recommended by the lamp manufacturer for the 60 cycle wave. The lamp peak pulse current shall be a minimum of 0.2 amperes. Proper ignition shall be provided over a range of input voltage from 216 to 264 volts. The starter component shall be field replaceable and completely interchangeable with no adjustment necessary for proper operation. The starter component shall have push-on type electrical terminations to provide good electrical and mechanical integrity and ease of replacement. Terminal configuration shall preclude improper insertion of plug-in components. The starter circuit board shall be treated in an approved manner to provide a water and contaminant-resistant coating.

The ballast shall have an overall power factor of at least 0.9 when operated under rated lamp load. The ballast shall withstand a 2,500-volt dielectric test between the core and windings without damage to the insulation. The ballast shall not subject the lamp to a crest factor exceeding 1.8 and shall operate the lamp without affecting adversely the lamp life and performance.

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

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

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

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

where: W_{LampH} = lamp watts at +10% line voltage (264V)
W_{LampL} = lamp watts at –10% line voltage (216V)
W_{LampN} = lamp watts at 240V

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

Nominal Ballast Wattage	Maximum Ballast Losses
750	15.0%
400	15.0%
310	19.0%
250	17.5%
150	26.0%

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

$$\textit{Percentage Ballast Losses} = \frac{W_{line} - W_{lamp}}{W_{lamp}} \times 100$$

where: W_{line} = line watts at 240V
W_{lamp} = lamp watts at 240V

Revise the ninth paragraph of Article 1085.35(a)(6) of the Standard Specifications to read:

"The testing performed shall include photometric and electrical testing. Photometric testing shall be in accordance with IES recommendations except that the selected luminaire(s) shall be tested as manufactured without any disassembly or modification and, as a minimum shall yield an isofootcandle chart, with max candela point and half candela trace indicated, an isocandela diagram, maximum plane and cone plots of candela, a candlepower table (house and street side), a coefficient of utilization chart, a luminous flux distribution table, and complete calculations based on specified requirements and tests."

Add the following to Article 1085.35(c)(2) of the Standard Specifications:

"The luminaire shall slip-fit on a two inch pipe arm, and shall have a barrier to limit the amount of insertion. The mounting clamp shall be concealed in the housing and provide a +5 degree vertical leveling adjustment. The slip-fit pipe entry shall be made by means of a flange internal to the cylinder and a round guide tube other approved means which will provide a seal of the housing and minimum disruption of a smooth outside surface of the luminaire and which will be compatible with the mounting arm."

Revise the first sentence of Article 1085.35(d)(3)d of the Standard Specifications to read:

"The lens shall be made of .19 tempered crystal clear borosilicate glass."

Add the following table(s) to Article 1085.35 of the Standard Specifications:

IDOT DISTRICT I LUMINAIRE PERFORMANCE TABLE

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width	10.5 m
	Number of Lanes	3
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	4.57 m
	Mast Arm Length	N/A
	Pole Setback From Edge of Pavement	0.6m
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	5800
	I.E.S. Vertical Distribution	N/A
	I.E.S. Control of Distribution	N/A
	I.E.S. Lateral Distribution	N/A
	Total Light Loss Factor	0.7
LAYOUT DATA	Spacing	13.7m
	Configuration	Opposite
	Luminaire Overhang over Edge of Pavement	0 m

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 luminaires based on the given conditions listed above.

ILLUMINATION	Average Horizontal Illumination, E_{AVE}	12Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	3:1
LUMINANCE	Average Luminance, L_{AVE}	.8Cd/m^2
	Uniformity Ratio, L_{AVE}/L_{MIN}	3:1
	Uniformity Ratio, L_{MAX}/L_{MIN}	5:1
	Max. Veiling Luminance Ratio, L_V/L_{AVE}	.3:1

UNDERGROUND RACEWAYS
Effective: January 1, 1997

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

"Coilable Duct, Bored and Pulled. A remotely steerable, fluid cuffing tunneling system is to be used to install the empty continuous duct. The tunneling system shall be electronically detectable and shall line the tunnel with a clay lining as it tunnels. The tunneling system shall be approved by the Engineer prior to its use."

Revise Article 810.05 of the Standard Specifications to read:

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

EXPOSED RACEWAYS
Effective: January 1, 1997 Revised: August 14, 1998

Add the following to Article 811.03 of the Standard Specifications:

"General. Conduits terminating in junction and pull boxes shall be terminated with hubs, integral box hubs, or integral box bosses."

Add the following to Article 811.03(a)(2)(b) of the Standard Specification:

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

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

Revise Article 1085.15(a) of the Standard Specifications to read:

"(a) **Rigid Metal Conduit**. The conduit shall be manufactured according to UL Standard 6.

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

Revise Article 1085.15(a)(1) of the Standard Specifications to read:

"**Rigid Galvanized Steel Conduit**. Rigid Galvanized Steel Conduit shall be galvanized and manufactured according to UL 6 and shall meet Federal Specification WWC-581, ANSI C80.5, and the requirements of NEC Article 346-15."

Revise the first paragraph of Article 1085.15(a)(3) of the Standard Specifications to read:

"**PVC Coated Steel Conduit**. Prior to coating the conduit shall conform to Article 1085.15(a) of the Standard Specifications and shall be manufactured according to NEMA Standard No. RN1. The conduit shall be UL 6 Listed."

Revise the first sentence of the third paragraph of Article 1085.15(a)(3) of the Standard Specifications to read:

"The exterior surfaces shall be coated with a primer before the PVC coating to ensure a bond between the steel and the PVC coating."

Add the following to Article 1085.15(a)(3) of the Standard Specifications:

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

TEMPORARY UNDERPASS LIGHTING INSTALLATION AND REMOVAL

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

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

Item	Article/Section
(a) Electric Raceway Material	1085.15
(b) Conductors	1085.25
(c) Insulation	1085.26

CONSTRUCTION REQUIREMENTS

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

Protection During Deck Reconstruction. Luminaires, conduit hangers, junction boxes, and all cables and conduits attached to the bridge deck shall be removed prior to the removal of the existing bridge deck according to the staging plan.
The underpass luminaires and hardware shall be protected from overhead debris during the removal and reconstruction of the bridge deck. The underpass luminaire protection shall be coordinated with the protective shield as described elsewhere in these Special Provisions.

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

Upon completion of the bridge deck reconstruction, the proposed underpass lighting system shall be permanently attached according to the underpass lighting plans.

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

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

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

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

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

Basis of Payment. This work shall be paid for at the contract lump sum price for TEMPORARY UNDERPASS LIGHTING INSTALLATION AND REMOVAL, which shall be payment for the work as described herein and as indicated in the plans.

PVC CONDUIT IN TRENCH 50 MM (SCHEDULE #80)
PVC CONDUIT EMBEDDED IN STRUCTURE 50 MM (SCHEDULE #80)

Description. This work shall consist of furnishing and installing a conduit lateral of the type and size specified.

Materials. Galvanized rigid steel conduit shall conform to the requirements of the City of Chicago Standard Specifications for RIGID STEEL CONDUIT, ZINC COATED, which is made part of these Detail Construction Specifications.

Polyvinyl chloride (PVC) conduit shall conform to the requirements of National Electrical Manufacturers Association Standard, Publication Number TC2 for EPC-40.

Definition Of Laterals. A lateral shall mean a conduit raceway extending from one sub-surface location to another sub-surface location, and in every case intended to encase electric circuit cable under paved surfaces, or in unpaved parkway, street or alley, where specifically designated.

Locations. Laterals shall be installed at the locations shown on the construction plans. Laterals shall be installed in the shortest practicable line between points of termination, or under adverse conditions, as directed by the Commissioner. Laterals not shown on the drawing, but necessary to be installed will be paid for at the unit price bid for laterals as additional units of construction.

Installation Requirements. Galvanized rigid steel conduit may be installed in a trench, pushed underground, or attached to a structure. PVC conduit shall normally be installed in a trench or attached to a structure. The Contractor shall exercise care in installing the conduit to ensure that it is smooth, free from sharp bends or kinks, and has the minimum practicable number of bends. Crushed or deformed conduit will not be accepted. All conduit and fittings shall have the burrs and rough places smoothed, and all conduit runs shall be cleaned and swabbed before installation of electric cables. The excavation for pushing conduit shall be located at least 0.6 m (2') from the edge of pavement. All underground conduits shall have a minimum depth of 0.762 m (2' - 6") below grade.

When multiple laterals in a common trench are required, no more than three (3) three inch (3") or smaller conduit laterals shall be laid on a single, horizontal level. Four or more conduit laterals shall be installed on two (2) levels in accordance with instructions of the Commissioner.

Conduit laterals attached to a structure shall be flush to the structure where possible. Clamps or hangers shall be used at a maximum interval of 1.5 m (5') to hold the conduit rigidly in place. Expansion couplings shall be used at locations where the conduit crosses expansion joints in the structure.

Conduit laterals installed under vaulted walks shall be securely attached to the retaining wall by means of galvanized clamps and clamp backs held in place by anchor bolts. Laterals shall be fastened as close to the underside of the sidewalk as possible, and securing clamps installed every 1.5 m (5'). Laterals shall be continuous through party walls.

Threaded fittings and bends of the same material as conduit shall be furnished and installed as required. Threadless couplings may be used only for splicing existing conduit. All conduit splices, where required, shall be considered incidental to the contract.

Method of Measurement. The length paid for shall be the number of lineal feet of conduit installed and accepted, measured in place. The length for measurement shall be the distance horizontally between changes in the direction of the conduit plus the conduit vertically attached to structures.

Basis of Payment. This work will be paid for at the contract unit price per lineal foot for CONDUIT of the type and size as specified, which price shall be payment in full for furnishing and installing the conduit and fittings complete. Trench and backfill will be paid for separately. No additional payment will be allowed for pushing under pavements or jackholes for conduit laterals.

ELECTRIC CABLE IN CONDUIT, TRIPLEX 2-1/C NO. 6, 1 1/C NO. 8

Description. This work shall consist of furnishing and installing electric cable that is triplexed. The cable shall be rated at 600 volts and shall consist of two number 6 conductors and one number 8 conductor. The cable will be installed in conduit underground.

Material. The cable shall meet all requirements of Material Specification 1440 of the Bureau of Electricity, City of Chicago.

Construction Method. All cables shall be installed with care to prevent damage to the cable. Any defects found in the cable shall be reported to the resident engineer. Damaged cable shall be replaced.

The cable shall be pulled into the conduit with a minimum of dragging on the ground or pavement. This shall be accomplished by means of reels mounted on jacks or other suitable devices located for unreeling cable directly into duct. Lubricants shall be used to facilitate installation if deemed necessary by the contractor. Bends in the cable shall conform to the recommended minimum radius as outlined in the National Electric Code.

Cable passing through manholes shall be trained and racked around the sides of the manhole into a permanent position. If racks are non-existent or in poor condition, the contractor shall install racks. The material shall be approved by the resident engineer. Any material and labor involved in training and racking the cable shall be considered incidental to the cost of this pay item.

Where cable runs continue from manhole to manhole without tapping within a light pole, they shall be continuous without splices unless authorized by the resident engineer.

The cable installation shall be color coded so that each lead of all circuits may be easily identified and lighting units connected to the proper leg as indicated on the plans. The equipment grounding conductor (NO. 8) shall be color coded green.

All wire or cable in the distribution panels and control cabinets shall be properly trained and have sufficient slack provided for any rearrangement of equipment or future additions.
There shall be at least two feet of slack in a street light pole base or street light controller base. A handhole shall have at least five feet of slack and a manhole at least ten feet of slack.

Method of Measurement. The length of triplex cable furnished and installed will be measured as the length of conduit plus three feet for cable entering and leaving a light pole or street light control cabinet, plus any slack in manholes or handholes.

Basis of Payment. This work shall be paid for at the contract unit price per lineal foot for ELECTRIC CABLE IN CONDUIT, TRIPLEX, 2 1/C NO. 6, 1 1/C NO. 8. The price shall be payment in full for furnishing, installing, and testing the cable, and shall include all material, labor, and incidentals necessary to complete the work as per the contract plans.

TEMPORARY LIGHTING SYSTEM

Description. : This item must consist of all material and labor required to extend, connect or modify the electric services for temporary lighting units as necessary to maintain lighting and power during construction. Contractor must be responsible for the source of power required to maintain required services during construction.

Include all costs for all labor, materials and watchmen required for providing, protecting and maintaining the system and, removing same upon completion of its need. Cost will also include service and energy charges of ComEd, if applicable.

Construction Requirements: The Contractor must ascertain the work required to provide temporary lighting and electric power during construction, and must provide all additional material and work required to provide adequate lighting as directed by the Commissioner.

Temporary wiring must meet the requirements of Chicago Electrical Code.

Maintain temporary lighting. Replace damaged fixtures and burned out or broken lamps as soon as these conditions are noticed at no cost to the City. The temporary lighting system must provide illumination from dusk until dawn, seven days a week.

After new permanent power and lighting has been completely installed, wired, connected, tested and accepted by the Commissioner, disconnect and remove the temporary power and lighting in its entirety.

The Contractor must coordinate temporary lighting with the sequence of construction of the Project.

Basis of Payment: This work will be paid for at the contract lump sum price for TEMPORARY LIGHTING SYSTEM. This price will be payment in full for furnishing and installing of proposed equipment and wiring material complete for temporary lighting as specified herein and as directed by the Commissioner.

SERVICE CONNECTION TO CECO LINE

Description. This work shall consist of providing a service connection from City cable to a Commonwealth Edison secondary cable. For an aerial service, this will be on a wood pole. For an underground service, this will be in a CECO manhole.

Installation. This work shall consist of splicing or terminating City service cable to a Commonwealth Edison secondary cable, as directed by the Engineer. The contractor shall

obtain permission from Edison for the service at the required location. The contractor will inform Edison of the load required. Edison shall make the connections, unless Edison gives the contractor permission to make the connections. Any costs associated with the connection shall be borne by the contractor.

Method of Measurement. The service connection shall be counted as one unit, and shall include all labor and material needed to make a successful service connection.

Basis of Payment. This work shall be paid for at the contract unit price for each SERVICE CONNECTION, which payment shall be in full for providing all material and labor to make the necessary connections.

DRAWING
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BAR SPLICERS

General. This item consists of furnishing all materials, equipment, tools, labor and incidentals necessary for the delivering and installation of all new bar splicers. All work shall be done as indicated on the contract plans and as specified herein.

Description. All work shall be done as detailed on the contract plans and as directed by the Engineer. Two bar splicers are detailed on the plans, however, other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that confirm that the proposed bar splicer assembly satisfies the requirements noted on the plans.

Method of Measurement. Bar Splicers will be measured in place for each bar splicer installed and approved by the Engineer.

Basis of Payment. The furnishing and installing of the Bar Splicers will be paid for at the contract unit price per each for BAR SPLICERS.

BRIDGE FENCE RAILING, PARAPET MOUNTED

General. This item consists of furnishing all materials, equipment, tools, labor and incidentals necessary for the fabricating, galvanizing, storing, delivering, and erection of all new Bridge Fence Railing, Parapet Mounted as indicated on the contract plans. This work shall be performed accordance with the applicable portions of Section 509 of the Standard Specifications and as specified herein.

Description. All work shall be done as detailed on the contract plans and as directed by the Engineer.

Method of Measurement. Bridge Fence Railing, Parapet Mounted will be measured in place in meters of railing erected and approved by the Engineer.

Basis of Payment. The furnishing and erecting of the pedestrian railing will be paid for at the contract unit price per meter for BRIDGE FENCE RAILING, PARAPET MOUNTED.

DRAINAGE SCUPPERS (SPECIAL)

General. This item consists of furnishing all materials, equipment, tools, labor, and incidentals necessary for the fabrication, delivering, and installation of all new drainage scuppers, as indicated on the contract plans and as specified herein.

Description. All work shall be done as detailed on the contract plans and as directed by the Engineer. The new Neenah Type R-4016-B or equivalent drainage scuppers shall be fabricated according to the dimensions and requirements specified on the contract plans, shall satisfactorily fit within the detailed bridge superstructure configuration, and shall meet the approval of the Engineer. Contractor shall follow manufacturer requirements for all hardware and installation of the new scuppers.

The furnished drainage scuppers shall meet the overall size and shape requirements detailed on the contract plans; however, minor alterations in scupper construction may be acceptable, subject to the approval of the Engineer. Drainage scupper details and all alterations shall be clearly noted and submitted to the Engineer for approval before fabrication.

Method of Measurement. Drainage Scuppers will be measured in place for each Neenah Type R-4016-B or equivalent drainage scuppers furnished, installed, and approved by the Engineer.

Basis of Payment. The furnishing and installing of the drainage scuppers will be paid for at the contract unit price per each for DRAINAGE SCUPPERS (SPECIAL).

DRAINAGE SYSTEM

General. This item consists of furnishing all equipment, tools, labor, materials, including all piping, fittings, support brackets, inserts, bolts, and incidentals necessary for the fabrication and installation of the entire new drainage system as indicated on the contract plans and as specified herein.

Description. All work shall be done as detailed on the contract plans and as directed by the Engineer.

Material. The pipe and fittings shall be constructed of reinforced fiberglass meeting the requirements of ASTM D 2996 RTRP with a 207 MPa (30,000 psi) minimum short-time rupture strength hoop tensile stress. The reinforced fiberglass shall also have an apparent stiffness factor at 5 percent deflection exceeding 22.6 cu mm-kPa (200 cu in.-lbf/sq in) and a minimum wall thickness of 2.54 mm (0.10 in.). All pipe supports and associated hardware shall be hot dip galvanized meeting the requirements of AASHTO M 232. 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.

Installation. All connections of pipes and fittings shown on the plans intended 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 150 mm (6 in.) 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 40 mm (1 1/2 in.) for all pipe under 300 mm (12 in.) in diameter and 50 mm (2 in.) for diameters 300 mm (12 in.) 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.

DRILLING AND SETTING SOLDIER PILES

General. This work shall consist of providing all labor, materials, creating and maintain the shaft excavations, set and brace the soldier piles into position and encase the soldier piles in concrete to the specified elevation, and equipment necessary for drilling and setting soldier piles. Also included in this work is the furnishing and installation of the shaft excavation with Controlled Low-Strength Material (CLSM). All work shall be according to the details shown on the contract plans and as directed by the Engineer.

Materials. The materials used for the soldier piles shall satisfy the following requirements:

(a) The soldier pile encasement concrete shall be portland cement concrete according to Section 1020, except the mix design shall be as follows:

(1) A Type I or II cement shall be used at 360 kg/cu m. The cement shall be increased 35 kg/cu m if the concrete is to be placed under water.

(2) Class C or F fly ash may replace Type I or II cement. The cement replacement shall not exceed 15 percent by mass (weight) at a minimum replacement ratio of 1.5:1. The fly ash shall not be used in combination with ground granulated blast-furnace slag.

(3) Grade 100 or 120 ground granulated blast-furnace slag may replace Type I or II cement. The cement replacement shall not exceed 25 percent by mass (weight) at a minimum replacement ratio of 1:1. The ground granulated blast-furnace slag shall not be used in combination with fly ash.

(4) The maximum water/cement ratio shall be 0.44.

(5) The mortar factor shall be a value which produces a coarse aggregate content comprising between 55 and 65 percent of total aggregate by mass (weight).

(6) The slump at point of placement shall be 175 mm ± 25 mm. If concrete is placed to displace drilling fluid or against temporary casing, the slump shall be 200 mm ± 25 mm at point of placement. The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus 1 hour.

(7) An air entraining admixture shall be required and the air content range shall be 4.0 to 7.0 percent.

(8) The minimum compressive strength shall be 27,500 kPa at 14 days. The minimum flexural strength shall be 4,650 kPa at 14 days.

(9) A retarding admixture shall be required.

(10) A water-reducing or high range water-reducing admixture shall be required.

(11) An accelerating admixture may be used with the permission of the Engineer in extraordinary situations.

(12) The coarse aggregate shall be CA 13, CA 14, CA 16 or a blend of these gradations. The fine aggregate shall consist of washed sand only.

(c) The Controlled Low-Strength Material (CLSM), used for backfilling shaft excavations above the soldier pile encasement concrete and for backfilling secant lagging excavations, to the existing ground surface, shall be according to the Recurring Special Provisions for CLSM.

(e) Drilling slurry shall consist of a polymer or mineral base material. Mineral slurry shall have both a mineral grain size that will remain in suspension with sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. The percentage and specific gravity of the material used to make the suspension shall be sufficient to maintain the stability of the excavation and to allow proper concrete placement. For polymer slurry, the calcium hardness of the mixing water shall not exceed 100 mg/L.

Equipment. The drilling equipment shall have adequate capacity, including power, torque and down thrust, to create a shaft excavation of the maximum diameter specified to a depth of 20 percent beyond the depths shown on the plans. Concrete equipment shall be according to Article 1020.03.

Construction Requirements. The shaft excavation for each soldier pile shall extend to the tip elevation indicated on the contract plans. The Contractor shall satisfy the following requirements:

(a) Drilling Methods. The soldier pile installation may involve the use of one or more of the following drilling methods to maintain excavation side wall stability during the various phases of shaft excavation and concrete placement, dependent on the site conditions encountered:

(1) Dry Method. The dry method consists of drilling the shaft excavation, removing accumulated water and loose material from the excavation, placing the soldier pile and concrete in a predominately dry excavation. This method shall be used only at sites where the groundwater and soil conditions are suitable to permit the drilling and dewatering of the excavation without causing excessive water infiltration, boiling,

squeezing, or caving of the excavation side walls. This method allows the concrete placement by tremie or concrete pumps, or if the excavation can be dewatered, the concrete can be placed by free fall.

(2) Wet Method. The wet construction method may be used at sites where dewatering the excavation would cause collapse of the excavation sidewalls or when the volume and head of water flowing into the shaft excavation is likely to contaminate the concrete during placement. This method uses water or slurry to maintain stability of the shaft perimeter while advancing the excavation. After the excavation is completed, the water level in the shaft is allowed to seek equilibrium, the base is cleaned, the soldier pile is set and the concrete is discharged at the base using a tremie pipe or concrete pump, displacing the drilling fluid upward.

(3) Temporary Casing Method. Temporary casing shall be used when either the wet or dry methods provide inadequate support to prevent sidewall caving or to ensure there is not excessive deformation of the hole. Temporary casing may also be used to reduce the flow of water into the excavation to allow dewatering, adequate cleaning, or to ensure proper concrete placement.

Temporary casing will not be allowed to remain permanently in place without the approval of the Engineer. Before the temporary casing is broken loose, the level of soldier pile encasement concrete in the casing shall be a minimum of 1.5 m above the bottom of the casing. After being broken loose, and as the casing is withdrawn, additional concrete shall be added to maintain sufficient head so that water and soil trapped behind the casing can be displaced upward and discharged at the ground surface.

(b) Drilling Slurry. During construction, the level of the slurry shall be maintained at a height sufficient to prevent caving of the hole. In the event of a sudden or significant loss of slurry to the hole, the construction of that shaft shall be stopped and the shaft excavation backfilled or supported by temporary casing until a method to stop slurry loss, or an alternate construction procedure, has been developed and approved by the Engineer.

(c) Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be removed with normal earth drilling procedures, but requires special augers, tooling, core barrels or rock augers to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to core, break up, push aside, or remove the obstruction. Lost tools or equipment in the excavation, as a result of the Contractor's operation, shall not be defined as obstructions and shall be removed at the Contractor's expense.

(d) Concrete Placement. Concrete work shall be performed according to the applicable portions of Section 503 and as specified herein.

The soldier pile encasement concrete pour shall be made in a continuous manner from the bottom of the shaft excavation to the elevation indicated on the plans. Concrete shall be placed as soon as possible after the excavation is completed and the soldier pile is secured in the proper position. Uneven levels of concrete placed in front, behind, and on the sides of the soldier pile shall be minimized to avoid soldier pile movement, and to ensure complete encasement. Concrete shall be placed either by free fall, or through a tremie or concrete pump subject to the following conditions:

(1) The free fall placement shall only be permitted in shaft excavations that can be dewatered without causing side wall instability and where no more than 75 mm of standing water exists at the time of concrete placement. The maximum height of free fall placement shall not exceed 18.3 m and the concrete shall be directed to the base to minimize contact with either the solider pile or the shaft excavation side wall. Drop chutes may be used to direct concrete to the base during free fall placement.

(2) Tremies shall be according to Article 503.08 and contain no aluminum parts that may have contact with the concrete. The inside and outside surfaces of the tremie shall be clean and smooth to permit both flow of the concrete and unimpeded withdrawal during concrete placement.

(3) Concrete pumps. Pumps and lines may be used for concrete placement and shall have a minimum 100 mm diameter.

The tremie or pump lines used for wet method concrete placement shall be watertight and shall not begin discharge until placed within 250 mm of the base of the excavation. Valves, bottom plates or plugs may be used only when they can be removed from the excavation unless approved by the Engineer. The discharge end shall be immersed at least 1.5 m in concrete at all times after starting the pour.

Following the soldier pile encasement concrete pour, the remaining portion of the shaft excavation shall be backfilled with CLSM.

(h) Construction Tolerances. The soldier piles shall be drilled and located within the excavation to satisfy the following tolerances:

(1) The center of the soldier pile shall be within 38 mm of plan station and 13 mm offset at the top of the shaft.

(2) The out of vertical plumbness of the soldier pile shall not exceed 0.83 percent.

(3) The top of the soldier pile shall be within ±25 mm of the plan elevation.

Materials removed or generated from the shaft excavations shall be disposed of by the Contractor according to Article 202.03. No additional compensation will be allowed for removing and disposing of excavated materials.

Method of Measurement. The drilling and setting of soldier piles will be measured for payment in cubic meters. These volumes shall be the theoretical volumes computed for the shaft excavation required to set the soldier piles according to the contract plans and specifications, and accepted by the Engineer. The depth will be defined as the difference in elevation between the ground surface at the time of concrete placement and the bottom of the shaft excavation.

Basis of Payment. The drilling and setting of soldier piles will be paid for at the contract unit price per cubic meter for DRILLING AND SETTING SOLDIER PILES. The required shaft excavation, soldier pile encasement concrete and any CLSM backfill required around each soldier pile will be included in this item.

No additional compensation, other than noted above, will be allowed for removing and disposing of excavated materials, for furnishing and placing concrete, bracing, lining, temporary casings placed and removed or left in place, or for any excavation made or concrete placed outside of the plan diameter of the shafts specified.

FURNISHING SOLDIER PILES HP310 X 79

General. This work consists of furnishing all equipment, materials, tools, labor and incidentals necessary for furnishing and erecting soldier piles as shown on the contract plans. This work shall be performed in accordance with the applicable portions of Section 507 and 512 of the Standard Specifications and as specified herein.

Description. All work shall be done as detailed on the contract plans and as directed by the Engineer. Each soldier pile shall consist of an HP 310 X 79 structural steel section as detailed on the contract plans.

The structural steel components for the soldier piles shall conform to the requirements of AASHTO M270 M, Grade 345.

Where modifications to the length of a soldier pile are required to satisfy the top of pile elevation, they shall be made to the soldier pile using a method approved by the Engineer for cutting off and/or splicing additional lengths. No additional compensation will be allowed for modifications to the soldier pile length, all cost shall be include in this item.

Method of Measurement. This work will be measured for payment in meters along the centerline of the soldier piles.

Basis of Payment. This work will be paid for at the contract unit price per meter for FURNISHING SOLDIER PILES HP 310 X 79. Splicing of soldier piles will be paid for according to Article 512.18(f).

HIGH PERFORMANCE - ENHANCED SHOTCRETE

General. This work shall consist of furnishing all equipment, materials, tools, labor, and incidentals necessary for removing and disposing of all deteriorated and/or spalled concrete and replacing it with high performance enhanced shotcrete at the locations shown on the plans and as specified herein.

Description. All work shall be done as detailed on the contract plans and as directed by the Engineer.

Submittal. The shotcrete Contractor and the shotcrete nozzleman shall have a minimum of three years experience in performing the work of shotcreting for concrete repair. At the time of the preconstruction conference each shall submit a list of 5 projects similar to this work which were successfully completed with the specified material and the manufacturer's recommended equipment for applying the material. This list shall contain the following for each of the projects:

1) Project name
2) Owner of project and General Contractor
3) Owner's representative, address and telephone number

4) Brief description of work
5) Total cost of shotcreting portion of project
6) Date of completion
7) Type of equipment used to perform work

Materials. Shotcrete shall consist of 3.5 parts natural sand FA2 and 1 part Type I portland cement. A prepackaged dry concentrate consisting of condensed silica fume, alkaline resistant fibers, water reducers, superplasticizers, air-entrainment and finishing aids shall be added to the sand and cement. The prepackaged material may be a complete packaged product including the sand and cement, but shall be specifically designed for high performance shotcrete applications and shall have been used in concrete restoration for a minimum of 3 years. The prepackaged material shall be tested by an approved testing laboratory and the following minimum results documented.

Compressive strength 3 days	20.7 MPa (3000 psi)
Compressive strength 7 days	27.6 MPa (4000 psi)
Compressive strength 28 days	34.5 MPa (5000 psi)
Flexural strength	5.9 MPa (850 psi)
Rapid Chloride Permeability Below	1000 COULOMBS
Air Content	3% - 8%

The Department will maintain an approved list of packaged high performance shotcrete products meeting these requirements.

Equipment. The cement gun for the high performance enhanced shotcrete shall be the wet-mix type.

The wet-mix type equipment shall be either a pressure vessel type, piston pump, rotor-stator pump or approved equal. The compressor shall be of sufficient capacity to provide enough air pressure to operate the shotcrete placing equipment at its rated capacity.

Testing. The Contractor shall provide a 450 x 450 x75 mm (18 x 18 x 3 in.) test panel for each 8 hour shift to represent the quality of application. The test panel shall be cast and cured in a similar fashion to the work to be performed. At the discretion of the Engineer, any panel can be tested according to ATSM C 1140. The Contractor's costs for testing will be paid for by the Department.

Construction Requirements.

(a) Preparation of Surfaces. All exterior surfaces shall be thoroughly examined by sounding with hammers, and other non-destructive testing approved by the Engineer to determine any loose or defective areas. Where such defective concrete surfaces exist, all defective concrete shall be removed with pneumatic chipping hammers, electric chisels or other mechanical tools approved by the Engineer. Removal shall continue until a clean, sound substrate is achieved. Removal of defective concrete shall be done without damaging or repositioning the existing reinforcing bars.

At all locations, where the removal of deteriorated concrete reaches a total depth including all sides greater than 300 mm (12 in.) or half the depth of the member, the Bureau of Bridges and Structures shall be contacted for structural evaluation.

If unbonded reinforcing bars are exposed within the repair area, the Contractor shall fully expose the reinforcing bar and remove all concrete from around the bar to a depth of 25 mm (1 in.). The

perimeter of the repair areas shall be tapered to a minimum thickness of 13 mm (1/2 in.). No sawcutting will be allowed.

The concrete and exposed reinforcing steel shall be sandblasted clean and a 125 mm (5 in.) periphery around all patches shall be roughened and cleaned.

After cleaning, all exposed reinforcement shall be carefully evaluated to determine if replacement or additional reinforcement bars are required.

Reinforcing bars that have been cut or have lost 25 percent or more of their original cross sectional area shall be supplemented by new inkind reinforcement bars. New bars shall be lapped a minimum of 32 bar diameters to existing bars. An approved "squeeze type" mechanical bar splicer capable of developing in tension at least 125 percent of the yield strength of the existing bar shall be used when it is not feasible to provide the minimum bar lap. No welding of bars will be permitted. The furnishing and replacing of supplemental reinforcement bars shall be included in this item.

(b) Placement of High Performance Shotcrete. The application of the high performance enhanced shotcrete shall follow the sandblasting by no more than 48 hours to insure placement on a clean substrate. Prior to the application of the high performance shotcrete, the repair area shall be air blown clean of all loose materials, and pre-dampened with potable water. The surface shall remain damp, but hold no visible surface water. This step shall be repeated for all areas that dry out prior to shotcrete application. The high performance shotcrete shall not be applied at a temperature below 4 °C (40 °F). The shotcrete shall not be exposed to a temperature below 4 °C (40 °F) for a period of 48 hours following application.

The high performance enhanced shotcrete shall be applied so as to form a compact, durable covering of the thickness desired. When placing shotcrete, the nozzle shall be held at a distance and in a position so the stream of material shall impinge as nearly as possible at right angles to the surface being covered. The material stream shall applied at a high velocity and proper slump to insure complete encasement of all exposed reinforcing steel. If very large reinforcing bars are encountered, the Contractor may hold the nozzle at an angle to properly encase these bars.

An approved non-toxic, non-chloride accelerator may be used to assist the set of the shotcrete, but the proper encasement of the reinforcing steel shall not be hindered. Strict adherence to the manufacturer's recommendation for dosage and equipment shall be followed.

When a shotcrete layer is covered by a succeeding layer, the first layer shall be allowed to take its initial set prior to the application of a succeeding layer. No patch, where the majority of the repair patch is greater than 100 mm (4 in.), shall be filled and finished in the same day. All patches, regardless of the depth, not finished at the end of the work day, shall be protected from rapid drying with approved curing compound, wet burlap, or visqueen. If curing compound is used, the repair surface shall be sandblasted to remove the curing compound and then moistened prior to the next layer being applied. The previous layer shall have its surface roughened and then moistened with potable water before a succeeding layer is applied. If the high performance shotcrete contains polymers, sandblasting between layers will be required if a skin forms on the surface of the mortar. If no polymers are present, unfinished mortar exposed more than 48 hours, shall be sandblasted. In all cases, the material manufacturer shall be consulted.

(c) Finishing. The surface finish of the high performance enhanced shotcrete shall be made by first truing the surface to a plane by cutting off all high spots with a sharp edged tool, then applying a thin finish coat which can be troweled and brushed to match the surrounding surfaces without disturbing the bond to the substrate. The finish shall be brushed and free of depressions. The Contractor shall carefully restore the original shape and contours of the repaired area.

(d) Curing. Curing shall be done according to the manufacturer's recommendation. The Contractor shall begin curing operations as soon as the shotcrete has hardened sufficiently to prevent marring the surface.

Method of Measurement. Prior to high performance shotcrete application the prepared areas will be measured and the area computed in square meters.

Basis of Payment. This work will be paid for at the contract unit price per square meter for HIGH PERFORMANCE ENHANCED SHOTCRETE.

PEDESTRIAN RAILING

General. This item consists of furnishing all materials, equipment, tools, labor and incidentals necessary for the fabricating, galvanizing, storing, delivering, and erection of all new Pedestrian Railing as indicated on the contract plans. This work shall be performed accordance with the applicable portions of Section 509 of the Standard Specifications and as specified herein.
Description. All work shall be done as detailed on the contract plans and as directed by the Engineer.

Method of Measurement. Pedestrian Railing will be measured in place in meters of railing erected and approved by the Engineer.

Basis of Payment. The furnishing and erecting of the pedestrian railing will be paid for at the contract unit price per meter for PEDESTRIAN RAILING.

PREFORMED JOINT SEAL 102MM

General. This item consists of furnishing all equipment, materials, tools, labor, incidentals, and manufacturer's technical support required for surface preparation and installation of the expansion joint system as shown on the contract plans. This work shall be preformed accordance with the applicable portions of Section 503 of the Standard Specifications and as specified herein.

Description. All work shall be done as detailed on the contract plans and as directed by the Engineer. The manufacturer's recommended installation methods shall be followed and the details of which shall meet the approval of the Engineer. The Contractor shall have the option of choosing from the preformed elastomeric compression or strip seal joint systems shown on the contract plans.

Materials:

(a) Steel Locking Edge Rails for the Preformed Elastomeric Strip Seal System. The steel locking edge rails shall be either a one-piece extrusion (rolled section) or a combination

of extruded and stock plate, shop welded according to Section 505. All steel shall be AASHTO M270, Grade 250 (Grade 36) minimum. The locking portion of the steel edge rail shall be extruded, with a cavity, properly shaped to allow the insertion of the strip seal gland and the development of a mechanical interlock. The top edge of the steel edge rails shall not contain any horizontal projections.

(b) Steel Plates for the Preformed Elastomeric Compression Seal System. The plates and bars or other structural shapes provided as edge reinforcement at joints, between adjacent spans, shall be accurately fabricated in the shop to conform to the section of the concrete floor or sidewalk. The fabrication shall conform to Section 505. The plates shall be held securely in the correct position during the placing of the concrete.

(c) Anchor Studs. The steel locking edge rails or plates shall contain anchor studs and/or anchor plates of the size shown on the plans for the purpose of firmly anchoring the expansion joint system in either portland cement concrete or polymer concrete, depending on the application. The anchor studs shall be according to Article 1006.32 and shall be installed in the shop prior to painting or galvanizing.

(d) Preformed Elastomeric Compression Seals. The Preformed Elastomeric compression seal shall be according to AASHTO M220. The compression seal shall be of the size and shape shown on the plans.

(e) Preformed Elastomeric Strip Seal. The elastomeric gland shall meet the physical requirements of ASTM D5973. The gland material shall have a shallow “v” profile and shall contain “locking ears” that, when inserted in the steel locking edge rails, forms a mechanical interlock. The elastomeric gland shall be of an appropriate size to accommodate the rated movement specified on the plans.

(f) Adhesive/Lubricant. The adhesive/lubricant shall comply with the requirements of ASTM D4070.

Construction:

(a) Steel Plates or locking edge rails. After fabrication the steel plates or locking edge rails shall be given one shop coat of the paint specified for structural steel. The steel components may be hot dip galvanized according to AASHTO M111 and ASTM A385 in lieu of shop painting at the manufacturer’s option. The steel components of the joint system shall be properly aligned and set prior to pouring the anchorage material. For expansion joints, the joint opening shall be adjusted according to the temperature at the time of placing so that the specified opening will be secured at a temperature of 10 °C (50 °F).

The joint opening for each 10 m (100 ft.) of bridge between the nearest fixed bearings each way from the joint shall be reduced 1 mm (1/8 in.) from the amount specified, for each 8 °C (15 °F) the temperature at the time of placing exceeds 10 °C (50 °F) and increased 1 mm (1/8 in.) from the amount specified, for each 8 °C (15 °F) the temperature at the time of placing is below 10 °C (50 °F).

(b) Preformed Elastomeric Strip Seal. Once the anchoring material has fully cured according to specifications, preparation for the placement of the gland can begin.

(1) Surface Preparation. The cavity portion of the locking edge rails must be cleaned of all foreign material prior to placement of the strip seal. Surface rusting shall be removed and any bare steel touched up according to Article 506.05. The cavity shall be cleaned of debris using compressed air with a minimum pressure of 620 kPa (90 psi). The air compressor shall be equipped with traps to prevent the inclusion of water and/or oil in the air line. Any oil left on the surface of the steel extrusion at this stage shall be removed using a solvent recommended by the strip seal manufacturer. Once the surface preparation has been completed, the steel extrusion cavities must be kept clean and dry until the strip seal is placed.

(2) Placement of Elastomeric Strip Seal. The placement of the strip seal will only be permitted when the steel locking edge rail cavities are in a clean and dry state and the ambient air and steel substrate temperature are above the minimum temperature recommended by the strip seal manufacturer. Prior to inserting the strip seal in the steel retainer cavities, the “locking ears” portion of the seal shall be coated with the approved adhesive/lubricant. Only about 1.5 m (5 ft) of gland should be coated at a time to prevent the lubricant/adhesive from drying prior to insertion into the cavities of the steel locking edge rails. After each section is coated, the coated portion of the seal should be inserted in the steel locking edge rail cavities using tools and procedures recommended by the strip seal manufacturer. Under no circumstances shall any uncoated “locking ears” be permitted in the joint.

(c) Preformed Elastomeric Compression Seal. Once the anchoring material has fully cured according to specifications, preparation for the placement of the gland can begin.

(1) Surface Preparation. The steel plates must be cleaned of all foreign material prior to placement of the compression seal. Surface rusting shall be removed and any bare steel touched up according to Article 506.05. Once the surface preparation has been completed, the steel plates must be kept clean and dry until the compression seal is placed.

(2) Placement of Elastomeric Compression Seal. The seals shall be installed by suitable hand or machine tools and thoroughly secured in place with the approved adhesive which shall cover both sides of the seals over the full area in contact with the sides of the joint. The adhesive may be applied to the sides of the joint or the seals or both. The seals shall be installed in a compressed condition and shall at all times be below the level of the deck surface as shown on the plans. The seals shall be in one continuous piece for the full length of the joint. The continuous piece for installation shall not have more than one manufacturer's butt splice within its length. If the splice is torn or damaged it shall be repaired, prior to installation, using the manufacturer's recommended adhesive. Temperature limitations of the adhesive, as specified by the manufacturer, shall be observed.

(d) End Treatment. The end treatment for curbs, parapets and sidewalks shall be as detailed on the plans and as recommended by the manufacturer of the joint system.

(e) Technical Support. The manufacturer shall supply technical support during surface preparation and the installation of the entire joint system.

Method of Measurement. The completed joint system will be measured, along the centerline of the joint, in meters of joint installed and approved by the Engineer.

Basis of Payment. The expansion joint system, measured as specified, will be paid for at the contract unit price per meter for PREFORMED JOINT SEAL 102MM.

PROTECTIVE SHIELD

General. This work shall consist of furnishing all materials, equipment, tools, designs, and incidentals necessary for installation and removal of the protective shield system by the Contractor as required to protect pedestrian, railroad and vehicular traffic from falling material or other objects during the removal and erection of the existing structure. All work shall be done as indicated on the contract plans and as specified herein.

Description. The protective shield system shall protect the area shown on the contract plans and as directed by the Engineer. The protective shield system shall be designed and constructed to sustain loads of 9.5 kPa (200 lbs./sq. ft.) in addition to its own weight. The system may be either fixed or mobile. The existing vertical clearances above roadways and railroad tracks shall be maintained. The Contractor shall coordinate the installation with municipalities and/or utilities to insure protection of their facilities during the structure removal. Lane closures and other traffic control required during installation and removal shall be according to the contract traffic control plan and standards at no additional cost to the Department.

The Contractor shall furnish working drawings and calculations to the Engineer for examination. The drawings shall provide full details, dimensions, and types of materials. The drawings and calculations shall be prepared and sealed by an Illinois Licensed Structural Engineer.

Structure removal shall not commence until the protective shield system is in place and permission is granted by the Engineer.

Upon completion of the work or when directed by the Engineer, the protective shield system shall be removed. All material removed shall remain the property of the Contractor.

Method of Measurement.

Contract Quantities. The requirements for the use of the Contract Quantities shall conform to Article 202.07(a) of the Standard Specifications.

Measured Quantities. Protective shielding will be measured for payment and the area computed in square meters. The length shown on the contract plans will be measured along the centerline of the structure. The width will be the out to out width of deck shown on the contract plans. If the Contractor chooses to extend the protective shield system beyond that shown at the contract plans, it will be at his/her own expense.

Basis of Payment. This work will be paid for at the contract unit price per square meter for PROTECTIVE SHIELD.

REMOVAL OF EXISTING SUPERSTRUCTURES

General. This item consists of furnishing all equipment, materials, tools, labor, and incidentals necessary for removal and disposal of the existing structure and portions thereof, as specified on the contract plans. This work shall be performed accordance with the applicable portions of Section 501 of the Standard Specifications and as specified herein.

Description. All work shall consist of the removal and satisfactory disposal of existing structure and portions thereof, as specified on the contract plans and as directed by the Engineer. This includes any special handling and removal of the handrails, guardrails, and steel fences or portions thereof, which are part of the superstructure and wingwalls. Materials that are not to be salvaged and stockpiled shall become the property of the Contractor and shall be removed and disposed of according to the requirements of Article 202.03.

Where portions of existing superstructures are to remain in service, portions to be removed shall be removed in such a manner as to leave the structure to remain undamaged and in proper condition for the use contemplated. The Contractor shall be responsible for all costs of repairing and/or replacing any damage to the structure to remain in service in a manner satisfactory to the Engineer.

Proper care should be taken on Chicago Transit Authority (CTA) property, for all CTA facilities are to remain fully operational during construction. Contractor shall be responsible for all costs of repairing and/or replacing any damage to the CTA structures and all of its components, in a manner satisfactory to the Engineer.

Method of Measurement. Removal of Existing Superstructures will be measured in the unit of lump sum for removal of existing superstructures approved by the Engineer.

Basis of Payment. The removal of the existing superstructure will be paid for at the contract lump sum price for REMOVAL OF EXISTING SUPERSTRUCTURES at the location designated on the plans. The price shall include the removal and disposal of the existing structure to the satisfaction of the Engineer.

TEMPORARY SHEET PILING

General. This work shall consist of furnishing, driving, adjusting for stage construction and subsequent removal of the sheet piling according to the dimensions and details shown on the contract plans and in accordance with the applicable portions of Section 512 of the Standard Specifications and as specified herein.

This work shall also include furnishing, installing and subsequent removal of all miscellaneous steel shapes, plates and connecting hardware required to attach the sheeting to an existing substructure unit and/or to facilitate stage construction.

Description. All work shall be done as detailed on the contract plans and as directed by the Engineer. The Contractor may propose other means of supporting the side(s) 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.

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 contract plans or in the approved Contractor’s alternate design. The sheeting shall have a minimum yield strength of 265 MPa (38.5 ksi) 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 at the Contractor's expense. 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 300 mm (12 in.) 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.) whose presence was not obvious or specifically noted on the plans prior to bidding, and 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 meters. 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 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.

MOWING OF SODDED AREAS

Description: This work shall consist of mowing turf grass areas to a height of 3 inches (75 mm).

Schedule: The Contractor shall be responsible for the regular mowing and maintenance of grass areas when the grass has reached a maximum height of 5 inches (125 mm), or as directed by the Engineer.

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

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

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

Method of Measurement: If any mowed area is found to be unsatisfactory to the Engineer, the Engineer will give the Contractor the necessary instructions for correction of same, and the Contractor shall immediately comply with such instructions and correct the unsatisfactory areas. Mowing and trimming will be measured in acres (hectares) of surface area mowed at the completion of each mowing cycle.

Plan quantities are estimates only. Actual quantities will be measured in place. Agreement to plan quantities will not be allowed. Shrub beds or perennial beds within the mowed area that are less than 10 square feet (90 square meters) will not be subtracted from the area mowed.

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

TEMPORARY PAVEMENT

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

The contractor shall use either portland cement concrete as outlined in Section 353 and 354 or bituminous concrete according to Section 355, 356, 406, and the special provisions for;

Bituminous Base Course/Widening Superpave, Bituminous Concrete Surface Course, and Superpave Bituminous Concrete Mixtures. The thickness of the Temporary Pavement shall be as directed by the Engineer. The contractor shall have the option of constructing either material type if both portland cement concrete and bituminous concrete mix designs are shown in the plans.

Articles 355.10 and 406.21 shall not apply.

The removal of the Temporary Pavement 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 meters (square yards).

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

Removal of temporary pavement will not be paid for separately, but will be included in the contract unit price per square meter (square yard) for TEMPORARY PAVEMENT.

APPROACH SLAB REMOVAL

Description. **This work shall consist of the complete removal and disposal of existing approach slabs at locations designated in the plans and in accordance with the applicable portions of Section 440 and 501 of the Standard Specifications. All existing approach slab pavement and bituminous surfaces shall be removed.**
The Contractor shall remove the existing approach slabs in a manner so as not to damage the adjacent structures that are to remain. Any damage to the existing pavement or pile cap to remain in place shall be repaired and replaced by the Contractor at his/her expense. It shall be the responsibility of the Contractor to determine the thickness of the existing slab pavement structure, including overlays and other appurtenances to be removed and the extent they have been reinforced. No additional compensation will be allowed because of variations in thickness and reinforcement present. Any excavation made by the Contractor for the removal shall be replaced. The excavated space shall be filled with material satisfactory to the Engineer and placed in accordance with Section 205 of the Standard Specifications at the expense of the Contractor.
Method of Measurement. **Approach slab removal will be measured for payment in place and computed in SQUARE METER.**

Basis of Payment. This work shall be paid for at the contract unit price per SQUARE METER for APPROACH SLAB REMOVAL, which price shall include all labor and equipment necessary to remove and dispose of the entire approach slab pavement.

BRIDGE APPROACH PAVEMENT (SPECIAL)

Description. This work shall consist of constructing bridge approach pavement at locations shown on the plans or as directed by the Engineer in accordance with the plans details and applicable provisions of Section 420 of the Standard Specifications.

Measurement and Payment: This work shall be paid for at the contract unit price per SQUARE METER for BRIDGE APPROACH PAVEMENT (SPECIAL), which price shall include all tie bars, expansion joint, preformed joint seal, polyethylene bond breaker, reinforcement bars, the concrete pad (including reinforcement and excavation), improved subgrade, granular subbase and all items necessary to complete this item of work.

BRIDGE APPROACH PAVEMENT CONNECTOR (PCC) SPECIAL

Description. This work shall consist of constructing bridge approach pavement at locations shown on the plans or as directed by the Engineer in accordance with the plans details and applicable provisions of Section 420 of the Standard Specifications.

Measurement and Payment: This work shall be paid for at the contract unit price per SQUARE METER for BRIDGE APPROACH PAVEMENT CONNECTOR (PCC) SPECIAL, which price shall include all tie bars, reinforcement and all other materials and items necessary to construct a complete connector of the type specified and shown on the plans or as directed by the Engineer.

FENCE REMOVAL

Description. This item consists of removing all fencing, appurtenances and incidentals necessary for the construction of the proposed highway, as indicated on the Plans and specified herein.

General Requirements. All fencing, appurtenances and incidentals shall be removed in the locations indicated on the Plans and as directed by the Engineer.

Method of Measurement. Fence removal will be measured in place in meters of fence removed and approved by the Engineer.

Basis of Payment. The removal of the fencing will be paid for at the contract unit price per meter for FENCE REMOVAL, which price shall be payment in full for all removal and disposal of fencing.

SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING

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

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

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

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

TEMPORARY ACCESS

Description: This work shall consist of constructing and removing temporary access at the locations shown on the plans or as directed by the engineer in accordance with the plans details and applicable provisions of Section 403 of the Standard Specifications.

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

Basis of Payment: This work will be paid for at the contract unit price per square meter (square yard) for TEMPORARY ACCESS for the type specified.

Removal of temporary pavement will not be paid for separately, but will be included in the contract unit price per square meter (square yard) for TEMPORARY ACCESS of the type specified.

COMBINATION CONCRETE CURB AND GUTTER, TYPE B15.30 (SPECIAL)

Description. This work shall consist of constructing combination concrete curb and gutter type B15.30 at locations shown on the plans or as directed by the Engineer in accordance with the plans details and applicable provisions of Sections 606 and 354 of the Standard Specifications.

Measurement and Payment: This work shall be paid for at the contract unit price per METER for COMBINATION CONCRETE CURB AND GUTTER, TYPE B15.30 (SPECIAL), which price shall include all tie bars, reinforcement bars, pavement widening, improved subgrade, granular subbase and all items necessary to complete this item of work.

AUTHORITY OF RAILROAD ENGINEER (BDE)
Effective: July 1, 2004

Revise Article 105.02 of the Standard Specifications to read:

"**105.02 Authority of Railroad Engineer.** Whenever the safety of railroad traffic is concerned, the Railroad Engineer will have jurisdiction over safety measures to be taken and his/her decision as to the methods, procedures, and measures used shall be final, and any and all Contractors performing work near or about the railroad shall be governed by such decision. Instructions to the Contractor by the Railroad Engineer will be given through the Engineer. Work ordered as specified herein will be classified and paid for according to Article 104.02. Work performed for the Contractor's convenience will not be paid for separately but shall be considered as included in the contract."

BITUMINOUS BASE COURSE / WIDENING SUPERPAVE
Effective: April 1, 2002 Revised: April 1, 2004

Description. This work shall consist of constructing bituminous base course Superpave and bituminous concrete base course widening Superpave according to Sections 355 and 356 respectively, of the Standard Specifications and the special provision, “Quality Control/Quality Assurance of Bituminous Concrete Mixtures” except as modified herein.

Revise Article 355.02(d) of the Standard Specifications to read:

" (d) RAP Material (Note3)"

Revise Note 2 of Article 355.02 of the Standard Specifications to read:

" Note 2. Unless otherwise specified on the plans, the bituminous material shall be performance graded (PG) asphalt cement (AC) , PG58-22. When more than 15 percent RAP is used, a softer PG binder may be required as determined by the Engineer. When the pavement has a structural number (D_t) of 3.00 or less, the low temperature grade of the asphalt cement shall be lowered one grade (i.e. PG58-28 replaces PG58-22)."

Add the following to the end Article 355.02 of the Standard Specifications:

" Note 3. RAP shall meet the requirements of the special provision "RAP for Use in Bituminous Concrete Mixtures"."

Revise Article 355.05 of the Standard Specifications to read:

"**355.05 Mixture Design.** The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have completed the course, “Superpave Mix Design Upgrade”. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below:

AASHTO MP 2 Standard Specification for Superpave Volumetric Mix Design

AASHTO R 30 Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)

AASHTO PP 28 Standard Practice for Designing Superpave HMA

AASHTO T 209 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures

AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor

AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

(a) Job Mix Formula (JMF). The JMF shall be according to the following limits:

Ingredient	Percent by Dry Weight
Aggregate	93.0 to 96.0
Asphalt Cement	4.0 to 7.0
Dust/AC Ratio	1.4

When RAP material is being used, the JMF shall be according to the following limits:

Ingredient	Percent by Dry Weight
Virgin Aggregate(s)	46.0 to 96.0
RAP Material(s) (Note 1)	0 to 50
Mineral Filler (if required)	0 to 5.0
Asphalt Cement	4.0 to 7.0
Dust/AC Ratio	1.4

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

Bituminous concrete binder course Superpave mixture IL-25.0 or IL-19.0 meeting the requirements of the special provision, “Superpave Bituminous Concrete Mixtures" may also be used. The minimum compacted lift thickness specified therein shall apply.

(b) Volumetric Requirements.

Design Compactive Effort	**Design Air Voids Target (%)**
N_{DES} =50	2.0

(c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 355.06 of the Standard Specifications to read:

"**355.06 Mixture Production.** The asphalt cement shall be transferred to the asphalt tanks and heated to a temperature of 120 °C (250 °F) to 175 °C (350 °F). If the loading temperature exceeds 175 °C (350 °F), the asphalt shall not be used until it has cooled to 175 °C (350 °F). Wide variations in temperature which affect the amount of asphalt delivered will not be permitted.

When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 30 seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

(a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".

(b) Required Tests. Testing shall be conducted to control the production of the bituminous mixture using the test methods identified and performed at a frequency not less than indicated in the following table.

Parameter	Frequency of Tests Non-Class I Mixtures	Test Method
Aggregate Gradation Hot bins for batch and continuous plants. Individual cold-feeds or combined belt-feed for drier-drum plants. (% passing seives: 12.5 mm (1/2 In.), 4.75 mm (No. 4), 75 µm (No. 200))	1 gradation per day of production. The first day of production shall be washed ignition oven test on the mix. Thereafter, the testing shall alternate between dry gradation and washed ignition oven test on the mix. The dry gradation and the washed ignition oven test results shall be plotted on the same control chart.	Illinois Procedure (See Manual of Test Procedures for Materials).

Asphalt Content by ignition oven (Note 1.)	1 per day	Illinois-Modified AASHTO T 308
Air Voids Bulk Specific Gravity of Gyratory Sample	1 per day	Illinois-Modified AASHTO T 312
Maximum Specific Gravity of Mixture	1 per day	Illinois-Modified AASHTO T 209

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

(c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures, except air voids shall be plotted on the control charts within the following control limits:

Air Void Control Limits	
Mixture	Individual Test
Shoulders	± 1.2 %
Others	± 1.2 %”

Revise Article 355.08 of the Standard Specifications to read:

“ **355.08 Placing.** The bituminous mixture shall be placed with a spreading and finishing machine. The minimum compacted thickness of each lift shall be according to the following table:

Nominal Maximum Aggregate Size of Mixture	Minimum Compacted Lift Thickness
CA 10 - 19 mm (3/4 in.)	57 mm (2 1/4 in.)
CA 6 – 25 mm (1 in.)	76 mm (3 in.)

The maximum compacted thickness of each lift shall be 100 mm (4 in.). If the Contractor elects to substitute an approved vibratory roller for one of the required rollers, the maximum compacted thickness of the each lift, excluding the top lift, may be increased to 150 mm (6 in.) provided the required density is obtained.

The surface of each lift shall be clean and dry before succeeding lifts are placed."

Revise Article 355.13 of the Standard Specifications to read:

" **355.13 Basis of Payment**. This work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS BASE COURSE SUPERPAVE of the thickness specified."

Revise Article 356.02 of the Standard Specifications to read:

" **356.02 Materials.** The materials for the bituminous concrete mixture shall meet the requirements of Article 355.02, be designed according to Article 355.05 and produced according to Article 355.06. Bituminous concrete binder course Superpave mixture IL-25.0 or IL-19.0 meeting the requirements of the special provision, "Superpave Bituminous Concrete Mixtures" may also be used. The minimum compacted lift thickness specified therein shall apply."

Revise the first paragraph of Article 356.06 of the Standard Specifications to read:

" **356.06 Base Course Widening.** The bituminous concrete mixture shall be transported according to Article 406.14."

Revise the second sentence of the fifth paragraph of Article 356.06 of the Standard Specifications to read:

" The minimum compacted thickness of each lift shall be according to the table shown in Article 355.08."

Revise the first paragraph of Article 356.11 of the Standard Specifications to read:

" **356.11 Basis of Payment**. Where the Department requires that bituminous concrete be used, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE BASE COURSE WIDENING SUPERPAVE of the thickness specified."

BITUMINOUS CONCRETE SURFACE COURSE (BDE)

Effective: April 1, 2001 Revised: April 1, 2003

Replace the fourth paragraph of Article 406.23(b) of the Standard Specifications with the following:

"Mixture for cracks, joints, flangeways, leveling binder (machine method), leveling binder (hand method) and binder course in excess of 103 percent of the quantity specified by the Engineer will not be measured for payment.

Surface course mixture in excess of 103 percent of adjusted plan quantity will not be measured for payment. The adjusted plan quantity for surface course mixtures will be calculated as follows:

Adjusted Plan Quantity = C x quantity shown on the plans or as specified by the Engineer.

where C = metric: $C = \frac{G_{mb} \times 24.99}{U}$ English: $C = \frac{G_{mb} \times 46.8}{U}$

and where:

G_{mb} = average bulk specific gravity from approved mix design.
U = Unit weight of surface course shown on the plans in kg/sq m/25 mm (lb/sq yd/in.), used to estimate plan quantity.
24.99 = metric constant.
46.8 = English constant.

If project circumstances warrant a new surface course mix design, the above equations shall be used to calculate the adjusted plan quantity for each mix design using its respective average bulk specific gravity."

BITUMINOUS EQUIPMENT, SPREADING AND FINISHING MACHINE (BDE)
Effective: January 1, 2005

Revise the fourth paragraph of Article 1102.03 of the Standard Specifications to read:

"The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distriction system to uniformly place a non-segregated mixture in front of the screed. The distribution system shall have chain curtains, deflector plates, and/or other devices designed and built by the paver manufacturer to prevent segregation during distribution of the mixture from the hopper to the paver screed. The Contractor shall submit a written certification that the devices recommended by; the paver manufacturer to prevent segregation have been installed and are operational. Prior to paving, the Contractor, in the presence of the Engineer, shall visually inspect paver parts specifically identified by the manufacturer for excessive wear and the need for replacement. The Contractor shall supply a completed check list to the Engineer noting the condition of the parts. Worn parts shall be replaced. The Engineer may require an additional inspection prior to the placement of a surface course or at other times throughout the work."

BRIDGE DECK CONSTRUCTION (BDE)
Effective: April 1, 2002 Revised: April 1, 2004

Add the following to Article 503.03 of the Standard Specifications:

"(h). Fogging Equipment ..... 1103.17(k)"

Add the following after the first sentence of the second paragraph to Article 503.07 of the Standard Specifications:

"When placing Class BD concrete, the discharge end of the pump shall have attached an "S" shaped flexible or rigid conduit, a 90 degree elbow with a minimum of 3 m (10 ft) of flexible conduit placed parallel to the deck, or a similar configuration approved by the Engineer."

Add the following after the second sentence of the ninth paragraph of Article 503.07 of the Standard Specifications:

"When consolidating concrete in bridge decks, the vibrator shall be vertically inserted into the concrete for 3 - 5 seconds, or for a period of time determined by the Engineer."

Add the following after the first paragraph of Article 503.17 of the Standard Specifications:

"For the bridge deck pour, fogging equipment shall be in operation unless the evaporation rate is less than 0.5 kg/sq m/hour (0.1 lb/sq ft/hour) and the Engineer gives permission to turn off the equipment. The evaporation rate shall be determined according to the figure in the Portland Cement Association's publication, "Design and Control of Concrete Mixtures" (refer to the section on plastic shrinkage cracking). The Contractor shall provide temperature, relative humidity, and wind speed measuring equipment.

The fogging equipment shall be adjusted to adequately cover the entire width of the pour.

If there is a delay of more than ten minutes during bridge deck placement, wet burlap shall be used to protect the concrete until operations resume.

Concrete placement operations shall be coordinated to limit the distance between the point of concrete placement and concrete covered with cotton mats for curing. The distance shall not exceed 10.5 m (35 ft). For bridge deck widths greater than 15 m (50 ft), the distance shall not exceed 7.5 m (25 ft)."

Add the following to the end of the first paragraph of Article 503.17(b) of the Standard Specifications to read:

"The concrete in these areas shall be struck off during the deck pour and excess material from the finishing machine shall not be incorporated."

In the Coarse Aggregate Gradation table of Article 1004.01(c) of the Standard Specifications revise the percent passing the 12.5 mm (1/2 in.) sieve for gradation CA 7 to "45±15[4/ 9/]".

In the Coarse Aggregate Gradation table of Article 1004.01(c) of the Standard Specifications revise the percent passing the 12.5 mm (1/2 in.) sieve for gradation CA 11 to "45±15[6/ 9/]".

Add the following to the Coarse Aggregate Gradation table of the Standard Specifications:

"9/ When Class BD concrete is to be pumped, the coarse aggregate gradation shall have a minimum of 45 percent passing the 12.5 mm (1/2 in.) sieve. The Contractor may combine two or more coarse aggregate sizes, consisting of CA-7, CA-11, CA-13, CA-14, and CA-16, provided a CA-7 or CA-11 is included in the blend."

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

"(d) Class BD Concrete. The maximum mortar factor shall be 0.86."

Add the following to Article 1103.17 of the Standard Specifications:

"(k) Fogging Equipment. Fogging equipment shall consist of a mechanically operated, pressurized system using a triple headed nozzle or an equivalent nozzle. The fogging nozzle shall be capable of producing a fine fog mist that will increase the relative humidity of the air just above the fresh concrete surface without accumulating any water on the concrete. The fogging equipment shall be mounted behind the roller and pan of finishing machine or on a separate foot bridge. Controls shall be designed to vary the volume of water flow, be easily accessible and immediately shut off the water when in the off position. Hand held fogging equipment will not be allowed."

BUTT JOINTS (BDE)
Effective: April 1, 2004

Revise Article 406.18 of the Standard Specifications to read:

"**406.18 Butt Joints.** Butt joints shall be constructed according to the details shown on the plans. The surface removal shall be performed according to Section 440. Construction of butt joints shall not begin prior to beginning general operations on the project.

When butt joints are to be constructed under traffic, temporary ramps shall be constructed and maintained at both the upstream and downstream ends of the surface removal areas immediately upon completion of the surface removal operation. The temporary ramps shall be constructed by the following methods.

(a) Temporary Bituminous Ramps. Temporary bituminous ramps shall have a minimum taper rate of 1:40 (V:H). The bituminous material used shall meet the approval of the Engineer. Cold-milled bituminous tailings will not be acceptable.

(b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 45 mph or less. The ramps shall have a minimum taper rate of 1:30 (V:H). The leading edge of the rubber ramp shall have a maximum thickness of 6 mm (1/4 in.) and the trailing edge shall match the height of the adjacent pavement ± 6 mm (1/4 in.).

The rubber material shall conform to the following:

Property	Test Method	Requirement
Durometer Hardness, Shore A	ASTM D 2240	80 ±10
Tensile Strength	ASTM D 412	5500 kPa (800 psi) min.
Elongation, percent	ASTM D 412	100 min.
Specific Gravity	ASTM D 297	1.1-1.3
Brittleness	ASTM D 746	-40 °C (-40 °F)

The rubber ramps shall be installed according to the manufacturer's specifications and fastened with the anchors provided. Rubber ramps that fail to stay in place or create a traffic hazard shall be replaced immediately with temporary bituminous ramps at the Contractor's expense.

The temporary ramps shall be removed just prior to placing the proposed surface course. If work is suspended for the winter season prior to completion of surface course construction, precut butt joints shall be filled to the elevation of the existing pavement surface with compacted bituminous concrete surface course or binder course."

COARSE AGGREGATE FOR TRENCH BACKFILL, BACKFILL AND BEDDING (BDE)
Effective: April 1, 2001 Revised: November 1, 2003

Revise Article 208.02 of the Standard Specifications to read:

"**208.02 Materials.** Materials shall be according to the following Articles of Section 1000 – Materials:

(a) Fine Aggregate (Note 1) 1003.04
(b) Coarse Aggregate (Note 2) 1004.06

Note 1. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 2. The coarse aggregate shall be wet to the satisfaction of the Engineer."

Revise the first sentence of the second paragraph of subparagraph (b) in Article 208.03 of the Standard Specifications to read:

"Any material meeting the requirements of Articles 1003.04 or 1004.06 which has been excavated from the trenches shall be used for backfilling the trenches."

Add the following to the end of Article 542.02 of the Standard Specifications:

"(bb) Fine Aggregate (Note 1) 1003.04
(cc) Coarse Aggregate (Note 2) 1004.06

Note 1. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 2. The coarse aggregate shall be wet to the satisfaction of the Engineer."

Revise the first and second sentences of the second paragraph of subparagraph (a) of Article 542.04 of the Standard Specifications to read:

"The unstable and unsuitable material shall be removed to a depth determined by the Engineer and for a width of one diameter (or equivalent diameter) of the pipe on each side of the pipe culvert, and replaced with aggregate. Rock shall be removed to an elevation 300 mm (1 ft) lower than the bottom of the pipe or to a depth equal to 40 mm/m (1/2 in./ft) of ultimate fill height over the top of the pipe culvert, whichever is the greater depth, and for a width as specified in (b) below, and replaced with aggregate."

Revise the second paragraph of subparagraph (c) of Article 542.04 of the Standard Specifications to read:

"Well compacted aggregate, at least 100 mm (4 in.) in depth below the pipe culvert, shall be placed the entire width of the trench and for the length of the pipe culvert, except well compacted impervious material shall be used for the outer 1 m (3 ft) at each end of the pipe. When the trench has been widened by the removal and replacement of unstable or unsuitable material, the foundation material shall be placed for a width not less than the above specified widths on each side of the pipe. The aggregate and impervious material shall be approved by the Engineer and shall be compacted to the Engineer's satisfaction by mechanical means."

Revise subparagraph (e) of Article 542.04 of the Standard Specifications to read:

"(e) Backfilling. As soon as the condition of the pipe culvert will permit, the entire width of the trench shall be backfilled with aggregate to a height of at least the elevation

of the center of the pipe. The aggregate shall be placed longitudinally along the pipe culvert, except at the outer 1 m (3 ft) at each end of the culvert which shall be backfilled with impervious material. The elevation of the backfill material on each side of the pipe shall be the same. The space under the pipe shall be completely filled. The aggregate and impervious material shall be placed in 200 mm (8 in.) layers, loose measurement. When using PVC, PE, or corrugated metal pipe, the aggregate shall be continued to a height of at least 300 mm (1 ft) above the top of the pipe and compacted to a minimum of 85 percent of standard lab density by mechanical means. When reinforced concrete pipes are used and the trench is within 600 mm (2 ft) of the pavement structure, the backfill shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

When using PVC, PE, or corrugated metal pipe a minimum of 300 mm (1 ft) of cover from the top of the pipe to the top of the subgrade will be required.

The installed pipe and its embedment shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench shall be backfilled with select material, from excavation or borrow, free from large or frozen lumps, clods or rock, meeting the approval of the Engineer. The material shall be placed in layers not exceeding 200 mm (8 in.) in depth, loose measurement and compacted to 95 percent of the standard laboratory density. Compaction shall be obtained by use of mechanical tampers or with approved vibratory compactors. Before compacting, each layer shall be wetted or dried to bring the moisture content within the limits of 80 to 110 percent of optimum moisture content determined according to AASHTO T 99 (Method C). All backfill material shall be deposited in the trench or excavation in such a manner as not to damage the culvert. The filling of the trench shall be carried on simultaneously on both sides of the pipe. The Contractor may, at his/her expense, backfill the entire trench with aggregate in lieu of select material. The aggregate shall be compacted to the satisfaction of the Engineer by mechanical means.

The backfill material for all trenches and excavations made in the subgrade of the proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk shall be according to Section 208. The trench backfill material shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

The Contractor may, at his/her expense, backfill the entire trench with controlled low strength material meeting the approval of the Engineer.

When the trench has been widened for the removal and replacement of unstable or unsuitable material, the backfilling with aggregate and impervious material, will be required for a width of at least the specified widths on each side of the pipe. The remaining width of each layer may be backfilled with select material. Each 200 mm (8 in.) layer for the entire trench width shall be completed before beginning the placement of the next layer."

Revise subparagraph (b) of Article 542.05 of the Standard Specifications to read:

"(b) Embankment. Embankment extending to an elevation of 300 mm (1 ft) over the top of the pipe shall be constructed according to Article 542.04(f), except the material up to the elevation of the center of the pipe and extending to a width of at least 450 mm (18 in.) on each side of the pipe, exclusive of the outer 1 m (3 ft) at each end of the pipe, shall consist of aggregate. At the outer 1 m (3 ft) at each end of the culvert, impervious material shall be used."

Add the following paragraph after the first paragraph of Article 542.10 of the Standard Specifications:

"Trench backfill will be measured for payment according to Article 208.03."

Add the following paragraph after the third paragraph of Article 542.11 of the Standard Specifications:

"Trench backfill will be paid for according to Article 208.04."

Add the following to of Article 550.02 of the Standard Specifications:

"(m) Fine Aggregate (Note 2) 1003.04
(n) Coarse Aggregate (Note 3) 1004.06

Note 2. The fine aggregate shall be moist to the satisfaction of the Engineer.

Note 3. The coarse aggregate shall be wet to the satisfaction of the Engineer."

Revise the first two sentences of the third paragraph of Article 550.04 of the Standard Specifications to read:

"Well compacted, aggregate bedding material at least 100 mm (4 in.) in depth below the pipe, shall be placed for the entire width of the trench and length of the pipe. The aggregate shall be compacted to the satisfaction of the Engineer by mechanical means."

Revise Article 550.07 of the Standard Specifications to read:

"**550.07 Backfilling.** As soon as the condition of the pipe will permit, the entire width of the trench shall be backfilled with aggregate to a height of at least the elevation of the center of the pipe. The aggregate shall be placed longitudinally along the pipe. The elevation of the backfill material on each side of the pipe shall be the same. The space under the pipe shall be completely filled. The aggregate backfill material shall be placed in 200 mm (8 in.) layers, loose measurement and compacted to the satisfaction of the Engineer by mechanical means. When using PVC pipe, the aggregate shall be continued to a height of at least 300 mm (12 in.) above the top of the pipe.

The installed pipe and its embedment shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench and excavation shall be backfilled to the natural line or finished surface as rapidly as the condition of the sewer will permit. The backfill material shall consist of suitable excavated material from the trench or of trench backfill as herein specified. All backfill material shall be deposited in the trench or excavation in such a manner as not to damage the sewer and shall be compacted to the satisfaction of the Engineer by mechanical means. The filling of the trench shall be carried on simultaneously on both sides of the pipe.

The backfill material for trenches and excavation made in the subgrade of the proposed improvement, and for all trenches outside of the subgrade where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk shall be according to Section 208. The backfill material shall be compacted to 85 percent of standard lab density by mechanical means.

All backfill material up to a height of 300 mm (1 ft) above the pipe shall be deposited in uniform layers not exceeding 200 mm (8 in.) thick, loose measurement. The material in each layer shall be compacted to the satisfaction of the Engineer by mechanical means. The backfilling above this height shall be done according to Method 1, 2 or 3 as described below, with the following exceptions.

When trench backfill or excavated material meeting the requirements of Section 208 is required above the first 300 mm (1 ft) of the pipe, the layers shall not exceed 200 mm (8 in.). Gradations CA6 or CA10 shall not be used with Method 2 or Method 3.

Method 1. The material shall be deposited in uniform layers not exceeding 300 mm (1 ft) thick, loose measurement, and each layer shall be compacted to the satisfaction of the Engineer by mechanical means.

Method 2. The material shall be deposited in uniform layers not exceeding 300 mm (1 ft) thick, loose measurement, and each layer shall be either inundated or deposited in water.

Method 3. The trench shall be backfilled with loose material, and settlement secured by introducing water through holes jetted into the backfill to a point approximately 600 mm (2 ft) above the top of the pipe. The holes shall be spaced as directed by the Engineer but shall be no farther than 2 m (6 ft) apart.

The water shall be injected at a pressure just sufficient to sink the holes at a moderate rate of speed. The pressure shall be such that the water will not cut cavities in the backfill material nor overflow the surface. If water does overflow the surface, it shall be drained into the jetted holes by means of shallow trenches.

Water shall be injected as long as it will be absorbed by the backfill material and until samples taken from test holes in the trench show a satisfactory moisture content. The Contractor shall bore the test holes not more than 15 m (50 ft) apart and at such other locations in the trench designated by the Engineer. As soon as the watersoaking has been completed, all holes shall be filled with soil and compacted by ramming with a tool approved by the Engineer.

Backfill material which has been watersoaked shall be allowed to settle and dry for at least 10 days before any surface course or pavement is constructed on it. The length of time may be altered, if deemed desirable, by the Engineer. Where the inner edge of the trench is within 600 mm (2 ft) of the edge of the proposed pavement, curb, gutter, curb and gutter, stabilized shoulder or sidewalk, the provisions of this paragraph shall also apply.

At the end of the settling and drying period, the crusted top of the backfill material shall be scarified and, if necessary, sufficient backfill material added, as specified in Method 1, to complete the backfilling operations.

The method used for backfilling and compacting the backfill material shall be the choice of the Contractor. If the method used does not produce results satisfactory to the Engineer, the Contractor will be required to alter or change the method being used so the resultant backfill will be satisfactory to the Engineer. Should the Contractor be required to alter or change the method being used, no additional compensation will be allowed for altering or changing the method.

The Contractor may, at his/her expense, backfill the entire trench with controlled low strength material meeting the approval of the Engineer.

When sheeting and bracing have been used, sufficient bracing shall be left across the trench as the backfilling progresses to hold the sides firmly in place without caving or settlement. This bracing shall be removed as soon as practicable. Any depressions which may develop within the area involved in the construction operation due to settlement of the backfilling material shall be filled in a manner approved by the Engineer.

When the Contractor constructs the trench with sloped or benched sides according to Article 550.04, backfilling for the full width of the excavation shall be as specified, except no additional compensation will be allowed for trench backfill material required outside the vertical limits of the specified trench width.

Whenever excavation is made for installing sewer pipe across earth shoulders or private property, the topsoil disturbed by excavation operations shall be replaced as nearly as possible in its original position, and the whole area involved in the construction operations shall be left in a neat and presentable condition.

When using any PVC pipe, the pipe shall be backfilled with aggregate to 300 mm (1 ft) over the top of the pipe and compacted to a minimum of 85 percent of standard lab density by mechanical means.

When reinforced concrete pipes are used and the trench is within 600 mm (2 ft) of the pavement structure, the backfill shall be compacted to a minimum of 85 percent of standard lab density by mechanical means.

Deflection Testing for Storm Sewers. All PVC storm sewers will be tested for deflection not less than 30 days after the pipe is installed and the backfill compacted.

For PVC storm sewers with diameters 600 mm (24 in.) or smaller, a mandrel drag shall be used for deflection testing. For PVC storm sewers with diameters over 600 mm (24 in.), deflection measurements other than by a mandrel drag shall be used.

Where the mandrel is used, the mandrel shall be furnished by the Contractor and pulled by hand through the pipeline with a suitable rope or cable connected to each end. Winching or other means of forcing the deflection gauge through the pipeline will not be allowed.

The mandrel shall be of a shape similar to that of a true circle enabling the gauge to pass through a satisfactory pipeline with little or no resistance. The mandrel shall be of a design to prevent it from tipping from side to side and to prevent debris build-up from occurring between the channels of the adjacent fins or legs during operation. Each end of the core of the mandrel shall have fasteners to which the pulling cables can be attached. The mandrel shall have 9, various sized fins or legs of appropriate dimension for various diameter pipes. Each fin or leg shall have a permanent marking that states its designated pipe size and percent of deflection allowable.

The outside diameter of the mandrel shall be 95 percent of the base inside diameter, where the base inside diameter is:

For all PVC pipe (as defined using ASTM D 3034 methodology):

If the pipe is found to have a deflection greater than specified, that pipe section shall be removed, replaced, and retested."

Revise subparagraph (c) of Article 1003.04 of the Standard Specifications to read:

"(c) Gradation. The fine aggregate gradation shall be as follows:

Backfill, bedding and trench backfill for pipe culverts and storm sewers	FA 1, FA 2, FA 6, or FA 21
Porous granular embankment and backfill, french drains, and sand backfill for underdrains	FA 1, FA 2, or FA20 (Note 1)

Note 1: For FA 1, FA 2, and FA 20 the percent passing the 75 μm (No. 200) sieve shall be 2 ± 2."

Revise the title of Article 1004.06 of the Standard Specifications to read:

"Coarse Aggregate for Blotter, Embankment, Backfill, Trench Backfill, French Drains, and Bedding."

Add the following to the end of subparagraph (c) of Article 1004.06 of the Standard Specifications:

"Backfill, bedding, and trench backfill for pipe culverts and storm sewers CA 6, CA 10, and CA 18"

CONCRETE ADMIXTURES (BDE)

Effective: January 1, 2003 Revised: July 1, 2004

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

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

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

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

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

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

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

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

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

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

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

For Class PV, MS, SI, RR, SC and SH concrete, at the option of the Contractor, or when specified by the Engineer, a water-reducing admixture or a retarding admixture may be

used. The amount of water-reducing admixture or retarding admixture permitted will be determined by the Engineer. The air-entraining admixture and other admixtures shall be added to the concrete separately, and shall be permitted to intermingle only after they have separately entered the concrete batch. The sequence, method and equipment for adding the admixtures shall be approved by the Engineer. The water-reducing admixture shall not delay the initial set of the concrete by more than one hour. Type I cement shall be used.

When a water-reducing admixture is added, a cement factor reduction of up to 18 kg/cu m (0.30 hundredweight/cu yd), from the concrete designed for a specific slump without the admixture, will be permitted for Class PV, MS, SI, RR, SC and SH concrete. When an approved high range water-reducing admixture is used, a cement factor reduction of up to 36 kg/cu m (0.60 hundredweight/cu yd), from a specific water cement/ratio without the admixture, will be permitted based on a 14 percent minimum water reduction. This is applicable to Class PV, MS, SI, RR, SC and SH concrete. A cement factor below 320 kg/cu m (5.35 hundredweight/cu yd) will not be permitted for Class PV, MS, SI, RR, SC and SH concrete. A cement factor reduction will not be allowed for concrete placed underwater. Cement factor reductions shall not be cumulative when using multiple admixtures.

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

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

Revise Section 1021 of the Standard Specifications to read:

"SECTION 1021. CONCRETE ADMIXTURES"

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

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

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

In addition to the report, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The test and reference

concrete mixture shall contain a cement content of 335 kg/cu m (5.65 cwt/cu yd). The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by the AASHTO Accreditation Program.

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

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

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

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

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

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

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

(a) The retarding admixture shall comply with the requirements of AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).

(b) The water-reducing admixture shall comply with the requirements of AASHTO M 194, Type A.

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

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

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

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

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

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

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

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

CURB RAMPS FOR SIDEWALK (BDE)
Effective: January 1, 2004

Description. This work shall consist of constructing sidewalk curb ramps with detectable warnings in compliance with the Americans with Disabilities Act, Accessibility Guidelines (ADAAG). Work shall be according to Section 424 of the Standard Specifications except as modified herein.

The detectable warnings shall consist of an area of truncated domes that provide both visual and tactile cues to pedestrians who are about to enter into traffic. The warning area shall begin 150 mm (6 in.) from the back of the curb and continue 600 mm (2 ft) in the direction of pedestrian travel for the entire width of the walking surface.

The detectable warnings shall also present a contrast in color from the adjacent sidewalk. This shall be accomplished by constructing the warning area, plus the 150 mm (6 in.) area between the warning area and the back of curb, out of concrete that is integrally colored red. However if the sidewalk is brick or of some dark color, the contrast requirement shall be achieved with normal (grey), Class SI concrete.

Materials. Materials for the detectable warning area of the curb ramps shall meet the following requirements.

a) Integrally Colored Concrete. Integrally colored concrete shall be according to Section 1020 of the Standard Specification for Class SI concrete except as follows.

Article 1020.04 The allowable water/cement ratio range shall be 0.40 minimum to 0.44 maximum.

Article 1020.04	The allowable slump range shall be 75 mm (3 in.) minimum to 125 mm (5 in.) maximum.
Article 1020.04	The allowable coarse aggregate gradations shall be CA 11, CA 13, CA 14, and CA 16.
Article 1020.05(b)	A calcium chloride accelerating admixture shall not be used.
Article 1020.05(b)	The cement factor shall not be reduced if a water-reducing or high range water-reducing admixture is used.
Article 1020.05(c)	Fly ash shall not be used.
Article 1020.05(k)	Ground granulated blast-furnace slag shall not be used.
Article 1020.11	Pigment for integrally colored concrete shall be added to the concrete and mixed per the Manufacturer's recommendation.
Article 1020.13	The curing method shall be Type I membrane curing.
Article 1020.13.	The protection method shall be according to Article 1020.13(e)(1) and the protection period shall be 96 hours. No material, including the insulating material, shall be placed in direct contact with the concrete surface.

(b) Pigment for Integrally Colored Concrete. The pigment shall meet the requirements of ASTM C 979, match color number 30166 of Federal Standard 595, and be on the Department's Approved List of Pigments for Integrally Colored Concrete.

(c) Release Agent for Concrete Stamping Tools. The release agent shall be according to the stamping tool manufacturer's recommendations and the following: it shall be a clear liquid that will evaporate, it shall not harm the concrete, and it shall allow the application of Type I membrane curing.

Equipment. Equipment for the detectable warning area of the curb ramps shall meet the following requirements.

(a) Concrete Stamps. Sufficient numbers and sizes of stamps shall be furnished to cover the various widths of the curb ramps. The stamps shall have an air opening at the top of each truncated dome recess; and shall be rigid enough to evenly distribute the force exerted during tamping.

(b) Tamper. The tamper shall be according to the concrete stamp manufacturer's recommendations.

CONSTRUCTION REQUIREMENTS

Stamping. The concrete shall be placed and finished according to Article 424.06 except the area to be stamped shall not be brushed. When the bleed water has been absorbed, stamping shall begin. The entire width of the curb ramp shall be stamped at the same time. A single stamp or a combination of stamps may be used.

Prior to placing the stamp on the concrete, the stamp shall be coated with the release agent. When recommended by the manufacturer, the release agent shall also be applied to the concrete surface. Once the stamp has been placed on the ramp, it shall remain down until the stamping is complete.

The entire area of the stamp shall be tamped with a short, slow, repetitive action such that the concrete is caused to move up and into the dome recesses of the stamp. Tamping shall continue until mortar has come through the air openings in the stamp. Stepping or walking on the stamp will not be allowed. The base elevation of the domes shall be even with the adjacent sidewalk surface; the stamp shall not be forced down into the concrete.

When stamping is complete, the stamp shall be removed and the concrete cured.

Upon completion of curing, or after cold weather protection if required, the protruding mortar tip on the top of each dome shall be removed and the dome rubbed or ground smooth.

CURING AND PROTECTION OF CONCRETE CONSTRUCTION (BDE)
Effective: January 1, 2004

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

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

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

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

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

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

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

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

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

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

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

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

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

"As soon as each member is finished, the concrete shall be covered with curing material according to Article 1020.13."

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

"The prestressing force shall not be transferred to any member before the concrete has attained the compressive strength of 28,000 kPa (4000 psi) or other higher compressive release strength specified on the plans, as determined from tests of 150 mm (6 in.) by 300 mm (12 in.) cylinders cured with the member according to Article 1020.13. Members shall not be shipped until 28-day strengths have been attained and members have a yard age of at least 4 days."

Delete the third paragraph of Article 512.03(a) of the Standard Specifications.

Delete the last sentence of the second paragraph of Article 512.04(d) of the Standard Specifications.

Revise the "Index Table of Curing and Protection of Concrete Construction" table of Article 1020.13 of the Standard Specifications to read:

"INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Cast-in-Place Concrete: [11/]			
Pavement Shoulder	1020.13(a)(1)(2)(3)(4)(5)[3/ 5/]	3	1020.13(c)
Base Course Base Course Widening	1020.13(a)(1)(2)(3)(4)(5)[1/ 2/]	3	1020.13(c)
Driveway Median Curb Gutter Curb and Gutter Sidewalk Slope Wall	1020.13(a)(1)(2)(3)(4)(5)[4/ 5/]	3	1020.13(c)[16/]
Paved Ditch Catch Basin Manhole Inlet Valve Vault	1020.13(a)(1)(2)(3)(4)(5)[4/]	3	1020.13(c)
Pavement Patching	1020.13(a)(1)(2)(3)(4)(5)[2/]	3[12/]	1020.13(c)
Pavement Replacement	1020.13(a)(1)(2)(3)(4)(5)[1/ 2/]	3	442.06(h) and 1020.13(c)
Railroad Crossing	1020.13(a)(3)(5)	1	1020.13(c)
Piles	1020.13(a)(3)(5)	7	1020.13(e)(1)(2)(3)
Footings Foundation Seals	1020.13(a)(1)(2)(3)(4)(5)[4/6/]	7	1020.13(e)(1)(2)(3)
Substructure	1020.13(a)(1)(2)(3)(4)(5)[1/7/]	7	1020.13(e)(1)(2)(3)
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5) [8/]	7	1020.13(e)(1)(2)
Deck	1020.13(a)(5)	7	1020.13(e)(1)(2)[17/]
Retaining Walls	1020.13(a)(1)(2)(3)(4)(5)[1/7/]	7	1020.13(e)(1)(2)
Pump Houses	1020.13(a)(1)(2)(3)(4)(5)[1/]	7	1020.13(e)(1)(2)
Culverts	1020.13(a)(1)(2)(3)(4)(5)[4/6/]	7	1020.13(e)(1)(2)[18/]
Other Incidental Concrete	1020.13(a)(1)(2)(3)(5)	3	1020.13(c)
Precast Concrete: [11/]			
Bridge Beams Piles Bridge Slabs Nelson Type Structural Member	1020.13(a)(3)(5) [9/10/]	As required. [13/]	504.06(c)(6), 1020.13(e)(2)[19/]
All Other Precast Items	1020.13(a)(3)(4)(5)[2/9/10/]	As required. [14/]	504.06(c)(6), 1020.13(e)(2)[19/]
Precast, Prestressed Concrete: [11/]			
All Items	1020.13(a)(3)(5)[9/10/]	Until strand tensioning is released.[15/]	504.06(c)(6), 1020.13(e)(2)[19/]

Notes-General:

1/ Type I, membrane curing only

2/ Type II, membrane curing only

3/ Type III, membrane curing only

4/ Type I, II and III membrane curing

5/ Membrane curing will not be permitted between November 1 and April 15.

6/ The use of water to inundate footings, foundation seals or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 7 °C (45 °F) or higher.

7/ Asphalt Emulsion for Waterproofing may be used in lieu of other curing methods when specified and permitted according to Article 503.18.

8/ On non-traffic surfaces which receive protective coat according to Article 503.19, a linseed oil emulsion curing compound may be used as a substitute for protective coat and other curing methods. The linseed emulsion curing compound will be permitted between April 16 and October 31 of the same year, provided it is applied with a mechanical sprayer according to Article 1101.09 (b), and meets the material requirements of Article 1022.07.

9/ Steam curing (heat and moisture) is acceptable and shall be accomplished by the method specified in Article 504.06(c)(6).

10/ A moist room according to AASHTO M 201 is acceptable for curing.

11/ If curing is required and interrupted because of form removal for cast-in-place concrete items, precast concrete products, or precast prestressed concrete products, the curing shall be resumed within two hours from the start of the form removal.

12/ Curing maintained only until opening strength is attained, with a maximum curing period of three days.

13/ The curing period shall end when the concrete has attained the mix design strength. The producer has the option to discontinue curing when the concrete has attained 80 percent of the mix design strength or after seven days. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.

14/ The producer shall determine the curing period or may elect to not cure the product. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.

15/ The producer has the option to continue curing after strand release.

16/ When structural steel or structural concrete is in place above slope wall, Article 1020.13(c) shall not apply. The protection method shall be according to Article 1020.13(e)(1).

17/ When Article 1020.13(e)(2) is used to protect the deck, the housing may enclose only the bottom and sides. The top surface shall be protected according to Article 1020.13(e)(1).

18/ For culverts having a waterway opening of 1 sq m (10 sq ft) or less, the culverts may be protected according to Article 1020.13(e)(3).

19/ The seven day protection period in the first paragraph of Article 1020.13(e)(2) shall not apply. The protection period shall end when curing is finished. For the third paragraph of Article 1020.13(e)(2), the decrease in temperature shall be according to Article 504.06(c)(6).”

Add the following to Article 1020.13(a) of the Standard Specifications:

"(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry cotton mats. The cotton mats shall be placed in a manner which will not mar the concrete surface. A texture resulting from the cotton mat material is acceptable. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. For bridge decks, a foot bridge shall be used to place and wet the cotton mats.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without marring the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 1.2 m (4 ft) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets.

For construction items other than bridge decks, soaker hoses or a continuous wetting system will not be required if the alternative method keeps the cotton mats wet. Periodic wetting of the cotton mats is acceptable.

For areas inaccessible to the cotton mats on bridge decks, curing shall be according to Article 1020.13(a)(3)."

Revise the first paragraph of Article 1020.13(c) of the Standard Specifications to read:

"Protection of Portland Cement Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 0 °C (32 °F), or lower, or if the actual temperature drops to 0 °C (32 °F), or lower, concrete less than 72 hours old shall be provided at least the following protection:"

Delete Article 1020.13(d) and Articles 1020.13(d)(1),(2),(3),(4) of the Standard Specifications.

Revise the first five paragraphs of Article 1020.13(e) of the Standard Specifications to read:

"Protection of Portland Cement Concrete Structures From Low Air Temperatures. When the official National Weather Service Forecast for the construction area predicts a low below 7 °C (45 °F), or if the actual temperature drops below 7 °C (45 °F), concrete less than 72 hours old shall be provided protection. Concrete shall also be provided protection when placed during the winter period of December 1 through March 15. Concrete shall not be placed until the materials, facilities and equipment for protection are approved by the Engineer.

When directed by the Engineer, the Contractor may be required to place concrete during the winter period. If winter construction is specified, the Contractor shall proceed with the construction, including concrete, excavation, pile driving, steel erection and all appurtenant work required for the complete construction of the item, except at times when weather conditions make such operations impracticable.

Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced by the Contractor at his/her own expense."

Add the following at the end of the third paragraph of Article 1020.13(e)(1) of the Standard Specifications:

"The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period."

Revise the second sentence of the first paragraph of Article 1020.13(e)(2) of the Standard Specifications to read:

"The Contractor shall provide means for checking the temperature of the surface of the concrete or air temperature within the housing during the protection period."

Delete the last sentence of the first paragraph of Article 1020.13(e)(3) of the Standard Specifications.

Add the following Article to Section 1022 of the Standard Specifications:

"**1022.06 Cotton Mats.** Cotton mats shall consist of a cotton fill material, minimum 400 g/sq m (11.8 oz/sq yd), covered with unsized cloth or burlap, minimum 200 g/sq m (5.9 oz/sq yd), and be tufted or stitched to maintain stability.

Cotton mats shall be in a condition satisfactory to the Engineer. Any tears or holes in the mats shall be repaired.

Add the following Article to Section 1022 of the Standard Specifications:

"**1022.07 Linseed Oil Emulsion Curing Compound.** Linseed oil emulsion curing compound shall be composed of a blend of boiled linseed oil and high viscosity, heavy bodied linseed oil emulsified in a water solution. The curing compound shall meet the requirements of a Type I, II, or III according to Article 1022.01, except the drying time requirement will be waived. The oil phase shall be 50 ± 4 percent by volume. The oil phase shall consist of 80 percent by mass (weight) boiled linseed oil and 20 percent by mass (weight) Z-8 viscosity linseed oil. The water phase shall be 50 ± 4 percent by volume."

Revise Article 1020.14 of the Standard Specifications to read:

"**1020.14 Temperature Control for Placement.** Temperature control for concrete placement shall conform to the following requirements:

(a) Temperature Control other than Structures. The temperature of concrete immediately before placing, shall be not less than 10 °C (50 °F) nor more than 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the

Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

Plastic concrete temperatures up to 35 °C (96 °F), as placed, may be permitted provided job site conditions permit placement and finishing without excessive use of water on and/or overworking of the surface. The occurrence within 24 hours of unusual surface distress shall be cause to revert to a maximum 32 °C (90 °F) plastic concrete temperature.

Concrete shall not be placed when the air temperature is below 5 °C (40 °F) and falling or below 2 °C (35 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to not less than 20 °C (70 °F) nor more than 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

For pavement patching, refer to Article 442.06(e) for additional information on temperature control for placement.

(b) Temperature Control for Structures. The temperature of concrete as placed in the forms shall be not less than 10 °C (50 °F) nor more than 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits. When insulated forms are used, the temperature of the concrete mixture shall not exceed 25 °C (80 °F). If the Engineer determines that heat of hydration might cause excessive temperatures in the concrete, the concrete shall be placed at a temperature between 10 °C (50 °F) and 15 °C (60 °F), per the Engineer's instructions. When concrete is placed in contact with previously placed concrete, the temperature of the concrete may be increased as required to offset anticipated heat loss.

Concrete shall not be placed when the air temperature is below 7 °C (45 °F) and falling or below 4 °C (40 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to not less than 20 °C (70 °F) nor more than 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

(c) Temperature. The concrete temperature shall be determined according to ASTM C 1064."

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)
Effective: September 1, 2000 Revised: June 1, 2004

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR part 26 and listed in the DBE Directory or most recent addendum.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor:

> The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of federally-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE firms performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 22.00% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

(a) The bidder documents that firmly committed DBE participation has been obtained to meet the goal; or

(b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders may consult the DBE Directory as a reference source for DBE companies certified by the Department. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at www.dot.state.il.us.

BIDDING PROCEDURES. Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid nonresponsive.

(a) In order to assure the timely award of the contract, the as-read low bidder must submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement , the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the as-read low bidder to ensure that the postmark or receipt date is affixed within the seven (7) working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven (7) day submittal requirement, and the bid will be declared nonresponsive. In the event the bid is declared nonresponsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.

(b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.

(c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. The signatures on these forms must be original signatures. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The name and address of each DBE to be used;

(2) A description, including pay item numbers, of the commercially useful work to be done by each DBE;

(3) The price to be paid to each DBE for the identified work specifically stating the quantity, unit price and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

(4) A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and

(5) If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).

(d) The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five (5) working day period in order to cure the deficiency.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100% goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100% goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100% goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE firm does not count toward the DBE goal.

(d) DBE as a trucker: 100% goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed and insured by the DBE must be used on the contact. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.

(e) DBE as a material supplier:

(1) 60% goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.

(3) 100% credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

GOOD FAITH EFFORT PROCEDURES. If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines that the Contractor has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will designate a five (5) working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet

the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.

(c) The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five (5) working days after the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten (10) working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid nonresponsive.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal.

(a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.

(b) All work indicated for performance by an approved DBE shall be performed, managed and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the

work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete its work on the contract for any reason, the Contractor shall make good faith efforts to find another DBE to substitute for the terminated DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.

(c) The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefor to the DBE by the Contractor, but not later than thirty (30) calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the District Engineer. If full and final payment has not been made to the DBE, the Report shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.

(d) The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)
Effective: August 1, 2001 Revised: November 1, 2001

When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, he/she will direct the Contractor in writing to correct the deficiency. The Contractor shall then correct the deficiency within 24 hours. The deficiency may be any lack of repair, maintenance, or implementation of erosion and/or sediment control devices included in the contract, or any failure to comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) Storm Water Permit for Construction Site Activities.

If the Contractor fails to correct the deficiency(s) within 24 hours, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The time period will

begin with the initial written notification to the Contractor and end with the Engineer's acceptance of the corrected work. The per calendar day deduction will be either $1000.00 or 0.05 percent of the awarded contract value, whichever is greater.

If the Contractor fails to respond, the Engineer may correct the deficiencies and deduct the cost from monies due or which may become due the Contractor. This corrective action shall in no way relieve the Contractor of his/her contractual requirements or responsibilities.

EXPANSION JOINTS (BDE)
Effective: August 1, 2003

Add the following paragraph after the second paragraph of Article 420.10(e) of the Standard Specifications:

"After the dowel bars are oiled, plastic expansion caps shall be secured to the bars maintaining a minimum expansion gap of 50 mm (2 in.) between the end of the bar and the end of the cap. The caps shall fit snuggly on the bar and the closed end shall be watertight. For expansion joints formed using dowel bar basket assemblies, the caps shall be installed on the alternating free ends of the bars. For expansion joints formed using a construction header, the caps shall be installed on the exposed end of each bar once the header has been removed and the joint filler material has been installed."

FLAGGER VESTS (BDE)
Effective: April 1, 2003

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

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

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

"(6) Nighttime Flagging. The flagger station shall be lit by additional overhead lighting other than streetlights. The flagger shall be equipped with a fluorescent orange or fluorescent orange and fluorescent yellow/green garment meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments."

FREEZE-THAW RATING (BDE)
Effective: November 1, 2002

Revise the first sentence of Article 1004.02(f) of the Standard Specifications to read:

"When coarse aggregate is used to produce portland cement concrete for base course, base course widening, pavement, driveway pavement, sidewalk, shoulders, curb, gutter, combination curb and gutter, median, paved ditch or their repair using concrete, the gradation permitted will be determined from the results of the Department's Freeze-Thaw Test."

FURNISHED EXCAVATION (BDE)

Effective: August 1, 2002 Revised: November 1, 2004

Revise Article 204.01 of the Standard Specifications to read:

"**Description.** Borrow excavation and furnished excavation shall consist of excavating suitable materials obtained from locations approved by the Engineer and transporting the materials to various locations throughout the limits of the contract."

Revise Article 204.07(b) of the Standard Specifications to read:

"(b) Measured Quantities. Furnished excavation will be computed for payment in cubic meters (cubic yards) as follows:

Furnished Excavation = Embankment - [Suitable Excavation x (1 - Shrinkage Factor)]

Where:

Embankment = the volume of fill in its final position computed by the method of average end areas and based upon the existing ground line as shown on the plans except as noted in (1) and (2) below;

Suitable Excavation = earth excavation, rock excavation, and other on-site excavation suitable for use in embankments as shown in the Earthwork Schedule on the plans;

Shrinkage Factor = 0.25 unless otherwise shown on the plans.

(1) If the Contractor so requests, the Engineer will reestablish the existing ground line after the clearing and tree removal have been performed according to Section 201 and the top 150 mm (6 in.) of the existing ground surface has been disked and compacted to the satisfaction of the Engineer.

(2) If settlement platforms are erected, the Engineer will reestablish the existing ground line after the embankment is complete as specified in Article 204.07(a)(2).

Furnished excavation placed in excess of that required for the execution of the contract will not be measured for payment."

Add the following paragraph to the end of Article 204.07 of the Standard Specifications:

"The quantity for furnished excavation will not be recalculated when surplus, suitable materials are utilized in embankments according to Article 202.03."

HAND VIBRATOR (BDE)
Effective: November 1, 2003

Add the following paragraph to Article 1103.17(a) of the Standard Specifications:

"The vibrator shall have a non-metallic head for areas containing epoxy coated reinforcement. The head shall be coated by the manufacturer. The hardness of the non-metallic head shall be less than the epoxy coated reinforcement, resulting in no damage to the epoxy coating. Slip-on covers will not be allowed."

IMPACT ATTENUATORS, TEMPORARY (BDE)
Effective: November 1, 2003 Revised: April 1, 2004

Description. This work shall consist of furnishing, installing, maintaining, and removing temporary impact attenuators of the category and test level specified.

Materials. Materials shall meet the requirements of the impact attenuator manufacturer and the following:

Item	Article/Section
(a) Fine Aggregate (Note 1)	1003.01
(b) Steel Posts, Structural Shapes, and Plates	1006.04
(c) Rail Elements, End Section Plates, and Splice Plates	1006.25
(d) Bolts, Nuts, Washers and Hardware	1006.25
(e) Hollow Structural Tubing	1006.27(b)
(f) Wood Posts and Wood Blockouts	1007.01, 1007.02, 1007.06
(g) Preservative Treatment	1007.12
(h) Rapid Set Mortar (Note 2)	

Note 1. Fine aggregate shall be FA-1 or FA-2, Class A quality. The sand shall be unbagged and shall have a maximum moisture content of five percent.

Note 2. Rapid set mortar shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitous Materials for Concrete Repairs. For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume or a packaged rapid set mortar shall be used. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

CONSTRUCTION REQUIREMENTS

General. Impact Attenuators shall meet the testing criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350 for the test level specified and shall be on the Department's approved list.

Installation. Regrading of slopes or approaches for the installation shall be as shown on the plans.

Attenuator bases, when required by the manufacturer, shall be constructed on a prepared subgrade according to the manufacturer's specifications. The surface of the base shall be slightly sloped or crowned to facilitate drainage.

Impact attenuators shall be installed according to the manufacturer's specifications and include all necessary transitions between the impact attenuator and the item to which it is attached.

When water filled attenuators are used between November 1 and April 15, they shall contain anti-freeze according to the manufacturer's recommendations.

Markings. Sand module impact attenuators shall be striped with alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes. There shall be at least two of each stripe on each module.

Other types of impact attenuators shall have a terminal marker applied to their nose and reflectors along their sides.

Maintenance. All maintenance of the impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer.

Relocate. When relocation of temporary impact attenuators is specified, they shall be removed, relocated and reinstalled at the new location. The reinstallation requirements shall be the same as those for a new installation.

Removal. When the Engineer determines the temporary impact attenuators are no longer required, the installation shall be dismantled with all hardware becoming the property of the Contractor.

Surplus material shall be disposed of according to Article 202.03. Anti-freeze, when present, shall be disposed of/recycled according to local ordinances.

When impact attenuators have been anchored to the pavement, the anchor holes shall be repaired with rapid set mortar Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

Basis of Payment. This work will be paid for at the contract unit price per each for IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, WIDE); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, NARROW); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, WIDE); or IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) of the test level specified.

Relocation of the devices will be paid for at the contract unit price per each for IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE); IMPACT ATTENUATORS, RELOCATE (SEVERE USE); or IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE); of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

INLET FILTERS (BDE)
Effective: August 1, 2003

Add the following to Article 280.02 of the Standard Specifications:

"(k) Inlet Filters..... 1081.15(h)"

Add the following paragraph after the first paragraph of Article 280.04(c) of the Standard Specifications:

"When specified, drainage structures shall be protected with inlet filters. Inlet filters shall be installed either directly on the drainage structure or under the grate of the drainage structure resting on the lip of the frame. The fabric bag shall hang down into the drainage structure. Prior to ordering materials, the Contractor shall determine the size and shape of the various drainage structures being protected."

Revise Article 280.07(d) of the Standard Specifications to read:

"(d) Inlet and Pipe Protection. This work will be paid for at the contract unit price per each for INLET AND PIPE PROTECTION.

Protection of drainage structures with inlet filters will be paid for at the contract unit price per each for INLET FILTERS."

Add the following to Article 1081.15 of the Standard Specifications:

"(h) Inlet Filters. An inlet filter shall consist of a steel frame with a two piece geotextile fabric bag attached with a stainless steel band and locking cap that is suspended from the frame. A clean, used bag and a used steel frame in good condition meeting the approval of the Engineer may be substituted for new materials. Materials for the inlet filter assembly shall conform to the following requirements:

(1) Frame Construction. Steel shall conform to Article 1006.04.

Frames designed to fit under a grate shall include an overflow feature that is welded to the frame's ring. The overflow feature shall be designed to allow full flow of water into the structure when the filter bag is full. The dimensions of the frame shall allow the drainage structure grate to fit into the inlet filter assembly frame opening. The assembly frame shall rest on the inside lip of the drainage structure frame for the full variety of existing and proposed drainage structure frames that are present on this contract. The inlet filter assembly frame shall not cause the drainage structure grate to extend higher than 6 mm (1/4 in.) above the drainage structure frame.

(2) Grate Lock. When the inlet is located in a traffic lane, a grate lock shall be used to secure the grate to the frame. The grate lock shall conform to the manufacturer's requirements for materials and installation.

(3) Geotextile Fabric Bag. The sediment bag shall be constructed of an inner filter bag and an outer reinforcement bag.

a. Inner Filter Bag. The inner filter bag shall be constructed of a polypropylene geotextile fabric with a minimum silt and debris capacity of 0.06 cu m (2.0 cu ft). The bag shall conform to the following requirements:

Inner Filter Bag		
Material Property	Test Method	Minimum Avg. Roll Value
Grab Tensile Strength	ASTM D 4632	45 kg (100 lb)
Grab Tensile Elongation	ASTM D 4632	50%
Puncture Strength	ASTM D 4833	29 kg (65 lb)
Trapezoidal Tear	ASTM D 4533	20 kg (45 lb)
UV Resistance	ASTM D 4355	70% at 500 hours
Actual Open Size	ASTM D 1420	212 μm (No. 70 sieve US)
Permittivity	ASTM D 4491	2.0/sec
Water Flow Rate	ASTM D 4491	5900 Lpm/sq m (145 gpm/sq ft)

b. Outer Reinforcement Bag. The outer reinforcement bag shall be constructed of polyester mesh material that conforms to the following requirements:

Outer Reinforcement Bag		
Material Property	Test Method	Value
Content	ASTM D 629	Polyester
Weight	ASTM D 3776	155 g/sq m (4.55 oz/sq yd) ±15%
Whales (holes)	ASTM D 3887	7.5 ± 2 holes/25 mm (1 in.)
Chorses (holes)	ASTM D 3887	15.5 ± 2holes/25 mm (1 in.)
Instronball Burst	ASTM D 3887	830 kPa (120 psi) min.
Thickness	ASTM D 1777	1.0 ± 0.1 mm (0.040 ± 0.005 in.)

(4) Certification. The manufacturer shall furnish a certification with each shipment of inlet filters, stating the amount of product furnished, and that the material complies with these requirements."

MINIMUM LANE WIDTH WITH LANE CLOSURE (BDE)
Effective: January 1, 2005

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

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

PARTIAL PAYMENTS (BDE)
Effective: September 1, 2003

Revise Article 109.07 of the Standard Specifications to read:

"**109.07 Partial Payments.** Partial payments will be made as follows:

(a) Progress Payments. At least once each month, the Engineer will make a written estimate of the amount of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than $1000.00 will be approved for payment other than the final payment.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved. Furthermore, progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c).

(b) Material Allowances. At the discretion of the Department, payment may be made for materials, prior to their use in the work, when satisfactory evidence is presented by the Contractor. Satisfactory evidence includes justification for the allowance (to expedite the work, meet project schedules, regional or national material shortages, etc.), documentation of material and transportation costs, and evidence that such material is properly stored on the project or at a secure location acceptable and accessible to the Department.

Material allowances will be considered only for nonperishable materials when the cost, including transportation, exceeds $10,000 and such materials are not expected to be utilized within 60 days of the request for the allowance. For contracts valued under $500,000, the minimum $10,000 requirement may be met by combining the principal (material) product of no more than two contract items. An exception to this two item limitation may be considered for any contract regardless of value for items in which material (products) are similar except for type and/or size.

Material allowances shall not exceed the value of the contract items in which used and shall not include the cost of installation or related markups. Amounts paid by the Department for material allowances will be deducted from estimates due the Contractor as the material is used. Two-sided copies of the Contractor's cancelled checks for materials and transportation must be furnished to the Department within 60 days of payment of the allowances or the amounts will be reclaimed by the Department."

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000 Revised: September 1, 2003

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts no later than 30 days from the receipt of each payment made to the Contractor.

State law addresses the timing of payments to be made to subcontractors. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, generally requires that when a Contractor receives any payment from the Department, the Contractor is required to make corresponding, proportional payments to each subcontractor performing work within 15 calendar days after receipt of the state payment. Section 7 of the State Prompt Payment Act further provides that interest in the amount of 2% per month, in addition to the payment due, shall be paid to any subcontractor by the Contractor if the payment required by the Act is withheld or delayed without reasonable

cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

As progress payments are made to the Contractor in accordance with Article 109.07 of the Standard Specifications for Road and Bridge Construction, the Contractor shall make a corresponding partial payment within 15 calendar days to each subcontractor in proportion to the work satisfactorily completed by each subcontractor. The proportionate amount of partial payment due to each subcontractor shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors shall be paid in full within 15 calendar days after the subcontractor's work has been satisfactorily completed. The Contractor shall hold no retainage from the subcontractors.

This Special Provision does not create any rights in favor of any subcontractor against the State of Illinois or authorize any cause of action against the State of Illinois on account of any payment, nonpayment, delayed payment or interest claimed by application of the State Prompt Payment Act. The Department will neither determine the reasonableness of any cause for delay of payment nor enforce any claim to payment, including interest. Moreover, the Department will not approve any delay or postponement of the 15 day requirement. State law creates remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor’s payment bond in accordance with the Public Construction Bond Act, 30 ILCS 550.

PERSONAL PROTECTIVE EQUIPMENT (BDE)
Effective: July 1, 2004

All personnel, excluding flaggers, working outside of a vehicle (car or truck) within 7.6 m (25 ft) of pavement open to traffic shall wear a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/.green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments. Other types of garments may be substituted for the vest as long as the garments have manufacturers tags identifying them as meeting the ANSI Class 2 requirement.

PLASTIC BLOCKOUTS FOR GUARDRAIL (BDE)
Effective: November 1, 2004

Add the following to Article 630.02 of the Standard Specifications:

“(h) Plastic Blockouts (Note 1.)

Note 1. Plastic blockouts, 150 mm (6 in.) deep, may be used in lieu of 150 mm (6 in.) deep wood block-outs for steel plate beam guardrail. The plastic blockouts shall be on the Department’s approved list.”

PORTABLE CHANGEABLE MESSAGE SIGNS (BDE)
Effective: November 1, 1993 Revised: April 2, 2004

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

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

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

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

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

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

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

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

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

PORTLAND CEMENT (BDE)
Effective: January 1, 2005

Replace the first sentence of the second paragraph of Article 1001.01 of the Standard Specifications with the following:

"For portland cement according to ASTM C 150, the addition of up to 5.0 percent limestone by mass (weight) to the cement will not be permitted. Also, the total of all organic processing additions shall not exceed 1.0 percent by mass (weight) of the cement and the total of all inorganic processing additions shall not exceed 4.0 percent by mass (weight) of the cement."

PORTLAND CEMENT CONCRETE (BDE)
Effective: November 1, 2002

Add the following paragraph after the fourth paragraph of Article 1103.01(b) of the Standard Specifications:

"The truck mixer shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Add the following paragraph after the first paragraph of Article 1103.01(c) of the Standard Specifications:

"The truck agitator shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Add the following paragraph after the first paragraph of Article 1103.01(d) of the Standard Specifications:

"The nonagitator truck shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Revise the first sentence of the first paragraph of Article 1103.02 of the Standard Specifications to read:

"The plant shall be approved before production begins according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

PORTLAND CEMENT CONCRETE PATCHING (BDE)
Effective: January 1, 2001 Revised: January 1, 2004

Revise Note 1 of Article 442.02 of the Standard Specifications, to read:

"Note 1. When patching ramp pavements and two lane pavements with two way traffic, Class PP-2, PP-3, or PP-4 concrete shall be used for Class A, Class B and Class C patching. For all other pavements, Class PP-1, PP-2, PP-3, or PP-4 concrete shall be used, at the Contractor's option, for Class A, Class B and Class C patching."

Delete Note 2 of Article 442.02 of the Standard Specifications.

Add the following to Article 442.02 of the Standard Specifications:

"(l) Calcium Chloride (Note 5) 1013.01

Note 5. The calcium chloride accelerator, when permitted by the Department, shall be Type L (Liquid) with a minimum of 32.0 percent by mass (weight) of calcium chloride."

Revise the first paragraph of Article 442.06(e) of the Standard Specifications to read:

"(e) Concrete Placement. For Class A, Class B and Class C Patches, concrete shall be placed according to Article 420.07 and governed by the limitations set forth in Article 1020.14, except that the maximum temperature of the mixed concrete immediately before placing shall be 35 °C (96 °F), the required use of an approved retarding admixture when the plastic concrete reaches 30 °C (85 °F) shall not apply."

Revise the first paragraph of Article 442.06(h) of the Standard Specifications to read:

"(h) Curing and Protection. In addition to Article 1020.13, when the air temperature is less than 13 °C (55 °F), the Contractor shall cover the patch with minimum R12 insulation until opening strength is reached. Insulation is optional when the air temperature is 13 °C - 35 °C (55 °F - 96 °F). Insulation shall not be placed when the air temperature is greater than 35 °C (96 °F)."

Revise the second paragraph of Article 701.05(e)(1)d.1. of the Standard Specifications to read:

"No open holes, broken pavement, or partially filled holes shall remain overnight for bituminous patching or when the Department specifies only Class PP-2, PP-3, or PP-4 concrete be used. The only exception is conditions beyond the control of the Contractor."

Revise Article 701.05(e)(2)b. of the Standard Specifications to read:

"b. Strength Tests. For patches constructed with Class PP-1, PP-2, PP-3, or PP-4 concrete, the pavement may be opened to traffic when test specimens cured with the patches have obtained a minimum flexural strength of 4150 kPa (600 psi) or a minimum compressive strength of 22,100 kPa (3200 psi) according to Article 1020.09.

For patches constructed with Class PP-2, PP-3, or PP-4 concrete which can obtain a minimum flexural strength of 4150 kPa (600 psi) or a minimum of compressive strength of 22,100 kPa (3200 psi) in 16 hours, the pavement may be opened to traffic at a lower opening strength. The specimens cured with the patches shall have obtained a minimum flexural strength of 2050 kPa (300 psi) or a minimum compressive strength of 11,000 kPa (1600 psi) according to Article 1020.09, to permit opening pavement to traffic.

With the approval of the Engineer, concrete strength may be determined according to AASHTO T 276. The strength-maturity relationship shall be developed from concrete which has an air content near the upper specification limit. The strength-maturity relationship shall be re-established if the mix design or materials are changed."

Revise Article 701.05(e)(2)c. of the Standard Specifications to read:

"c. Construction Operations. For Class PP-2, PP-3, or PP-4 concrete used on ramp pavements and two lane pavements with two way traffic, or when the Department specifies only Class PP-2, PP-3, or PP-4 concrete be used for other pavements, Contractor construction operations shall be performed in a manner which allows the patches to be opened the same day and before nightfall. If patches are not opened before nightfall, the additional traffic control shall be at the Contractor's expense. Any time patches cannot be opened before nightfall, the Contractor shall change subsequent construction operations or the mix design. The changes shall be at no additional cost to the Department."

Revise Table 1 of Article 1020.04 of the Standard Specifications by replacing Class PP concrete with the following:

"TABLE 1. CLASSES OF PORTLAND CEMENT CONCRETE AND MIX DESIGN CRITERIA

Class of Concrete	Use	Specification Section Reference	Cement Factor kg/cu m (cwt/cu yd)	Max. Water/Cement Ratio kg/kg (lb/lb)
PP-1	PCC Pavement Patching Bridge Deck Patching	442	Type I Cement 385 to 445 (6.50 to 7.50) Type III Cement 365 to 425 (6.20 to 7.20)	0.44
PP-2	PCC Pavement Patching Bridge Deck Patching	442	Type I Cement 435 (7.35)	0.38
PP-3	PCC Pavement Patching Bridge Deck Patching	442	Type III Cement 435 (7.35)	0.35
PP-4	PCC Pavement Patching Bridge Deck Patching	442	Rapid Hardening Cement 355 to 370 (6.00 to 6.25)	0.50

For PP-1, the Contractor has the option to replace the Type I Cement with Class C fly ash or ground granulated blast-furnace slag. The amount of cement replaced shall not exceed 15 percent by mass (weight), at a minimum replacement ratio of 1.5:1.

For PP-2, the Contractor has the option to replace the Type I cement with ground granulated blast-furnace slag. The amount of cement replaced shall not exceed 30 percent by mass (weight), at a minimum replacement ratio of 1:1.

For PP-3, in addition to the cement, 60 kg/cu m (100 lb/cu yd) of ground granulated blast-furnace slag and 30 kg/cu m (50 lb/cu yd) of microsilica are required. For an air temperature greater than 30 °C (85 °F), the Contractor has the option to replace the Type III cement with Type I cement.

For PP-4, the cement shall be from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs".

TABLE 1. (CONT'D) CLASSES OF PORTLAND CEMENT CONCRETE AND MIX DESIGN CRITERIA					
Class of Concrete	Slump, mm (in.)	Mix Design Compressive Strength, kPa (psi)	Mix Design Flexural Strength, kPa (psi)	Air Content, %	Coarse Aggregate Gradations Permitted
		Hours	Hours		
		48	48		
PP – 1	100 (4) Max	22,100 (3200)	4150 (600)	4.0 – 7.0	CA-7, CA-11, CA-13, CA14, or CA-16
PP – 2	150 (6) Max	22,100 (3200)	4150 (600)	4.0 – 6.0	CA-7, CA-11, CA-13, CA14, or CA-16
PP – 3	100 (4) Max	22,100 (3200)	4150 (600)	4.0 – 6.0	CA-7, CA-11, CA-13, CA14, or CA-16
PP – 4	150 (6) Max	22,100 (3200)	4150 (600)	4.0 – 6.0	CA-7, CA-11, CA-13, CA14, or CA-16

For PP-1, PP-2, PP-3 or PP-4; only CA-13, CA-14, or CA-16 may be used for bridge deck patching. In addition, the mix design strength at 48 hours shall be increased to 27,500 kPa (4,000 psi) compressive or 4,650 kPa (675 psi) flexural for bridge deck patching.

For PP-1, the slump may be increased to 150 mm (6 in.) Max if a high range water-reducing admixture is used."

Delete Article 1020.05(g) of the Standard Specifications.

PRECAST CONCRETE PRODUCTS (BDE)

Effective: July 1, 1999 Revised: November 1, 2004

Product Approval. Precast concrete products shall be produced according to the Department's current Policy Memorandum, "Quality Control/Quality Assurance Program for Precast Concrete Products". The Policy Memorandum applies to precast concrete products listed under the Products Key of the "Approved List of Certified Precast Concrete Producers".

Precast Concrete Box Culverts. Add the following sentence to the end of the fourth paragraph of Article 540.06:

"After installation, the interior and exterior joint gap between precast concrete box culvert sections shall not exceed 38 mm (1 1/2 in.)."

Portland Cement Replacement. For precast concrete products using Class PC concrete or other mixtures, portland cement replacement with fly ash or ground granulated blast-furnace (GGBF) slag shall be governed by the AASHTO or ASTM standard specification referenced in the Standard Specifications.

For all other precast concrete products using Class PC concrete or other mixtures, portland cement replacement with fly ash or GGBF slag shall be approved by the Engineer. Class F fly ash shall not exceed 15 percent by mass (weight) of the total portland cement and Class F fly ash. Class C fly ash shall not exceed 20 percent by mass (weight) of the total portland cement

and Class C fly ash. GGBF slag shall not exceed 25 percent by mass (weight) of the total portland cement and GGBF slag.

Concrete mix designs, for precast concrete products, shall not consist of portland cement, fly ash and GGBF slag.

Ready-Mixed Concrete. Delete the last paragraph of Article 1020.11(a) of the Standard Specifications.

Shipping. When a precast concrete product has attained the specified strength, the earliest the product may be loaded, shipped, and used is on the fifth calendar day. The first calendar day shall be the date casting was completed.

Acceptance. Products which have been lot or piece inspected and approved by the Department prior to July 1, 1999, will be accepted for use on this contract.

PRECAST, PRESTRESSED CONCRETE MEMBERS (BDE)
Effective: April 1, 2004

Revise the tables, "Maximum Allowable Dimensional Tolerances for Precast, Prestressed I-beams and Bulb T-beams" in Article 504.06(d) of the Standard Specifications to read:

"Maximum Allowable Dimensional Tolerances for Precast, Prestressed Concrete I-Beams and Bulb T-Beams

	mm
Depth (flanges, web and fillets)	± 5
Depth (overall)	+ 5 to - 3
Width (flanges and fillets)	± 5
Width (web)	+ 5 to - 3
Length	± 3 per 3 m, max. + 15 to - 20
Square Ends (deviation from square)	± 5
Skew Ends (deviation from tangent offset)	± 5
Side Insert (spacing between centers of inserts and from the centers of inserts to the ends of the beams)	± 15
Bearing Plates (spacing between the centers of bearing plates)	±15
Bearing Plate (spacing between the centers of bearing plates to the ends of the beams)	± 5
Bearing Plate or Bearing Area (variation from a true horizontal plane or from a plane surface when tested with a straightedge)	± 2
Stirrup Bars (extension above top of the beam)	0 to - 10
Stirrup Bars longitudinal spacing	
Within a distance equal to the depth of the member and measured from the end of the member	+ 25
In all other locations	+ 50
The number of stirrups shall not be less than the required number in each length. Additional stirrups may be added when the maximum allowable tolerance is exceeded provided the minimum clearance between stirrups is not less than 50 mm.	
End Stirrup Bars - not more than 50 mm from the end of the beam	
Horizontal Alignment (deviation from a straight line parallel to the centerline of the beam)	± 3 per 3 m, max. ± 30

Maximum Allowable Dimensional Tolerances For Precast, Prestressed Concrete I-Beams and Bulb T-Beams (English)	in.
Depth (flanges, web and fillets)	± 1/4
Depth (overall)	+ 1/4 to - 1/8
Width (flanges and fillets)	± 1/4
Width (web)	+ 1/4 to - 1/8
Length	± 1/8 per 10', max. + 1/2 to - 3/4
Square Ends (deviation from square)	± 1/4
Skew Ends (deviation from tangent offset)	± 1/4
Side Insert (spacing between centers of inserts and from the centers of inserts to the ends of the beams)	± 1/2
Bearing Plates (spacing between the centers of bearing plates)	± 1/2
Bearing Plate (spacing between the centers of bearing plates to the ends of the beams)	± 1/4
Bearing Plate or Bearing Area (variation from a true horizontal plane or from a plane surface when tested with a straightedge)	± 1/16
Stirrup Bars (extension above top of the beam)	0 to - 3/8
Stirrup Bars longitudinal spacing	
Within a distance equal to the depth of the member and measured from the end of the member	+ 1
In all other locations	+ 2
The number of stirrups shall not be less than the required number in each length. Additional stirrups may be added when the maximum allowable tolerance is exceeded provided the minimum clearance between stirrups is not less than 2 in.	
End Stirrup Bars - not more than 2" from the end of the beam	
Horizontal Alignment (deviation from a straight line parallel to the centerline of the beam)	± 1/8 per 10 ft, max. ± 1 1/4"

PREFORMED RECYCLED RUBBER JOINT FILLER (BDE)
Effective: November 1, 2002

Revise Article 503.02(c) of the Standard Specifications to read:

"(c) Preformed Expansion Joint Filler ..... 1051"

Revise Article 637.02(d) of the Standard Specifications to read:

"(d) Preformed Expansion Joint Filler ..... 1051"

Add the following Article to Section 1051 of the Standard Specifications:

"1051.10 Preformed Recycled Rubber Joint Filler. Preformed recycled rubber joint filler shall consist of ground tire rubber, free of steel and fabric, combined with ground scrap or waste polyethylene. It shall not have a strong hydrocarbon or rancid odor and shall meet the physical property requirements of ASTM D 1752. Water absorption by volume shall not exceed 5.0 percent."

RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)

The contractor will be required to carry Railroad Protective Liability and Property Damage Liability Insurance in accordance with Article 107.11 of the Standard Specifications. The limits of liability shall be in accordance with Article 107.11 of the Standard Specifications unless otherwise noted. A separate policy is required for each railroad indicated below unless otherwise noted.

NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
Chicago Transit Authority 120 N. Racine Chicago, IL 60607	M-F 382 trains/day Sat 338 trains/day @55 mph Sun 356 trains/day	0

FOR FREIGHT/PASSENGER INFORMATION CONTACT: Syed M. Hussaini

PHONE: (312) 664-7200 – Ext. 13862

FOR INSURANCE INFORMATION CONTACT: Jeff Layhe

PHONE: (312) 664-7200 – Ext. 12214

Basis of Payment: The costs for providing insurance, as noted above, will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

APPROVAL OF INSURANCE: The ORIGINAL and one CERTIFIED copy of each required policy shall be submitted to ENGINEER OF DESIGN, ILLINOIS DEPARTMENT OF TRANSPORTATION, 2300 SOUTH DIRKSEN PARKWAY, SPRINGFIELD, ILLINOIS 62764 for approval. 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 Resident Engineer evidence that the required railroad protective liability insurance has been approved by the railroad(s). The Contractor shall also provide the Resident Engineer with expiration date of each required policy.

RAP FOR USE IN BITUMINOUS CONCRETE MIXTURES (BDE)
Effective: January 1, 2000 Revised: April 1, 2002

Revise Article 1004.07 to read:

"**1004.07 RAP Materials.** RAP is reclaimed asphalt pavement resulting from cold milling or crushing of an existing dense graded hot-mix asphalt pavement. RAP must originate from routes or airfields under federal, state or local agency jurisdiction. The Contractor shall supply documentation that the RAP meets these requirements.

(a) Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP will be allowed on top of the pile after the pile has been sealed.

(1) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I/ Superpave, or equivalent mixtures only and represent the same aggregate quality, but shall be at least C quality or better, the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag), similar gradation and similar AC content. If approved by the Engineer, combined single pass surface/binder millings may be considered "homogenous", with a quality rating dictated by the lowest coarse aggregate quality present in the mixture. Homogenous stockpiles shall meet the requirements of Article 1004.07(d). Homogeneous RAP stockpiles not meeting these requirements may be processed (crushing and screening) and retested.

(2) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I/ Superpave, or equivalent mixtures only. The coarse aggregate in this RAP shall be crushed aggregate only and may represent more than one aggregate type and/or quality but shall be at least C quality or better. This RAP may have an inconsistent gradation and/or asphalt cement content prior to processing. All conglomerate RAP shall be processed prior to testing by crushing to where all RAP shall pass the 16 mm (5/8 in.) or smaller screen. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate RAP stockpiles shall meet the requirements of Article 1004.07(d).

(3) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP containing coarse aggregate (crushed or round) that is at least D quality or better. This RAP may have an inconsistent gradation and/or asphalt content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department. Conglomerate DQ RAP shall meet the requirements of Article 1004.07(d).

Reclaimed Superpave Low ESAL IL-9.5L surface mixtures shall only be placed in conglomerate DQ RAP stockpiles due to the potential for rounded aggregate.

(4) Other. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Other". "Other" RAP stockpiles shall not be used in any of the Department's bituminous mixtures.

(b) Use. The allowable use of a RAP stockpile shall be set by the lowest quality of coarse aggregate in the RAP stockpile. Class I/Superpave surface mixtures are designated as containing Class B quality coarse aggregate only. Superpave Low ESAL IL-19.0L binder and IL-9.5L surface mixtures are designated as Class C quality coarse aggregate only. Class I/Superpave binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate only. Bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate only. Any mixture not listed above shall have the designated quality determined by the Department.

RAP containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in Class I/Superpave (including Low ESAL) surface mixtures only. RAP stockpiles for use in Class I/Superpave mixtures (including Low ESAL), base course, base course widening and Class B mixtures shall be either homogeneous or conglomerate RAP stockpiles except conglomerate RAP stockpiles shall not be used in Superpave surface mixture Ndesign

50 or greater. RAP for use in bituminous aggregate mixtures (BAM) shoulders and BAM stabilized subbase shall be from homogeneous, conglomerate, or conglomerate DQ stockpiles.

Additionally, RAP used in Class I/Superpave surface mixtures shall originate from milled or crushed mixtures only, in which the coarse aggregate is of Class B quality or better. RAP stockpiles for use in Class I/Superpave (including Low ESAL) binder mixes as well as base course, base course widening and Class B mixtures shall originate from milled or processed surface mixture, binder mixture, or a combination of both mixtures uniformly blended to the satisfaction of the Engineer, in which the coarse aggregate is of Class C quality or better.

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

(d) Testing. All RAP shall be sampled and tested either during or after stockpiling.

For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 450 metric tons (500 tons) for the first 1800 metric tons (2,000 tons) and one sample per 1800 metric tons (2,000 tons) thereafter. A minimum of five tests shall be required for stockpiles less than 3600 metric tons (4,000 tons).

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

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

All of the extraction results shall be compiled and averaged for asphalt content and gradation. Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	Homogeneous / Conglomerate	Conglomerate “D” Quality
25 mm (1 in.)		± 5%
12.5 mm (1/2 in.)	± 8%	± 15%
4.75 mm (No. 4)	± 6%	± 13%
2.36 mm (No. 8)	± 5%	
1.18 mm (No. 16)		± 15%
600 μm (No. 30)	± 5%	
75 μm (No. 200)	± 2.0%	± 4.0%
AC	± 0.4%	± 0.5%

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

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

(e) Designs. At the Contractor's option, bituminous concrete mixtures may be constructed utilizing RAP material meeting the above detailed requirements. The amount of RAP included in the mixture shall not exceed the percentages specified in the plans.

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

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

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

If the RAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAP and either switch to the virgin aggregate design or submit a new RAP design.

SEEDING AND SODDING (BDE)

Effective: July 1, 2004 Revised: November 1, 2004

Revise Class 1A and 2A seeding mixtures shown in Table 1 of Article 250.07 of the Standard Specifications to read:

"Table 1 - SEEDING MIXTURES			
Class – Type		Seeds	kg/hectare (lb/acre)
1A	Salt Tolerant Lawn Mixture 7/	Bluegrass Perennial Ryegrass Audubon Red Fescue Rescue 911 Hard Fescue Fults Salt Grass*	70 (60) 20 (20) 20 (20) 20 (20) 70 (60)
2A	Salt Tolerant Roadside Mixture 7/	Alta Fescue or Ky 31 Perennial Ryegrass Audubon Red Fescue Rescue 911 Hard Fescue Fults Salt Grass 1/	70 (60) 20 (20) 20 (30) 20 (30) 70 (60)"

Revise Note 7 of Article 250.07 of the Standard Specifications to read:

"Note 7. In Districts 1 through 6, the planting times shall be April 1 to June 15 and August 1 to November 1. In Districts 7 through 9, the planting times shall be March 1 to June 1 and August 1 to November 15. Seeding may be performed outside these dates provided the Contractor guarantees a minimum of 75 percent coverage over the entire seeded area(s) after one growing season. The guarantee shall be submitted to the Engineer in writing prior to performing the work. After one growing season, areas not sustaining 75 percent growth shall be interseeded or reseeded, as determined by the Engineer, at the Contractor's expense."

Add the following sentence to Article 252.04 of the Standard Specifications:

"Sod shall not be placed during the months of July and August."

Revise the first paragraph of Article 252.08 of the Standard Specifications to read:

"**252.08 Sod Watering.** Within two hours after the sod has been placed, water shall be applied at a rate of 25 L/sq m (5 gal/sq yd). Additional water shall be applied every other day at a rate of 15 L/sq m (3 gal/sq yd) for a total of 15 additional waterings. During periods exceeding 26 ºC (80 ºF) or subnormal rainfall, the schedule of additional waterings may be altered with the approval of the Engineer."

Revise Article 252.09 of the Standard Specifications to read:

"**252.09 Supplemental Watering.** During periods exceeding 26 ºC (80 ºF) or subnormal rainfall, supplemental watering may be required after the initial and additional waterings. Supplemental watering shall be performed when directed by the Engineer. Water shall be applied at the rate specified by the Engineer within 24 hours of notice."

Revise the first and third paragraphs of Article 252.12 of the Standard Specifications to read:

"**252.12 Method of Measurement**. Sodding will be measured for payment in place and the area computed in square meters (square yards). To be acceptable for final payment, the sod shall be growing in place for a minimum of 30 days in a live, healthy condition. When directed

by the Engineer, any defective or unacceptable sod shall be removed, replaced and watered by the Contractor at his/her own expense."

"Supplemental watering will be measured for payment in units of 1000 L (1000 gal) of water applied on the sodded areas. Waterings performed in addition to those required by Article 252.08 or after the 30 day establishment period will be considered as supplemental watering."

Replace the first paragraph of Article 252.13 of the Standard Specifications with the following:

"**252.13 Basis of Payment.** Sodding will be paid for at the contract unit price per square meter (square yard) for SODDING or SODDING, SALT TOLERANT according to the following schedule.

(a) Initial Payment. Upon placement of sod, 25 percent of the pay item will be paid.

(b) Final Payment. Upon acceptance of sod, the remaining 75 percent of the pay item will be paid."

Revise Article 1081.03(b) of the Standard Specifications to read:

"(b) Salt Tolerant Sod.

Variety	Percent by Weight
Buffalo Grass Buchloe Dactyloides	30%
Amigo Fineleaf Tall Fescue	20%
Audubon Red Fescue	15%
Rescue 911 Hard Fescue	15%
Rugby Kentucky Bluegrass	5%
Fults Pucinnellia Distans	15%"

Revise Table II of Article 1081.04(c)(6) of the Standard Specifications to read:

TABLE II

Variety of Seeds	Hard Seed Percent Maximum	Purity Percent Minimum	Pure, Live Seed Percent Minimum	Weed Percent Maximum	Secondary Noxious Weeds No. per kg (oz) Max. Permitted*	Remarks
Alfalfa	20	92	89	0.50	211 (6)	1/
Brome Grass	-	90	75	0.50	175 (5)	-
Clover, Alsike	15	92	87	0.30	211 (6)	2/
Clover, Crimson	15	92	83	0.50	211 (6)	-
Clover, Ladino	15	92	87	0.30	211 (6)	-
Clover, Red	20	92	87	0.30	211 (6)	-
Clover, White Dutch	30	92	87	0.30	211 (6)	3/
Audubon Red Fescue	0	97	82	0.10	105 (3)	-
Fescue, Alta or Ky. 31	-	97	82	1.00	105 (3)	-
Fescue, Creeping Red	-	97	82	1.00	105 (3)	-
Fults Salt Grass	0	98	85	0.10	70 (2)	-
Kentucky Bluegrass	-	97	80	0.30	247 (7)	5/
Lespedeza, Korean	20	92	84	0.50	211 (6)	3/
Oats	-	92	88	0.50	70 (2)	4/
Orchard Grass	-	90	78	1.50	175 (5)	4/
Redtop	-	90	78	1.80	175 (5)	4/
Ryegrass, Perennial, Annual	-	97	85	0.30	175 (5)	4/
Rye, Grain, Winter	-	92	83	0.50	70 (2)	4/
Rescue 911 Hard Fescue	0	97	82	0.10	105 (3)	-
Timothy	-	92	84	0.50	175 (5)	4/
Vetch, Crown	30	92	67	1.00	211 (6)	3/ & 6/
Vetch, Spring	30	92	88	1.00	70 (2)	4/
Vetch, Winter	15	92	83	1.00	105 (3)	4/
Wheat, hard Red Winter	-	92	89	0.50	70 (2)	4/

SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)
Effective: July 1, 2004

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for precast concrete products. The design and testing of a self-consolidating concrete mixture shall be according to Section 1020 of the Standard Specifications except as modified herein.

Materials. Materials shall conform to the following requirements:

(a) Self-Consolidating Admixtures. The self-consolidating admixture system shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a flowable concrete that does not require mechanical vibration.

The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F.

The viscosity modifying admixture will be evaluated according to the test methods and mix design proportions referenced in AASHTO M 194, except the following physical requirements shall be met:

(1) For initial and final set times, the allowable deviation of the test concrete from the reference concrete shall not be more than 1.0 hour earlier or 1.5 hours later.

(2) For compressive and flexural strengths, the test concrete shall be a minimum of 90 percent of the reference concrete at 3, 7 and 28 days.

(3) The length change of the test concrete shall be a maximum 135 percent of the reference concrete. However, if the length change of the reference concrete is less than 0.030 percent, the length change of the test concrete shall be a maximum 0.010 percentage units greater than the reference concrete.

(4) The relative durability factor of the test concrete shall be a minimum 80 percent.

(b) Fine Aggregate. A fine aggregate used alone in the mix design shall not have an expansion greater than 0.30 percent per ASTM C 1260. For a blend of two or more fine aggregates, the resulting blend shall not have an expansion greater than 0.30 percent.

The aggregate blend expansion will be calculated as follows:

Aggregate Blend Expansion = (a/100 x A) + (b/100 x B) + (c/100 x C) + ……etc.

Where: a, b, c, … = percent of aggregate blend
A, B, C, … = aggregate expansion according to ASTM C 1260

Mix Design Criteria. The slump requirements of Article 1020.04 of the Standard Specifications shall not apply. In addition, the allowable coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. The fine aggregate proportion shall be a maximum 50 percent by mass (weight) of the total aggregate used.

Trail Batch. A minimum 1 cu m (1 cu yd) trial batch shall be produced. The mixture will be evaluated for air content, slump flow, visual stability index, compressive strength, passing ability, and static/dynamic segregation resistance.

The trial batch shall be scheduled and performed in the presence of the Engineer. Testing shall be performed per the Department's test method or as approved by the Engineer.

For the trial batch, the air content shall be within the top half of the allowable specification range. The slump flow range shall be 510 mm (20 in.) minimum to 710 mm (28 in.) maximum. The visual stability index shall be a maximum of 1. Strength shall be determined at 28 days. At the Contractor's option, strength may be determined for additional days.

Passing ability and static/dynamic segregation resistance shall be determined by tests selected by the Contractor and approved by the Engineer. The visual stability index shall not be used as the sole criteria for evaluating static segregation resistance.

After an acceptable mixture has been batched and tested, the mixture shall also be evaluated for robustness. Robustness shall be evaluated by varying the dosage of the self-consolidating admixture system and water separately. Additional trial batches may be necessary to accomplish this.

When necessary, the trial batches shall be disposed of according to Article 202.03 of the Standard Specifications.

Quality Control. Once testing is completed and acceptable results have been attained, production test frequencies and allowable test ranges for slump flow, visual stability index, passing ability, and static/dynamic segregation resistance shall be proposed. The production test frequencies and allowable test ranges will be approved by the Engineer.

The slump flow range shall be ± 50 mm (± 2 in.) of the target value, and within the overall range of 510 mm (20 in.) minimum to 710 mm (28 in.) maximum. The visual stability index shall be a maximum of 1. The approved test ranges for passing ability and static/dynamic segregation resistance will be based on recommended guidelines determined by the Engineer.

STABILIZED SUBBASE AND BITUMINOUS SHOULDERS SUPERPAVE (BDE)
Effective: April 1, 2002 Revised: July 1, 2004

Description. This work shall consist of constructing stabilized subbase and bituminous shoulders Superpave according to Sections 312 and 482 respectively, of the Standard Specifications and the special provision, “Quality Control/Quality Assurance of Bituminous Concrete Mixtures” except as modified herein.

Revise Article 312.03(b) of the Standard Specifications to read:

“(b) RAP Material (Note 3)”

Revise Note 2 of Article 312.03 of the Standard Specifications to read:

“Note 2. Gradation CA 6, CA 10, or CA 12 shall be used.”

Revise Note 3 of Article 312.03 of the Standard Specifications to read:

"Note 3. RAP shall meet the requirements of the special provision "RAP for Use in Bituminous Concrete Mixtures". RAP containing steel slag shall be permitted for use in top-lift surface mixtures only."

Revise Note 4 of Article 312.03 of the Standard Specifications to read:

"Note 4. Unless otherwise specified on the plans, the bituminous material shall be performance graded asphalt cement, PG58-22. When more than 15 percent RAP is used, a softer PG binder may be required as determined by the Engineer."

Revise Article 312.06 of the Standard Specifications to read:

"**312.06 Mixture Design.** The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have completed the course, “Superpave Mix Design Upgrade”. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below:

AASHTO MP 2 Standard Specification for Superpave Volumetric Mix Design

AASHTO R 30 Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)

AASHTO PP 28 Standard Practice for Designing Superpave HMA

AASHTO T 209 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures

AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor

AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

(a) Job Mix Formula (JMF). The JMF shall be according to the following limits:

Ingredient	Percent by Dry Weight
Aggregate	94.0 to 96.0
Asphalt Cement	4.0 to 6.0*
Dust/AC Ratio	1.4

*Upper limit may be raised for the lower or top lifts if the Contractor elects to use a highly absorptive coarse and/or fine aggregate requiring more than six percent asphalt. The additional asphalt shall be furnished at no cost to the Department.

When RAP material is being used, the JMF shall be according to the following limits:

Ingredient	Percent by Dry Weight
Virgin Aggregate(s)	46.0 to 96.0
RAP Material(s) (Note 1)	0 to 50
Mineral Filler (if required)	0 to 5.0
Asphalt Cement	4.0 to 7.0
Dust/AC Ratio	1.4

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

(b) Volumetric Requirements.

Design Compactive Effort	Design Air Voids Target (%)
N_{DES} =30	2.0

(c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be

selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 312.08 of the Standard Specifications to read:

"**312.08 Mixture Production.** When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 35 seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

(a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department’s "Superpave Field Control Course”.

(b) Required Tests. Testing for stabilized subbase and bituminous shoulders shall be conducted to control the production of the bituminous mixture using the test methods identified and performed at a frequency not less than indicated in the following table.

Parameter	Frequency of Tests Non-Class I Mixtures	Test Method
Aggregate Gradation Hot bins for batch and continuous plants. Individual cold-feeds or combined belt-feed for drier-drum plants. (% passing seives: 12.5 mm (1/2 In.), 4.75 mm (No. 4), 75 µm (No. 200))	1 gradation per day of production. The first day of production shall be washed ignition oven test on the mix. Thereafter, the testing shall alternate between dry gradation and washed ignition oven test on the mix. The dry gradation and the washed ignition oven test results shall be plotted on the same control chart.	Illinois Procedure (See Manual of Test Procedures for Materials).
Asphalt Content by ignition oven (Note 1.)	1 per day	Illinois-Modified AASHTO T 308
Air Voids Bulk Specific Gravity of Gyratory Sample Maximum Specific Gravity of Mixture	 1 per day 1 per day	 Illinois-Modified AASHTO T 312 Illinois-Modified AASHTO T 209

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

(c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures except air voids shall be plotted on the control charts within the following control limits:

Air Void Control Limits	
Mixture	Individual Test
Shoulders	± 1.2 %
Others	± 1.2 %”

Replace the first paragraph of Article 312.10 of the Standard Specifications with the following:

"**312.10 Placing and Compacting.** After the subgrade has been compacted and is acceptable to the Engineer, the bituminous aggregate mixture shall be spread upon it with a mechanical spreader. The maximum compacted thickness of each lift shall be 150 mm (6 in.) provided the required density is obtained. The minimum compacted thickness of each lift shall be according to the following table:

Nominal Maximum Aggregate Size of Mixture	Minimum Compacted Lift Thickness
CA 12 – 12.5 mm (1/2 in.)	38 mm (1 1/2 in.)
CA 10 - 19 mm (3/4 in.)	57 mm (2 1/4 in.)
CA 6 – 25 mm (1 in.)	76 mm (3 in.)

The surface of each lift shall be clean and dry before succeeding lifts are placed."

Revise Article 482.02 of the Standard Specifications to read:

"**482.02 Materials.** Materials shall meet the requirements of Article 312.03. For the top lift, the aggregate used shall meet the gradation requirements for a CA 10 or CA 12. Blending of aggregates to meet these gradation requirements will be permitted."

Revise the first paragraph of Article 482.04 of the Standard Specifications to read:

"**482.04 General.** For pavement and shoulder resurfacing projects, Superpave binder and surface course mixtures may be used in lieu of bituminous aggregate mixture for the resurfacing of shoulders, at the option of the Contractor, or shall be used when specified on the plans."

Revise Article 482.04(c) of the Standard Specifications to read:

"(c) Mixture Production .....312.08"

Revise Article 482.05 of the Standard Specifications to read:

"**482.05 Composition of Bituminous Aggregate Mixture.** The composition of the mixture shall be according to Article 312.06, except that the amount of asphalt cement used in the top lift shall be increased up to 0.5 percent more than that required in the lower lifts. For resurfacing projects when the Superpave binder and surface course mixtures option is used, the asphalt cement used in the top lift shall not be increased. Superpave mixtures used on the top lift of such shoulders shall meet the gradation requirements of the special provision "Superpave Bituminous Concrete Mixtures".

For shoulder and strip construction, the composition of the Superpave binder and surface course shall be the same as that specified for the mainline pavement."

In the following locations of Section 482 of the Standard Specifications, change "Class I" to "Superpave":

the second paragraph of Article 482.04
the first sentence of the second paragraph of Article 482.06
the first sentence of the fourth paragraph of Article 482.06

the second sentence of the fourth paragraph of Article 482.06
the first sentence of the third paragraph of Article 482.08(b)

Revise the first paragraph of Article 482.06 of the Standard Specifications to read:

"**482.06 Placing and Compacting.** This work shall be according to Article 312.10. The mechanical spreader for the top lift of shoulders shall meet the requirements of Article 1102.03 when the shoulder width is 3 m (10 ft) or greater."

Revise Article 482.09 of the Standard Specifications to read:

"**482.09 Basis of Payment**. When bituminous shoulders are constructed along the edges of the completed pavement structure, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS SHOULDERS SUPERPAVE of the thickness specified. The specified thickness shall be the thickness shown on the plans at the edge of the pavement.

On pavement and shoulder resurfacing projects, the shoulder resurfacing will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS SHOULDERS SUPERPAVE.

The construction of shoulder strips for resurfacing pavements will be paid according to the special provision, "Superpave Bituminous Concrete Mixtures"."

SUBGRADE PREPARATION (BDE)
Effective: November 1, 2002

Revise the tenth paragraph of Article 301.03 of the Standard Specifications to read:

"Equipment of such weight, or used in such a way as to cause a rut in the finished subgrade of 13 mm (1/2 in.) or more in depth, shall be removed from the work or the rutting otherwise prevented."

SUPERPAVE BITUMINOUS CONCRETE MIXTURES (BDE)
Effective: January 1, 2000 Revised: April 1, 2004

Description. This work shall consist of designing, producing and constructing Superpave bituminous concrete mixtures using Illinois Modified Strategic Highway Research Program (SHRP) Superpave criteria. This work shall be according to Sections 406 and 407 of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as follows.

Materials.

(a) Fine Aggregate Blend Requirement. The Contractor may be required to provide FA 20 manufactured sand to meet the design requirements. For mixtures with Ndesign $\geq$ 90, at least 50 percent of the required fine aggregate fraction shall consist of either stone sand, slag sand, or steel slag sand meeting the FA/FM 20 gradation.

(b) Reclaimed Asphalt Pavement (RAP). If the Contractor is allowed to use more than 15 percent RAP, as specified in the plans, a softer performance-graded binder may be required as determined by the Engineer.

RAP shall meet the requirements of the special provision, “RAP for Use in Bituminous Concrete Mixtures”.

RAP will not be permitted in mixtures containing polymer modifiers.

RAP containing steel slag will be permitted for use in top-lift surface mixtures only.

(c) Bituminous Material. The asphalt cement (AC) shall be performance-graded (PG) or polymer modified performance-graded (SBS-PG or SBR-PG) meeting the requirements of Article 1009.05 of the Standard Specifications for the grade specified on the plans.

The following additional guidelines shall be used if a polymer modified asphalt is specified:

(1) The polymer modified asphalt cement shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. Polymer modified asphalt cement shall be placed in an empty tank and shall not be blended with other asphalt cements.

(2) The mixture shall be designed using a mixing temperature of 163 $\pm$ 3 °C (325 $\pm$ 5 °F) and a gyratory compaction temperature of 152 $\pm$ 3 °C (305 $\pm$ 5 °F).

(3) Pneumatic-tired rollers will not be allowed unless otherwise specified by the Engineer. A vibratory roller meeting the requirements of Article 406.16 of the Standard Specifications shall be required in the absence of the pneumatic-tired roller.

Laboratory Equipment.

(a) Superpave Gyratory Compactor. The superpave gyratory compactor (SGC) shall be used for all QC/QA testing.

(b) Ignition Oven. The ignition oven shall be used to determine the AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations.

The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

Mixture Design. The Contractor shall submit mix designs, for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have successfully completed the course, “Superpave Mix Design Upgrade”. Articles 406.10 and 406.13 of the Standard Specifications shall not apply. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below.

AASHTO MP 2	Standard Specification for Superpave Volumetric Mix Design
AASHTO R 30	Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)
AASHTO PP 28	Standard Practice for Designing Superpave HMA

AASHTO T 209 Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures

AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor

AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

(a) Mixture Composition. The ingredients of the bituminous mixture shall be combined in such proportions as to produce a mixture conforming to the composition limits by weight. The gradation mixture specified on the plans shall produce a mixture falling within the limits specified in Table 1.

TABLE 1. MIXTURE COMPOSITION (% PASSING)[1/]

Sieve Size	IL-25.0 mm		IL-19.0 mm		IL-12.5 mm[4/]		IL-9.5 mm[4/]	
	min	max	min	max	Min	max	min	max
37.5 mm (1 1/2 in.)		100						
25 mm (1 in.)	90	100		100				
19 mm (3/4 in.)		90	82	100		100		
12.5 mm (1/2 in.)	45	75	50	85	90	100		100
9.5 mm (3/8 in.)						89	90	100
4.75 mm (#4)	24	42[2/]	24	50[2/]	28	65	28	65
2.36 mm (#8)	16	31	20	36	28	48[3/]	28	48[3/]
1.18 mm (#16)	10	22	10	25	10	32	10	32
600 μm (#30)								
300 μm (#50)	4	12	4	12	4	15	4	15
150 μm (#100)	3	9	3	9	3	10	3	10
75 μm (#200)	3	6	3	6	4	6	4	6

1/ Based on percent of total aggregate weight.

2/ The mixture composition shall not exceed 40 percent passing the 4.75 mm (#4) sieve for binder courses with Ndesign ≥ 90.

3/ The mixture composition shall not exceed 40 percent passing the 2.36 mm (#8) sieve for surface courses with Ndesign ≥ 90.

4/ The mixture composition for surface courses shall be according to IL-12.5 mm or IL-9.5 mm, unless otherwise specified by the Engineer.

One of the above gradations shall be used for leveling binder as specified in the plans and according to Article 406.04 of the Standard Specifications.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

(b) Dust/AC Ratio for Superpave. The ratio of material passing the 75 μm (#200) sieve to total asphalt cement shall not exceed 1.0 for mixture design (based on total weight of mixture).

(c) Volumetric Requirements. The target value for the air voids of the hot mix asphalt (HMA) shall be 4.0 percent at the design number of gyrations. The VMA and VFA of the HMA design shall be based on the nominal maximum size of the aggregate in the mix and shall conform to the requirements listed in Table 2.

TABLE 2. VOLUMETRIC REQUIREMENTS

	Voids in the Mineral Aggregate (VMA), % minimum				Voids Filled with Asphalt (VFA), %
Ndesign	**IL-25.0**	**IL-19.0**	**IL-12.5**	**IL-9.5**	
50	12.0	13.0	14.0	15	65 - 78
70					65 - 75
90					
105					

(d) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified T 283 using 4 in. Marshall bricks. To be considered acceptable by the Department as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSRs) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSRs less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Department. The method of application shall be according to Article 406.12 of the Standard Specifications.

Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".

Required Plant Tests. Testing shall be conducted to control the production of the bituminous mixture. The Contractor shall use the test methods identified to perform the following mixture tests at a frequency not less than that indicated in Table 3.

TABLE 3. REQUIRED PLANT TESTS for SUPERPAVE

Parameter		Frequency of Tests	Test Method
Aggregate Gradation Hot bins for batch and continuous plants Individual cold-feeds or combined belt-feed for drier drum plants. (% passing sieves: 12.5 mm (1/2 in.), 4.75 mm (No. 4), 2.36 mm (No. 8), 600 µm (No. 30), 75 µm (No. 200))		1 dry gradation per day of production (either morning or afternoon sample). And 1 washed ignition oven test on the mix per day of production (conduct in afternoon if dry gradation is conducted in the morning or vice versa). NOTE. The order in which the above tests are conducted shall alternate from the previous production day (example: a dry gradation conducted in the morning will be conducted in the afternoon on the next production day and so forth). The dry gradation and washed ignition oven test results shall be plotted on the same control chart.	Illinois Procedure (See Manual of Test Procedures for Materials).
Asphalt Content by Ignition Oven (Note 1.)		1 per half day of production	Illinois Modified AASHTO T 308
Air Voids	Bulk Specific Gravity of Gyratory Sample	1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)	Illinois Modified AASHTO T 312
	Maximum Specific Gravity of Mixture		Illinois Modified AASHTO T 209

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.2 and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resuming production.

During production, mixtures containing an anti-stripping additive will be tested by the Department for stripping according to Illinois Modified T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

Construction Requirements

Lift Thickness.

(a) Binder and Surface Courses. The minimum compacted lift thickness for constructing bituminous concrete binder and surface courses shall be according to Table 4:

TABLE 4 – MINIMUM COMPACTED LIFT THICKNESS	
Mixture	Thickness, mm (in.)
IL-9.5	32 (1 1/4)
IL-12.5	38 (1 1/2)
IL-19.0	57 (2 1/4)
IL-25.0	76 (3)

(b) Leveling Binder. Mixtures used for leveling binder shall be as follows:

TABLE 5 – LEVELING BINDER	
Nominal, Compacted, Leveling Binder Thickness, mm (in.)	Mixture
≤ 32 (1 1/4)	IL-9.5
32 (1 1/4) to 50 (2)	IL 9.5 or IL-12.5

Density requirements shall apply for leveling binder when the nominal, compacted thickness is 32 mm (1 1/4 in.) or greater for IL-9.5 mixtures and 38 mm (1 1/2 in.) or greater for IL-12.5 mixtures.

(c) Full-Depth Pavement. The compacted thickness of the initial lift of binder course shall be 100 mm (4 in.). The compacted thickness of succeeding lifts shall meet the minimums specified in Table 4 but not exceed 100 mm (4 in.).

If a vibratory roller is used for breakdown, the compacted thickness of the binder lifts, excluding the top lift, may be increased to 150 mm (6 in.) provided the required density is obtained.

(d) Bituminous Patching. The minimum compacted lift thickness for constructing bituminous patches shall be according to Table 4.

Control Charts/Limits. Control charts/limits shall be according to QC/QA Class I requirements, except density shall be plotted on the control charts within the following control limits:

TABLE 6. DENSITY CONTROL LIMITS		
Mixture	Parameter	Individual Test
12.5 mm / 9.5 mm	Ndesign ≥ 90	92.0 – 96.0%
12.5 mm / 9.5 mm	Ndesign < 90	92.5 – 97.4%
19.0 mm / 25.0 mm	Ndesign ≥ 90	93.0 – 96.0%
19.0 mm / 25.0 mm	Ndesign < 90	93.0 – 97.4%

Basis of Payment. On resurfacing projects, this work will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, of the friction aggregate mixture and Ndesign specified, LEVELING BINDER (HAND METHOD),

SUPERPAVE, of the Ndesign specified, LEVELING BINDER (MACHINE METHOD), SUPERPAVE, of the Ndesign specified, and BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition and Ndesign specified.

On resurfacing projects in which polymer modifiers are required, this work will be paid for at the contract unit price per metric ton (ton) for POLYMERIZED BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, of the friction aggregate mixture and Ndesign specified, POLYMERIZED LEVELING BINDER (HAND METHOD), SUPERPAVE, of the Ndesign specified, POLYMERIZED LEVELING BINDER (MACHINE METHOD), SUPERPAVE, of the Ndesign specified, and POLYMERIZED BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition and Ndesign specified.

On full-depth pavement projects, this work will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE PAVEMENT, (FULL-DEPTH), SUPERPAVE, of the thickness specified.

On projects where widening is constructed and the entire pavement is then resurfaced, the binder for the widening will be paid for at the contract unit price per square meter (square yard) for BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, of the mixture composition, Ndesign, and thickness specified. The surface and binder used to resurface the entire pavement will be paid for according to the paragraphs above for resurfacing projects.

TEMPORARY CONCRETE BARRIER (BDE)
Effective: October 1, 2002 Revised: November 1, 2003

Revise Section 704 of the Standard Specifications to read:

"**SECTION 704. TEMPORARY CONCRETE BARRIER**

704.01 Description. This work shall consist of furnishing, placing, maintaining, relocating and removing precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer.

704.02 Materials. Materials shall meet the requirements of the following Articles of Section 1000 - Materials:

Item	Article/Section
(a) Portland Cement Concrete	1020
(b) Reinforcement Bars (Note 1)	1006.10(a)(b)
(c) Connecting Pins and Anchoring Pins	1006.09
(d) Connecting Loop Bars (Note 2)	
(e) Rapid Set Mortar (Note 3)	

Note 1. Reinforcement bars shall be Grade 400 (Grade 60).

Note 2. Connecting loop bars shall be smooth bars conforming to the requirements of ASTM A 36.

Note 3. Rapid set materials shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitous Materials for Concrete Repairs. For a

rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume or a packaged rapid set mortar shall be used. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

CONSTRUCTION REQUIREMENTS

704.03 General. Precast concrete barrier produced after October 1, 2002 shall meet National Cooperative Highway Research Program (NCHRP) Report 350, Category 3, Test Level 3 requirements and have the F shape. Precast concrete barrier shall be constructed according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products", applicable portions of Sections 504 and 1020, and to the details shown on the plans.

Precast units shall not be removed from the casting beds until a flexural strength of 2,000 kPa (300 psi) or a compressive strength of 10,000 kPa (1400 psi) is attained. When the concrete has attained a compressive strength according to Article 1020.04, and not prior to four days after casting, the units may be loaded, shipped and used.

704.04 Installation. F shape barrier units shall be seated on bare, clean pavement or paved shoulder and pinned together in a smooth, continuous line at the exact locations provided by the Engineer. The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six anchoring pins and protected with an impact attenuator as shown on the plans.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

704.05 New Jersey Shape Barrier. New Jersey shape barrier produced prior to October 1, 2002 according to earlier Department standards, may be used until January 1, 2008.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six dowel bars and protected with an impact attenuator as shown on the plans.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

704.06 Method of Measurement. Temporary concrete barrier will be measured for payment in meters (feet) in place along the centerline of the barrier. When temporary concrete barrier is relocated within the limits of the jobsite, the relocated barrier will be measured for payment in meters (feet) in place along the centerline of the barrier.

704.07 Basis of Payment. When the Contractor furnishes the barrier units, this work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER or RELOCATE TEMPORARY CONCRETE BARRIER.

When the Department furnishes the barrier units, this work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER, STATE OWNED or RELOCATE TEMPORARY CONCRETE BARRIER, STATE OWNED.

Impact attenuators will be paid for separately."

TRAFFIC BARRIER TERMINALS (BDE)
Effective: January 1, 2003

Revise Article 631.05 of the Standard Specifications to read:

"**631.05 Traffic Barrier Terminal, Type 5 and Type 5A.** The face of the guardrail shall be installed flush with the face of the bridge rail or parapet."

Revise Article 631.06 of the Standard Specifications to read:

"**631.06 Traffic Barrier Terminal, Type 6.** When attaching the end shoe to concrete constructed with forms and with a thickness of 300 mm (12 in.) or less, the holes may be formed, core drilled or an approved 20 mm (3/4 in.) cast-in-place insert may be used.

When attaching the end shoe to concrete constructed with forms and with a thickness greater than 300 mm (12 in.), an approved M20 (3/4 in.) bolt with an approved expansion device may be used in lieu of formed or core drilled holes.

When attaching the end shoe to concrete constructed by slipforming, the holes shall be core drilled.

The tapered, parapet, wood block out shall be used on all appurtenances with a sloped face.

When no bridge approach curb is present, Type B concrete curb shall be constructed as shown on the plans according to Section 606."

Revise Article 631.07 of the Standard Specifications to read:

"**631.07 Traffic Barrier Terminal, Type 6B.** Attachment of the end shoe to concrete shall be according to Article 631.06 except the tapered, parapet, wood block out will not be required."

Delete the third and fourth paragraphs of Article 631.11 of the Standard Specifications.

Add the following paragraph to the end of Article 631.11 of the Standard Specifications:

"Construction of the Type B concrete curb for TRAFFIC BARRIER TERMINAL, TYPE 6 will be paid for according to Article 606.14."

TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)
Effective: April 1, 1992 Revised: January 1, 2005

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

When the Engineer is notified, or determines a traffic control deficiency exists, he/she will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from 1/2 hour to 12 hours based upon the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge.

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

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

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

TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be 3. In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather then clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As

approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

TRUCK BED RELEASE AGENT (BDE)
Effective: April 1, 2004

Add the following sentence after the third sentence of the first paragraph of Article 406.14 of the Standard Specifications.

"In addition to the release agent, the Contractor may use a light scatter of manufactured sand (FA 20 or FA 21) evenly distributed over the bed of the vehicle."

WEIGHT CONTROL DEFICIENCY DEDUCTION
Effective: April 1, 2001 Revised: August 1, 2002

The Contractor shall provide accurate weights of materials delivered to the contract for incorporation into the work (whether temporary or permanent) and for which the basis of payment is by weight. These weights shall be documented on delivery tickets which shall identify the source of the material, type of material, the date and time the material was loaded, the contract number, the net weight, the tare weight when applicable and the identification of the transporting vehicle. For aggregates, the Contractor shall have the driver of the vehicle furnish or establish an acceptable alternative to provide the contract number and a copy of the material order to the source for each load. The source is defined as that facility that produces the final material product that is to be incorporated into the contract pay items.

The Department will conduct random, independent vehicle weight checks for material sources according to the procedures outlined in the Documentation Section Policy Statement of the Department's Construction Manual and hereby incorporated by reference. The results of the independent weight checks shall be applicable to all contracts containing this Special Provision. Should the vehicle weight check for a source result in the net weight of material on the vehicle exceeding the net weight of material shown on the delivery ticket by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. No adjustment in pay quantity will be made. Should the vehicle weight check for a source result in the net weight of material shown on the delivery ticket exceeding the net weight of material on the vehicle by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. The Engineer will adjust the net weight shown on the delivery ticket to the checked delivered net weight as determined by the independent vehicle weight check.

The Engineer will also adjust the method of measurement for all contracts for subsequent deliveries of all materials from the source based on the independent weight check. The net weight of all materials delivered to all contracts containing this Special Provision from this source, for which the basis of payment is by weight, will be adjusted by applying a correction factor "A" as determined by the following formula:

$$A = 1.0 - \left(\frac{B-C}{B}\right); \text{ Where } A \le 1.0; \left(\frac{B-C}{C}\right) > 0.50\% \text{ (0.70\% for aggregates)}$$

Where A = Adjustment factor
B = Net weight shown on delivery ticket
C = Net weight determined from independent weight check

The adjustment factor will be applied as follows:

Adjusted Net Weight = A x Delivery Ticket Net Weight

The adjustment factor will be imposed until the cause of the deficient weight is identified and corrected by the Contractor to the satisfaction of the Engineer. If the cause of the deficient

weight is not identified and corrected within seven (7) calendar days, the source shall cease delivery of all materials to all contracts containing this Special Provision for which the basis of payment is by weight.

Should the Contractor elect to challenge the results of the independent weight check, the Engineer will continue to document the weight of material for which the adjustment factor would be applied. However, provided the Contractor furnishes the Engineer with written documentation that the source scale has been calibrated within seven (7) calendar days after the date of the independent weight check, adjustments in the weight of material paid for will not be applied unless the scale calibration demonstrates that the source scale was not within the specified Department of Agriculture tolerance.

At the Contractor's option, the vehicle may be weighed on a second independent Department of Agriculture certified scale to verify the accuracy of the scale used for the independent weight check.

WORK ZONE PUBLIC INFORMATION SIGNS (BDE)

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

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

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

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

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

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

WORK ZONE SPEED LIMIT SIGNS (BDE)

Effective: April 2, 2004 Revised: April 15, 2004

Delete Article 702.05(c).

Revise Article 702.05(d) to read:

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

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

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

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

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: January 1, 2003 Revised: November 1, 2004

Add the following to Article 702.01 of the Standard Specifications:

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

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

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

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

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

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

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

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

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

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

Add the following to Article 702.03 of the Standard Specifications:

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

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

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

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

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

MAINTAINING POWER TO THE CTA SIGNAL BUILDING

Power and any other utility lines or appurtenances necessary for the operation of the CTA mass transit system shall be supported, protected and maintained throughout the entire length of the project. Coordination of this work shall be according to the special provision titled "CTA Coordination". The cost of this work shall be considered as included in the contract unit prices bid for Concrete Superstructures bid item, and no additional compensation will be allowed.

CTA COORDINATION

All work to be done by the Contractor on, over or in close proximity of the CTA (Chicago Transit Authority) right-of-way shall be performed in accordance with Article 107.12 of the Standard Specifications and the following additional CTA requirements.

1. <u>The CTA's Representative for this project will be:</u>

Mr. Marvin Watson,
General Manager, Construction
567 W. Lake Street
P. O. Box 7598
Chicago, IL 60680-7598
(312) 681-3860

2. Notification to CTA

A. After the letting of the contract and prior to performing any work, the CTA Representative shall be notified by the Department to attend the pre-construction meeting. In this meeting, the Contractor shall confer with the CTA's Representative regarding the CTA's requirements for the protection of CTA utilities clearances, operations, and safety.

B. Prior to the start of any work on or over the CTA's right-of-way, the Contractor shall meet with the CTA Representative to determine his requirements for flagmen and other necessary items related to the work activities on, over, and next to the CTA facilities and to receive CTA's approval for the Contractor's proposed operations.

C. The Contractor shall notify the CTA Representative 72-hours in advance of the time he intends to enter upon the CTA right-of-way for the performance of any work.

3. Protection of the CTA Traffic

A. The CTA will be operating mainline trains and performing rail yard operations 24 hours per day, seven days per week during the construction of this project.

B. The Contractor shall, at all times, take special care to conduct his operations over, under, adjacent to or adjoining the CTA facilities in such a manner as to prevent settlement, damage or displacement to any CTA structures, equipment, tracks or portions thereof and to prevent interruption of train service.

C. Any damage to the tracks, or other CTA facilities caused by the Contractor’s operations, shall be replaced or repaired by the CTA at the Contractor's expense.

4. Reimbursement of Costs:

A. All Contractors performing work on or near CTA property shall be required to provide a deposit, in advance, equal to the CTA's Construction Department's estimate. This estimated amount equals the anticipated amount of CTA services and includes, but is not limited to, Flagging charges, Inspector charges, and Maintenance charges. No Contractor will be permitted to work prior to submission of a deposit.

B. If the deposited amount is used up, prior to the completion of the project, the CTA will require an additional deposit to cover the anticipated work remaining. Any money unused at time of project completion will be returned to the Contractor within 30 days.

C. All checks must be made payable to Chicago Transit Authority and be submitted, with a copy of the estimate, to the CTA Treasury Department, 567 West Lake Street, P.O. Box 7565, 7th Floor, Chicago, IL 60680-7565.

D. The Department will not be liable for any delays by the CTA in providing flagmen or other services required by this Special Provision.

5. Whenever any work, such as temporary shoring and erection procedures for spans over the CTA track, in the opinion of the CTA's inspector, may affect the safety of the trains and the continuity of the CTA's operations, the methods of performing such work shall first be submitted to the CTA for approval. If operations by the Contractor during construction are determined by the CTA's inspector to be hazardous to the CTA's operations, the Contractor shall suspend such work until reasonable remedial measures, and/or alternate methods, satisfactory of the CTA, are taken. Such remedial measures may include obtaining the services of the CTA personnel so that adequate protection may be provided.

6. CTA Operating Restrictions:

Operating requirements of the CTA, while work on this project is in progress, are as follows:

A. When the construction work is performed adjacent to an active track and the work does not involve the track or the third rail, the Contractor can provide (and the right-of-way allows for) an uninterrupted physical barrier (fence) at least 6 feet high (above track or platform level) to separate the work area from operating track(s). With the barrier in place, work at track level may be permitted at any time without CTA flagman and Slow Zone protection.

Such temporary barriers shall be installed as far from the operating track(s) as possible, but no closer than 7'-2" from the centerline of the nearest operating track. The materials, location, construction, and installation of the temporary barrier and the work procedures in the vicinity of the barrier must all be approved 48 hours in advance by the CTA Representative. Any construction work involving a crane lifting material higher than the barrier wall will still require CTA flagging protection.

B. Work that is adjacent to or over the CTA operating tracks without a barrier in place requires CTA flagmen. Work is to be done during the following hours:

- Monday through Friday – 9:00 a.m. to 3:00 p.m.
  (Based on one slow zone allowed in each direction per line)
- Monday through Saturday, inclusive - 8:00 p.m. to 4:00 a.m.
- Sunday - 12:00 a.m. to Monday 4:00 a.m.

C. Work within the clearance envelope may require a single track operation and hours and length of single track will be determined by CTA rail operations (see paragraph 13 for clearance envelope).

D. As much work as possible is to be done under normal CTA operating conditions (under traffic) without disruption of train movements.

E. In order to request a single track (taking one track out of service), the Contractor, through the Resident Engineer, shall notify the CTA Representative forty-two (42) calendar days in advance of the proposed interruption.

F. Interruptions will be provided solely at the CTA's discretion, depending upon the transit service demands for special events and possible conflicts with prior commitments to other work scheduled on the same route.

G. No more than one service interruption will be allowed simultaneously on this CTA line.

H. If the Contractor is unable to return the CTA track to normal operation on time, after the interruption, liquidated damages of at least $100.00 per minute of delay shall be paid directly to the CTA by the Contractor. Liquidated damages paid by the Contractor will not be reimbursed.

7. Pedestrian traffic to the CTA facilities shall be maintained at all times.

8. A notice of at least seventy-two (72) hours shall be given to the CTA prior to any beam removal or replacement, which will cause interruption to the CTA facilities and service.

9. Simultaneous work on two piers that will require flagmen and affect the train operation shall not be allowed. Work, which will require flagmen, shall be limited to only **one side of the track at a time**.

10. CTA shall have access to all storage tracks and unrestricted train operation over special holidays such as "July 4" and events such as the "Taste of Chicago". Dates for the above and other special holidays and events such as conventions, auto shows, World Series, etc., will be given to the Department as soon as they are available.

11. The Contractor will be required to take all precautions to avoid debris, concrete, and other materials falling over and/or on the tracks.

12. Other Special Conditions:

A. The Contractor shall caution all employees of the presence of electric third rail (600 volts DC), live cables, and moving trains on CTA tracks. The Contractor shall take all necessary precautions to prevent damage to life or property through contact with the electrical or operations systems. The Contractor shall caution all employees that any contact with live electric third rail or "live" portions of train undercarriage may result in a severe burn or death.

B. The Contractor shall establish third-rail safety precautions in accordance with Authority regulations, such as, using insulating hoods or covers for live third rail or cables adjacent to the work. The Authority will provide CTA-qualified personnel to the Contractor as Contact Personnel. Unless otherwise noted, only CTA personnel are allowed to disconnect power.

C. Safety Training: All employees of the Contractor or his Subcontractors who are required to work upon or adjacent to the CTA's operating tracks shall be required to attend and provide evidence of completion of a right-of-way safety training course administered by CTA.

D. Arrangements for the safety training course shall be the Contractor's responsibility. Contact the CTA Representative to arrange for the safety course.

E. The cost of the course is $150.00 per person, payable to the CTA prior to taking the course. The cost of this course and the employee's time for the course shall be considered incidental to the cost of the contract. The course is one day long from 8:00 a.m. to 4:00 p.m.

F. The Contractor his Subcontractors and all of his employees who are required to work on or around the CTA's operating tracks shall wear a CTA type safety vest.

13. CTA Transit Clearances:

The Contractor shall perform his work in a manner that provides adequate clearance to the CTA tracks. The clearances shall not be less than the following for safe passage of trains.

7'-2" horizontal to the centerline of the nearest track in yard and right-of-way.

14'-6" vertical from the top of the high running rail.

START OF WORK

The Contractor will not be allowed to proceed with any construction operations on the pavement that involves permanent lane closures, or the complete closure of the structure carrying Nagle Avenue over I-90, or to otherwise interfere with traffic as determined by the Engineer, prior to May 1, 2005. Temporary lane closures will be permitted prior to May 1, 2005 in accordance with hours listed in the special provision titled “Keeping the Expressway Open to Traffic”. The Engineer’s written approval shall be obtained by the Contractor before proceeding with any work on this project, prior to the above stipulated date.

STEEL COST ADJUSTMENT (BDE)

Effective: April 2, 2004 Revised: July 1, 2004

Description. At the bidder’s option, a steel cost adjustment will be made to provide additional compensation to the Contractor or a credit to the Department for fluctuations in steel prices. The bidder must indicate on the attached form whether or not steel cost adjustments will be part of this contract. This attached form shall be submitted with the bid. Failure to submit the form shall make this contract exempt of steel cost adjustments.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

Metal Piling (excluding temporary sheet piling)
Structural Steel
Reinforcing Steel

Other steel materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), frames and grates, and other miscellaneous items will be subject to a steel cost adjustment when the pay item they are used in has a contract value of $10,000 or greater.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

(a) Evidence that increased or decreased steel costs have been passed on to the Contractor.

(b) The dates and quantity of steel, in kg (lb), shipped from the mill to the fabricator.

(c) The quantity of steel, in kg (lb), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

SCA = Q X D

Where: SCA = steel cost adjustment, in dollars
Q = quantity of steel incorporated into the work, in kg (lb)
D = price factor, in dollars per kg (lb)

$D = CBP_M - CBP_L$

Where: CBP_M = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the American Metal Market (AMM) for the day the steel is shipped from the mill. The indices will be converted from dollars per ton to dollars per kg (lb).

CBP_L = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the AMM for the day the contract is let. The indices will be converted from dollars per ton to dollars per kg (lb).

The unit masses (weights) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the CBP_M will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the CBP_L and CBP_M in excess of five percent, as calculated by:

Percent Difference = $\{(CBP_L - CBP_M) \div CBP_L\} \times 100$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the steel items are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

Attachment

Item	Unit Mass (Weight)
Metal Piling (excluding temporary sheet piling)	
Furnishing Metal Pile Shells 305 mm (12 in.), 3.80 mm (0.179 in.) wall thickness)	34 kg/m (23 lb/ft)
Furnishing Metal Pile Shells 305 mm (12 in.), 6.35 mm (0.250 in.) wall thickness)	48 kg/m (32 lb/ft)
Furnishing Metal Pile Shells 356 mm (14 in.), 6.35 mm (0.250 in.) wall thickness)	55 kg/m (37 lb/ft)
Other piling	See plans
Structural Steel	See plans for weights
Reinforcing Steel	See plans for weights
Dowel Bars and Tie Bars	3 kg (6 lb) each
Mesh Reinforcement	310 kg/sq m (63 lb/100 sq ft)
Guardrail	
Steel Plate Beam Guardrail, Type A w/steel posts	30 kg/m (20 lb/ft)
Steel Plate Beam Guardrail, Type B w/steel posts	45 kg/m (30 lb/ft)
Steel Plate Beam Guardrail, Types A and B w/wood posts	12 kg/m (8 lb/ft)
Steel Plate Beam Guardrail, Type 2	140 kg (305 lb) each
Steel Plate Beam Guardrail, Type 6	570 kg (1260 lb) each
Traffic Barrier Terminal, Type 1 Special (Tangent)	330 kg (730 lb) each
Traffic Barrier Terminal, Type 1 Special (Flared)	185 kg (410 lb) each
Steel Traffic Signal and Light Poles, Towers and Mast Arms	
Traffic Signal Post	16 kg/m (11 lb/ft)
Light Pole, Tenon Mount and Twin Mount, 9 m – 12 m (30 - 40 ft)	21 kg/m (14 lb/ft)
Light Pole, Tenon Mount and Twin Mount, 13.5 m – 16.5 m (45 - 55 ft)	31 kg/m (21 lb/ft)
Light Pole w/Mast Arm, 9 m – 15.2 m (30 - 50 ft)	19 kg/m (13 lb/ft)
Light Pole w/Mast Arm, 16.5 m – 18 m (55 - 60 ft)	28 kg/m (19 lb/ft)
Light Tower w/Luminaire Mount, 24 m – 33.5 m (80 - 110 ft)	46 kg/m (31 lb/ft)
Light Tower w/Luminaire Mount, 36.5 m – 42.5 m (120 - 140 ft)	97 kg/m (65 lb/ft)
Light Tower w/Luminaire Mount, 45.5 m – 48.5 m (150 - 160 ft)	119 kg/m (80 lb/ft)
Metal Railings (excluding wire fence)	
Steel Railing, Type SM	95 kg/m (64 lb/ft)
Steel Railing, Type S-1	58 kg/m (39 lb/ft)
Steel Railing, Type T-1	79 kg/m (53 lb/ft)
Steel Bridge Rail	77 kg/m (52 lb/ft)
Frames and Grates	
Frame	115 kg (250 lb)
Lids and Grates	70 kg (150 lb)

RETURN WITH BID

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR STEEL COST ADJUSTMENT

The bidder shall submit this form with his/her bid. Failure to submit the form shall make this contract exempt of steel cost adjustments. After award, this form, when submitted shall become part of the contract.

Contract No.: _____

Company Name:_____

Contractor's Option:

Is your company opting to include this special provision as part of the contract plans?

Yes ☐ No ☐

Signature: _____ **Date:** _____

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

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 the submission of copies of payrolls by all suncontractors.

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 he 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 form the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract.

Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S. C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification,

distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more).

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an 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

NOTICE

The most current **General Wage Determination Decisions** (wage rates) are available on the IDOT web site. They are located on the Letting and Bidding page at http://www.dot.il.gov/desenv/delett.html.

In addition, ten (10) days prior to the letting, the applicable Federal wage rates will be e-mailed to subscribers. It is recommended that all contractors subscribe to the Federal Wage Rates List or the Contractor's Packet through IDOT's subscription service.

PLEASE NOTE: if you have already subscribed to the Contractor's Packet you will automatically receive the Federal Wage Rates.

The instructions for subscribing are at http://www.dot.il.gov/desenv/subsc.html.

If you have any questions concerning the wage rates, please contact IDOT's Chief Contract Official at 217-782-7806.